

# Ray\_vs\_no\_ray

September 20, 2024

```
[ ]: !pip install faker flwr  
!pip install faker  
!pip show faker
```

```
[ ]: !pip install ray
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipkernel.py:283:  
DeprecationWarning: `should_run_async` will not call `transform_cell`  
automatically in the future. Please pass the result to `transformed_cell`  
argument and any exception that happen during thetransform in  
`preprocessing_exc_tuple` in IPython 7.17 and above.  
    and should_run_async(code)
```

Collecting ray

```
  Downloading ray-2.36.0-cp310-cp310-manylinux2014_x86_64.whl.metadata (16 kB)  
Requirement already satisfied: click>=7.0 in /usr/local/lib/python3.10/dist-  
packages (from ray) (8.1.7)  
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-  
packages (from ray) (3.16.0)  
Requirement already satisfied: jsonschema in /usr/local/lib/python3.10/dist-  
packages (from ray) (4.23.0)  
Requirement already satisfied: msgpack<2.0.0,>=1.0.0 in  
/usr/local/lib/python3.10/dist-packages (from ray) (1.0.8)  
Requirement already satisfied: packaging in /usr/local/lib/python3.10/dist-  
packages (from ray) (24.1)  
Requirement already satisfied: protobuf!=3.19.5,>=3.15.3 in  
/usr/local/lib/python3.10/dist-packages (from ray) (4.25.5)  
Requirement already satisfied: pyyaml in /usr/local/lib/python3.10/dist-packages  
(from ray) (6.0.2)  
Requirement already satisfied: aiosignal in /usr/local/lib/python3.10/dist-  
packages (from ray) (1.3.1)  
Requirement already satisfied: frozenlist in /usr/local/lib/python3.10/dist-  
packages (from ray) (1.4.1)  
Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-  
packages (from ray) (2.32.3)  
Requirement already satisfied: attrs>=22.2.0 in /usr/local/lib/python3.10/dist-  
packages (from jsonschema->ray) (24.2.0)  
Requirement already satisfied: jsonschema-specifications>=2023.03.6 in  
/usr/local/lib/python3.10/dist-packages (from jsonschema->ray) (2023.12.1)
```

```

Requirement already satisfied: referencing>=0.28.4 in
/usr/local/lib/python3.10/dist-packages (from jsonschema->ray) (0.35.1)
Requirement already satisfied: rpds-py>=0.7.1 in /usr/local/lib/python3.10/dist-
packages (from jsonschema->ray) (0.20.0)
Requirement already satisfied: charset-normalizer<4,>=2 in
/usr/local/lib/python3.10/dist-packages (from requests->ray) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-
packages (from requests->ray) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/usr/local/lib/python3.10/dist-packages (from requests->ray) (2.0.7)
Requirement already satisfied: certifi>=2017.4.17 in
/usr/local/lib/python3.10/dist-packages (from requests->ray) (2024.8.30)
Downloading ray-2.36.0-cp310-cp310-manylinux2014_x86_64.whl (65.4 MB)
65.4/65.4 MB
12.5 MB/s eta 0:00:00
Installing collected packages: ray
Successfully installed ray-2.36.0

```

```
[ ]: !pip install -U "flwr[simulation]"
```

```

Requirement already satisfied: flwr[simulation] in
/usr/local/lib/python3.10/dist-packages (1.11.1)
Requirement already satisfied: cryptography<43.0.0,>=42.0.4 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (42.0.8)
Requirement already satisfied:
grpcio!=1.64.2,!1.65.1,!1.65.2,!1.65.4,<2.0.0,>=1.60.0 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (1.64.1)
Requirement already satisfied: iterators<0.0.3,>=0.0.2 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (0.0.2)
Requirement already satisfied: numpy<2.0.0,>=1.21.0 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (1.26.4)
Requirement already satisfied: pathspec<0.13.0,>=0.12.1 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (0.12.1)
Requirement already satisfied: protobuf<5.0.0,>=4.25.2 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (4.25.5)
Requirement already satisfied: pycryptodome<4.0.0,>=3.18.0 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (3.20.0)
Requirement already satisfied: tomli<3.0.0,>=2.0.1 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (2.0.1)
Requirement already satisfied: tomli-w<2.0.0,>=1.0.0 in
/usr/local/lib/python3.10/dist-packages (from flwr[simulation]) (1.0.0)
Requirement already satisfied: typer<0.10.0,>=0.9.0 in
/usr/local/lib/python3.10/dist-packages (from
typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (0.9.4)
Collecting ray==2.10.0 (from flwr[simulation])
  Downloading ray-2.10.0-cp310-cp310-manylinux2014_x86_64.whl.metadata (13 kB)
Requirement already satisfied: click>=7.0 in /usr/local/lib/python3.10/dist-
packages (from ray==2.10.0->flwr[simulation]) (8.1.7)

```

Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (3.16.0)

Requirement already satisfied: jsonschema in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (4.23.0)

Requirement already satisfied: msgpack<2.0.0,>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (1.0.8)

Requirement already satisfied: packaging in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (24.1)

Requirement already satisfied: pyyaml in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (6.0.2)

Requirement already satisfied: aiosignal in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (1.3.1)

Requirement already satisfied: frozenlist in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (1.4.1)

Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from ray==2.10.0->flwr[simulation]) (2.32.3)

Requirement already satisfied: cffi>=1.12 in /usr/local/lib/python3.10/dist-packages (from cryptography<43.0.0,>=42.0.4->flwr[simulation]) (1.17.1)

Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.10/dist-packages (from typer<0.10.0,>=0.9.0->typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (4.12.2)

Requirement already satisfied: colorama<0.5.0,>=0.4.3 in /usr/local/lib/python3.10/dist-packages (from typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (0.4.6)

Requirement already satisfied: shellingham<2.0.0,>=1.3.0 in /usr/local/lib/python3.10/dist-packages (from typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (1.5.4)

Requirement already satisfied: rich<14.0.0,>=10.11.0 in /usr/local/lib/python3.10/dist-packages (from typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (13.8.1)

Requirement already satisfied: pycparser in /usr/local/lib/python3.10/dist-packages (from cffi>=1.12->cryptography<43.0.0,>=42.0.4->flwr[simulation]) (2.22)

Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python3.10/dist-packages (from rich<14.0.0,>=10.11.0->typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (3.0.0)

Requirement already satisfied: pygments<3.0.0,>=2.13.0 in /usr/local/lib/python3.10/dist-packages (from rich<14.0.0,>=10.11.0->typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (2.18.0)

Requirement already satisfied: attrs>=22.2.0 in /usr/local/lib/python3.10/dist-packages (from jsonschema->ray==2.10.0->flwr[simulation]) (24.2.0)

Requirement already satisfied: jsonschema-specifications>=2023.03.6 in /usr/local/lib/python3.10/dist-packages (from jsonschema->ray==2.10.0->flwr[simulation]) (2023.12.1)

Requirement already satisfied: referencing>=0.28.4 in /usr/local/lib/python3.10/dist-packages (from jsonschema->ray==2.10.0->flwr[simulation]) (0.35.1)

Requirement already satisfied: rpds-py>=0.7.1 in /usr/local/lib/python3.10/dist-packages (from jsonschema->ray==2.10.0->flwr[simulation]) (0.20.0)

Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests->ray==2.10.0->flwr[simulation]) (3.3.2)

Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests->ray==2.10.0->flwr[simulation]) (3.10)

Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests->ray==2.10.0->flwr[simulation]) (2.0.7)

Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests->ray==2.10.0->flwr[simulation]) (2024.8.30)

Requirement already satisfied: mdurl~=0.1 in /usr/local/lib/python3.10/dist-packages (from markdown-it-py>=2.2.0->rich<14.0.0,>=10.11.0->typer[all]<0.10.0,>=0.9.0->flwr[simulation]) (0.1.2)

Downloading ray-2.10.0-cp310-cp310-manylinux2014\_x86\_64.whl (65.1 MB)

65.1/65.1 MB

10.2 MB/s eta 0:00:00

Installing collected packages: ray

  Attempting uninstall: ray

    Found existing installation: ray 2.36.0

    Uninstalling ray-2.36.0:

      Successfully uninstalled ray-2.36.0

Successfully installed ray-2.10.0

## 1 FL comparison using Faker

```
[31]: import flwr as fl
import time
import torch
import torch.nn as nn
import torch.optim as optim
import numpy as np
import pandas as pd
import random
from faker import Faker
from sklearn.preprocessing import StandardScaler, LabelEncoder
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score
import ray

# Configuration
NUM_CLIENTS = 50
NUM_ROUNDS = 10
BATCH_SIZE = 32
```

```

INPUT_SIZE = 7 # Adjusted based on Faker dataset features
NUM_CLASSES = 2
EPOCHS = 1
LR = 0.01

# Initialize Faker
fake = Faker()

# Generate synthetic credit card transaction data using Faker
def generate_credit_card_data(num_records, fraud_percentage=0.01):
    data = {
        "Transaction Amount": [round(random.uniform(1, 1000), 2) for _ in
↪range(num_records)],
        "Transaction Type": [random.choice(["POS", "Online", "Direct Debit"])
↪for _ in range(num_records)],
        "Account Balance": [round(random.uniform(0, 100000), 2) for _ in
↪range(num_records)],
        "Customer Age": [random.randint(18, 90) for _ in range(num_records)],
        "Customer Gender": [random.choice(["Male", "Female"]) for _ in
↪range(num_records)],
        "Is Fraud": [1 if random.random() < fraud_percentage else 0 for _ in
↪range(num_records)]
    }
    return pd.DataFrame(data)

# Check how many features your data has after preprocessing
def preprocess_data(df):
    le_transaction_type = LabelEncoder()
    le_customer_gender = LabelEncoder()

    df["Transaction Type"] = le_transaction_type.fit_transform(df["Transaction_
↪Type"])
    df["Customer Gender"] = le_customer_gender.fit_transform(df["Customer_
↪Gender"])

    scaler = StandardScaler()
    df[["Transaction Amount", "Account Balance", "Customer Age"]] = scaler.
↪fit_transform(
        df[["Transaction Amount", "Account Balance", "Customer Age"]]
    )

    # Verify the number of features
    X = df.drop(columns=["Is Fraud"]) # Make sure this has 5 features
    y = df["Is Fraud"]
    print(f"Number of features: {X.shape[1]}") # This should print 5 to match_
↪INPUT_SIZE

```

```

    return X.to_numpy(), y.to_numpy()

# Define the model (unchanged)
# Update the input size based on the actual number of features in the
↳preprocessed data
INPUT_SIZE = 5 # This should reflect the actual number of features in your
↳dataset after preprocessing

# Define the model
class FraudNet(nn.Module):
    def __init__(self, input_size=INPUT_SIZE, num_classes=NUM_CLASSES):
        super(FraudNet, self).__init__()
        self.fc1 = nn.Linear(input_size, 64) # Adjusted based on the actual
↳input size
        self.fc2 = nn.Linear(64, 32)
        self.fc3 = nn.Linear(32, num_classes)

    def forward(self, x):
        x = torch.relu(self.fc1(x))
        x = torch.relu(self.fc2(x))
        return self.fc3(x)

# Training function
def train(model, train_data, optimizer, criterion, epochs=EPOCHS):
    model.train()
    X_train, y_train = train_data
    X_train = torch.tensor(X_train, dtype=torch.float32)
    y_train = torch.tensor(y_train, dtype=torch.long)
    for _ in range(epochs):
        optimizer.zero_grad()
        outputs = model(X_train)
        loss = criterion(outputs, y_train)
        loss.backward()
        optimizer.step()

# Evaluation function
def evaluate(model, test_data):
    model.eval()
    X_test, y_test = test_data
    X_test = torch.tensor(X_test, dtype=torch.float32)
    y_test = torch.tensor(y_test, dtype=torch.long)
    with torch.no_grad():
        outputs = model(X_test)
        _, predicted = torch.max(outputs, 1)

```

```

        acc = accuracy_score(y_test.numpy(), predicted.numpy())
    return acc

# Define a Flower client
class CreditCardClient(fl.client.NumPyClient):
    def __init__(self, model, train_data, test_data):
        self.model = model
        self.train_data = train_data
        self.test_data = test_data

    def get_parameters(self, config=None):
        return [val.cpu().numpy() for _, val in self.model.state_dict().items()]

    def set_parameters(self, parameters):
        params_dict = zip(self.model.state_dict().keys(), parameters)
        state_dict = {k: torch.tensor(v) for k, v in params_dict}
        self.model.load_state_dict(state_dict, strict=True)

    def fit(self, parameters, config):
        self.set_parameters(parameters)
        optimizer = optim.SGD(self.model.parameters(), lr=LR)
        criterion = nn.CrossEntropyLoss()
        train(self.model, self.train_data, optimizer, criterion)
        return self.get_parameters(), len(self.train_data[0]), {}

    def evaluate(self, parameters, config):
        self.set_parameters(parameters)
        accuracy = evaluate(self.model, self.test_data)
        return float(0), len(self.test_data[0]), {"accuracy": accuracy}

# Function to run federated learning simulation without Ray
def run_federated_simulation(num_clients=NUM_CLIENTS, use_ray=False):
    # Generate Faker-based synthetic data
    df = generate_credit_card_data(num_records=10000, fraud_percentage=0.01)
    X, y = preprocess_data(df)

    X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
    ↪ random_state=42)

    # Split data among clients
    def split_data(X, y, num_clients):
        X_splits = np.array_split(X, num_clients)
        y_splits = np.array_split(y, num_clients)
        return list(zip(X_splits, y_splits))

    client_data = split_data(X_train, y_train, num_clients)

```

```

# Updated client_fn to handle cid as string and convert it to integer
def client_fn(cid):
    model = FraudNet()

    # Convert the string 'cid' to an integer
    client_id = int(cid) # Flower provides 'cid' as a string
    train_data = client_data[client_id] # Access the correct portion of
    ↪data using the integer client_id
    test_data = (X_test, y_test)

    return CreditCardClient(model, train_data, test_data).to_client()

strategy = fl.server.strategy.FedAvg(min_fit_clients=num_clients,
    ↪min_available_clients=num_clients)

if use_ray:
    ray.init(ignore_reinit_error=True)
    start_time = time.time()
    fl.simulation.start_simulation(client_fn=client_fn,
    ↪num_clients=num_clients, config=fl.server.
    ↪ServerConfig(num_rounds=NUM_ROUNDS), ray_init_args={"ignore_reinit_error":
    ↪True})
    ray.shutdown()
else:
    start_time = time.time()
    fl.simulation.start_simulation(client_fn=client_fn,
    ↪num_clients=num_clients, config=fl.server.
    ↪ServerConfig(num_rounds=NUM_ROUNDS))

end_time = time.time()
execution_time = end_time - start_time
print(f"Execution time {'with Ray' if use_ray else 'without Ray'}:
    ↪{execution_time:.2f} seconds")
return execution_time

# Compare execution with and without Ray
def compare_ray_vs_no_ray():
    print("Running Federated Learning without Ray...")
    exec_time_without_ray = run_federated_simulation(use_ray=False)

    print("\nRunning Federated Learning with Ray...")
    exec_time_with_ray = run_federated_simulation(use_ray=True)

    print("\n--- Comparison ---")
    print(f"Execution time without Ray: {exec_time_without_ray:.2f} seconds")
    print(f"Execution time with Ray: {exec_time_with_ray:.2f} seconds")

```



```
print(f"Speedup with Ray: {exec_time_without_ray / exec_time_with_ray:.
↪2f}x")
```

```
if __name__ == "__main__":
    compare_ray_vs_no_ray()
```

```
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
```

```
Running Federated Learning without Ray...
```

```
Number of features: 5
```

```
/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
```

```
self.pid = _posixsubprocess.fork_exec(
```

```
2024-09-20 11:25:04,958 INFO worker.py:1752 -- Started a local Ray instance.
```

```
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7981119899.0, 'object_store_memory': 3990559948.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
```

```
INFO :      Optimize your simulation with Flower VCE:
```

```
https://flower.ai/docs/framework/how-to-run-simulations.html
```

```
INFO :      No `client_resources` specified. Using minimal resources
for clients.
```

```
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
```

```
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
```

```
INFO :      [INIT]
```

```
INFO :      Requesting initial parameters from one random client
```

```
INFO :      Received initial parameters from one random client
```

```
INFO :      Starting evaluation of initial global parameters
```

```
INFO :      Evaluation returned no results (`None`)
```

```
INFO :
```

```
INFO :      [ROUND 1]
```

```
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
```

```
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=81483)
```

```
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=81483)
```

```
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.

```

```

(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)

```

```

(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483) entirely in future versions of
Flower.

```



```

(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)

```

```

(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)      entirely in future versions of
Flower.
(ClientAppActor pid=81483)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=81483)
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=81483)           entirely in future versions of
Flower.
(ClientAppActor pid=81483)
INFO :      aggregate_fit: received 50 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=81482) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=81482)           [repeated 4x across
cluster]
(ClientAppActor pid=81482)           This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=81482)           entirely in future versions of
Flower. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 50 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=81483) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 111x

across cluster]
(ClientAppActor pid=81483)           [repeated 222x across
cluster]
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed [repeated 111x across cluster]
(ClientAppActor pid=81483)           entirely in future versions of
Flower. [repeated 111x across cluster]
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)

```

```

INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 137x

across cluster]
(ClientAppActor pid=81483)           [repeated 274x across

cluster]
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed [repeated 137x across cluster]
(ClientAppActor pid=81483)           entirely in future versions of
Flower. [repeated 137x across cluster]
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 182x

across cluster]
(ClientAppActor pid=81483)           [repeated 364x across

cluster]
(ClientAppActor pid=81483)           This is a deprecated feature. It
will be removed [repeated 182x across cluster]
(ClientAppActor pid=81483)           entirely in future versions of
Flower. [repeated 182x across cluster]
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=81483) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 142x

across cluster]
(ClientAppActor pid=81483) [repeated 284x across

cluster]
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed [repeated 142x across cluster]
(ClientAppActor pid=81483) entirely in future versions of
Flower. [repeated 142x across cluster]
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 133x

across cluster]
(ClientAppActor pid=81483) [repeated 266x across

cluster]
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed [repeated 133x across cluster]
(ClientAppActor pid=81483) entirely in future versions of
Flower. [repeated 133x across cluster]
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=81483) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 183x

across cluster]

```

```

(ClientAppActor pid=81483) [repeated 366x across
cluster]
(ClientAppActor pid=81483) This is a deprecated feature. It
will be removed [repeated 183x across cluster]
(ClientAppActor pid=81483) entirely in future versions of
Flower. [repeated 183x across cluster]
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 37.07s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
2024-09-20 11:25:56,932 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=81482) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 61x
across cluster]
(ClientAppActor pid=81482) [repeated 122x across
cluster]
(ClientAppActor pid=81482) This is a deprecated feature. It
will be removed [repeated 61x across cluster]
(ClientAppActor pid=81482) entirely in future versions of
Flower. [repeated 61x across cluster]

Execution time without Ray: 57.48 seconds

Running Federated Learning with Ray...
Number of features: 5

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so

```



this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 11:26:03,745 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'object_store_memory': 3990430924.0, 'memory': 7980861851.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
```



```

will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)

```

```

(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.

```

```

Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093) entirely in future versions of
Flower.
(ClientAppActor pid=82093)

```



```

(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.

```

```

Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=82093)
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=82093)           entirely in future versions of
Flower.
(ClientAppActor pid=82093)
INFO :      aggregate_fit: received 50 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=82093) [repeated 6x across
cluster]
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed [repeated 3x across cluster]
(ClientAppActor pid=82093) entirely in future versions of
Flower. [repeated 3x across cluster]
INFO : aggregate_evaluate: received 50 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 180x
across cluster]
(ClientAppActor pid=82093) [repeated 360x across
cluster]
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed [repeated 180x across cluster]
(ClientAppActor pid=82093) entirely in future versions of
Flower. [repeated 180x across cluster]
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 105x
across cluster]
(ClientAppActor pid=82093) [repeated 210x across
cluster]
(ClientAppActor pid=82093) This is a deprecated feature. It

```

```

will be removed [repeated 105x across cluster]
(ClientAppActor pid=82093) entirely in future versions of
Flower. [repeated 105x across cluster]
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 149x
across cluster]
(ClientAppActor pid=82093) [repeated 298x across
cluster]
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed [repeated 149x across cluster]
(ClientAppActor pid=82093) entirely in future versions of
Flower. [repeated 149x across cluster]
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 180x
across cluster]
(ClientAppActor pid=82093) [repeated 360x across
cluster]
(ClientAppActor pid=82093) This is a deprecated feature. It
will be removed [repeated 180x across cluster]
(ClientAppActor pid=82093) entirely in future versions of
Flower. [repeated 180x across cluster]

```

```

INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 133x

across cluster]
(ClientAppActor pid=82093)           [repeated 266x across

cluster]
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed [repeated 133x across cluster]
(ClientAppActor pid=82093)           entirely in future versions of
Flower. [repeated 133x across cluster]
(ClientAppActor pid=82092) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a
(ClientAppActor pid=82092) signature `def client_fn(context:
Context)`. The provided `client_fn` has signature: {'cid': <Parameter "cid">}.
You can import the `Context` like this: `from flwr.common import Context`
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=82093) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 146x

across cluster]
(ClientAppActor pid=82093)           [repeated 294x across

cluster]
(ClientAppActor pid=82093)           This is a deprecated feature. It
will be removed [repeated 147x across cluster]
(ClientAppActor pid=82093)           entirely in future versions of
Flower. [repeated 147x across cluster]
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)

```

```

INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 37.53s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=82092) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 54x

across cluster]
(ClientAppActor pid=82092)          [repeated 108x across
cluster]
(ClientAppActor pid=82092)          This is a deprecated feature. It
will be removed [repeated 54x across cluster]
(ClientAppActor pid=82092)          entirely in future versions of
Flower. [repeated 54x across cluster]

Execution time with Ray: 59.46 seconds

--- Comparison ---
Execution time without Ray: 57.48 seconds
Execution time with Ray: 59.46 seconds
Speedup with Ray: 0.97x

```

## 2 FL comparison using Synthetic dummy data

(to test for more number of clients)

```

[ ]: # Configuration
NUM_CLIENTS = 50
NUM_ROUNDS = 10
BATCH_SIZE = 32
INPUT_SIZE = 30
NUM_CLASSES = 2
EPOCHS = 1

```

```

LR = 0.01

# Create synthetic credit card fraud data for demonstration purposes
def create_credit_card_data(n_samples=10000):
    X, y = make_classification(
        n_samples=n_samples, n_features=INPUT_SIZE, n_informative=20,
        n_classes=NUM_CLASSES, random_state=42, weights=[0.99, 0.01] #
    )
    scaler = StandardScaler()
    X = scaler.fit_transform(X)
    return X, y

# Split data for clients
def split_data(X, y, num_clients=NUM_CLIENTS):
    client_data = []
    X_split = np.array_split(X, num_clients)
    y_split = np.array_split(y, num_clients)
    for Xc, yc in zip(X_split, y_split):
        client_data.append((Xc, yc))
    return client_data

# Define the model
class FraudNet(nn.Module):
    def __init__(self, input_size=INPUT_SIZE, num_classes=NUM_CLASSES):
        super(FraudNet, self).__init__()
        self.fc1 = nn.Linear(input_size, 64)
        self.fc2 = nn.Linear(64, 32)
        self.fc3 = nn.Linear(32, num_classes)

    def forward(self, x):
        x = torch.relu(self.fc1(x))
        x = torch.relu(self.fc2(x))
        return self.fc3(x)

# Training function
def train(model, train_data, optimizer, criterion, epochs=EPOCHS):
    model.train()
    X_train, y_train = train_data
    X_train = torch.tensor(X_train, dtype=torch.float32)
    y_train = torch.tensor(y_train, dtype=torch.long)
    for _ in range(epochs):
        optimizer.zero_grad()
        outputs = model(X_train)
        loss = criterion(outputs, y_train)
        loss.backward()
        optimizer.step()

```

```

# Evaluation function
def evaluate(model, test_data):
    model.eval()
    X_test, y_test = test_data
    X_test = torch.tensor(X_test, dtype=torch.float32)
    y_test = torch.tensor(y_test, dtype=torch.long)
    with torch.no_grad():
        outputs = model(X_test)
        _, predicted = torch.max(outputs, 1)
        acc = accuracy_score(y_test, predicted.numpy())
    return acc

# Define a Flower client
class CreditCardClient(fl.client.NumPyClient):
    def __init__(self, model, train_data, test_data):
        self.model = model
        self.train_data = train_data
        self.test_data = test_data

    def get_parameters(self, config=None): # Add config parameter with a
    ↪ default value of None.
        return [val.cpu().numpy() for _, val in self.model.state_dict().items()]

    def set_parameters(self, parameters):
        params_dict = zip(self.model.state_dict().keys(), parameters)
        state_dict = {k: torch.tensor(v) for k, v in params_dict}
        self.model.load_state_dict(state_dict, strict=True)

    def fit(self, parameters, config):
        self.set_parameters(parameters)
        optimizer = optim.SGD(self.model.parameters(), lr=LR)
        criterion = nn.CrossEntropyLoss()
        train(self.model, self.train_data, optimizer, criterion)
        return self.get_parameters(), len(self.train_data[0]), {}

    def evaluate(self, parameters, config):
        self.set_parameters(parameters)
        accuracy = evaluate(self.model, self.test_data)
        return float(0), len(self.test_data[0]), {"accuracy": accuracy}

# Function to run federated learning simulation without Ray
def run_federated_simulation(use_ray=False):
    # Generate synthetic data
    X, y = create_credit_card_data(n_samples=10000)
    X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
    ↪ random_state=42)

```



```

# Split data among clients
client_data = split_data(X_train, y_train, NUM_CLIENTS)

def client_fn(cid):
    model = FraudNet()
    train_data = client_data[int(cid)]
    test_data = (X_test, y_test)
    return CreditCardClient(model, train_data, test_data)

# Start federated simulation with or without Ray
strategy = fl.server.strategy.FedAvg(min_fit_clients=NUM_CLIENTS,
↪min_available_clients=NUM_CLIENTS)

if use_ray:
    ray.init(ignore_reinit_error=True) # Initialize Ray
    start_time = time.time()
    fl.simulation.start_simulation(client_fn=client_fn,
↪num_clients=NUM_CLIENTS, config=fl.server.
↪ServerConfig(num_rounds=NUM_ROUNDS), ray_init_args={"ignore_reinit_error":
↪True})
    ray.shutdown() # Shutdown Ray after simulation
else:
    start_time = time.time()
    fl.simulation.start_simulation(client_fn=client_fn,
↪num_clients=NUM_CLIENTS, config=fl.server.
↪ServerConfig(num_rounds=NUM_ROUNDS))

    end_time = time.time()
    execution_time = end_time - start_time
    print(f"Execution time {'with Ray' if use_ray else 'without Ray'}:
↪{execution_time:.2f} seconds")
    return execution_time

# Compare execution with and without Ray
def compare_ray_vs_no_ray():
    print("Running Federated Learning without Ray...")
    exec_time_without_ray = run_federated_simulation(use_ray=False)

    print("\nRunning Federated Learning with Ray...")
    exec_time_with_ray = run_federated_simulation(use_ray=True)

    print("\n--- Comparison ---")
    print(f"Execution time without Ray: {exec_time_without_ray:.2f} seconds")
    print(f"Execution time with Ray: {exec_time_with_ray:.2f} seconds")
    print(f"Speedup with Ray: {exec_time_without_ray / exec_time_with_ray:.
↪2f}x")

```

```
if __name__ == "__main__":
    compare_ray_vs_no_ray()
```

```
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
```

```
Running Federated Learning without Ray...
```

```
/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
```

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 09:06:24,431 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'memory': 7975157760.0,
'object_store_memory': 3987578880.0}
```

```
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
```

```
INFO :      No `client_resources` specified. Using minimal resources
for clients.
```

```
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
```

```
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
```

```
INFO :      [INIT]
```

```
INFO :      Requesting initial parameters from one random client
```

```
(pid=13521) 2024-09-20 09:06:28.537609: E
external/local_xla/xla/stream_executor/cuda/cuda_fft.cc:485] Unable to register
cuFFT factory: Attempting to register factory for plugin cuFFT when one has
already been registered
```

```
(pid=13521) 2024-09-20 09:06:28.575312: E
external/local_xla/xla/stream_executor/cuda/cuda_dnn.cc:8454] Unable to register
cuDNN factory: Attempting to register factory for plugin cuDNN when one has
already been registered
```

```
(pid=13521) 2024-09-20 09:06:28.586920: E
external/local_xla/xla/stream_executor/cuda/cuda_blas.cc:1452] Unable to
register cuBLAS factory: Attempting to register factory for plugin cuBLAS when
one has already been registered
```

```
(pid=13521) 2024-09-20 09:06:30.904264: W
tensorflow/compiler/tf2tensorrt/utils/py_utils.cc:38] TF-TRT Warning: Could not
find TensorRT
```

```
INFO :      Received initial parameters from one random client
```

```
INFO :      Starting evaluation of initial global parameters
```

```
INFO :      Evaluation returned no results (`None`)
```

```
INFO :
```

```
INFO :      [ROUND 1]
```

```
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
```

```
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(pid=13522) 2024-09-20 09:06:28.666451: E
external/local_xla/xla/stream_executor/cuda/cuda_fft.cc:485] Unable to register
cuFFT factory: Attempting to register factory for plugin cuFFT when one has
already been registered
(pid=13522) 2024-09-20 09:06:28.705669: E
external/local_xla/xla/stream_executor/cuda/cuda_dnn.cc:8454] Unable to register
cuDNN factory: Attempting to register factory for plugin cuDNN when one has
already been registered
(pid=13522) 2024-09-20 09:06:28.722672: E
external/local_xla/xla/stream_executor/cuda/cuda_blas.cc:1452] Unable to
register cuBLAS factory: Attempting to register factory for plugin cuBLAS when
one has already been registered
(pid=13522) 2024-09-20 09:06:31.035610: W
tensorflow/compiler/tf2tensorrt/utils/py_utils.cc:38] TF-TRT Warning: Could not
find TensorRT
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)

```

```

(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of

```



Flower.

(ClientAppActor pid=13522)

(ClientAppActor pid=13522) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=13522)

(ClientAppActor pid=13522) This is a deprecated feature. It will be removed

(ClientAppActor pid=13522) entirely in future versions of

Flower.

(ClientAppActor pid=13522)

(ClientAppActor pid=13522) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=13522)

(ClientAppActor pid=13522) This is a deprecated feature. It will be removed

(ClientAppActor pid=13522) entirely in future versions of

Flower.

(ClientAppActor pid=13522)

(ClientAppActor pid=13522) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=13522)

(ClientAppActor pid=13522) This is a deprecated feature. It will be removed

(ClientAppActor pid=13522) entirely in future versions of

Flower.

(ClientAppActor pid=13522)

(ClientAppActor pid=13522) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)

```

```

(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522) entirely in future versions of

```



Flower.

```
(ClientAppActor pid=13522)
```

```
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=13522)
```

```
(ClientAppActor pid=13522) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=13522) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=13522)
```

```
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=13522)
```

```
(ClientAppActor pid=13522) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=13522) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=13522)
```

```
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=13522) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=13522)
```

```
(ClientAppActor pid=13522) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=13522) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=13522)
```

```
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=13522)
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=13522)           entirely in future versions of
Flower.
(ClientAppActor pid=13522)
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 50 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=13521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=13521) [repeated 6x across
cluster]
(ClientAppActor pid=13521) This is a deprecated feature. It
will be removed [repeated 3x across cluster]
(ClientAppActor pid=13521) entirely in future versions of
Flower. [repeated 3x across cluster]
(ClientAppActor pid=13521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 3x across cluster]
INFO : aggregate_evaluate: received 50 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=13521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 132x
across cluster]
(ClientAppActor pid=13521) [repeated 264x across
cluster]
(ClientAppActor pid=13521) This is a deprecated feature. It
will be removed [repeated 132x across cluster]
(ClientAppActor pid=13521) entirely in future versions of
Flower. [repeated 132x across cluster]
(ClientAppActor pid=13521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 132x across cluster]
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=13521) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 136x
across cluster]
(ClientAppActor pid=13521) [repeated 272x across
cluster]
(ClientAppActor pid=13521) This is a deprecated feature. It
will be removed [repeated 136x across cluster]
(ClientAppActor pid=13521) entirely in future versions of
Flower. [repeated 136x across cluster]
(ClientAppActor pid=13521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 136x across cluster]
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=13521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 178x
across cluster]
(ClientAppActor pid=13521) [repeated 356x across
cluster]
(ClientAppActor pid=13521) This is a deprecated feature. It
will be removed [repeated 178x across cluster]
(ClientAppActor pid=13521) entirely in future versions of
Flower. [repeated 178x across cluster]
(ClientAppActor pid=13521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 178x across cluster]
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 50 clients (out of 50)
INFO : aggregate_fit: received 50 results and 0 failures
INFO : configure_evaluate: strategy sampled 50 clients (out of 50)
INFO : aggregate_evaluate: received 50 results and 0 failures
INFO :

```

```

INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 139x
across cluster]
(ClientAppActor pid=13522)           [repeated 278x across
cluster]
(ClientAppActor pid=13522)           This is a deprecated feature. It
will be removed [repeated 139x across cluster]
(ClientAppActor pid=13522)           entirely in future versions of
Flower. [repeated 139x across cluster]
(ClientAppActor pid=13522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 139x across cluster]
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=13521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 131x
across cluster]
(ClientAppActor pid=13521)           [repeated 262x across
cluster]
(ClientAppActor pid=13521)           This is a deprecated feature. It
will be removed [repeated 131x across cluster]
(ClientAppActor pid=13521)           entirely in future versions of
Flower. [repeated 131x across cluster]
(ClientAppActor pid=13521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 131x across cluster]
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=13521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 177x
across cluster]
(ClientAppActor pid=13521)           [repeated 354x across
cluster]
(ClientAppActor pid=13521)           This is a deprecated feature. It
will be removed [repeated 177x across cluster]
(ClientAppActor pid=13521)           entirely in future versions of
Flower. [repeated 177x across cluster]
(ClientAppActor pid=13521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 177x across cluster]
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 37.45s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 09:07:16,071 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=13522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 55x
across cluster]
(ClientAppActor pid=13522) [repeated 110x across
cluster]
(ClientAppActor pid=13522) This is a deprecated feature. It
will be removed [repeated 55x across cluster]
(ClientAppActor pid=13522) entirely in future versions of
Flower. [repeated 55x across cluster]
(ClientAppActor pid=13522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 55x across cluster]

Execution time without Ray: 55.35 seconds

```

Running Federated Learning with Ray...

```

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 09:07:21,713 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7972845159.0, 'object_store_memory': 3986422579.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
(pid=14118) 2024-09-20 09:07:25.861164: E
external/local_xla/xla/stream_executor/cuda/cuda_fft.cc:485] Unable to register
cuFFT factory: Attempting to register factory for plugin cuFFT when one has
already been registered
(pid=14118) 2024-09-20 09:07:25.899094: E
external/local_xla/xla/stream_executor/cuda/cuda_dnn.cc:8454] Unable to register
cuDNN factory: Attempting to register factory for plugin cuDNN when one has
already been registered
(pid=14118) 2024-09-20 09:07:25.912460: E
external/local_xla/xla/stream_executor/cuda/cuda_blas.cc:1452] Unable to
register cuBLAS factory: Attempting to register factory for plugin cuBLAS when
one has already been registered

```

```

(pid=14118) 2024-09-20 09:07:28.211744: W
tensorflow/compiler/tf2tensorrt/utils/py_utils.cc:38] TF-TRT Warning: Could not
find TensorRT
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(pid=14119) 2024-09-20 09:07:25.932636: E
external/local_xla/xla/stream_executor/cuda/cuda_fft.cc:485] Unable to register
cuFFT factory: Attempting to register factory for plugin cuFFT when one has
already been registered
(pid=14119) 2024-09-20 09:07:25.971811: E
external/local_xla/xla/stream_executor/cuda/cuda_dnn.cc:8454] Unable to register
cuDNN factory: Attempting to register factory for plugin cuDNN when one has
already been registered
(pid=14119) 2024-09-20 09:07:25.983645: E
external/local_xla/xla/stream_executor/cuda/cuda_blas.cc:1452] Unable to
register cuBLAS factory: Attempting to register factory for plugin cuBLAS when
one has already been registered
(pid=14119) 2024-09-20 09:07:28.291912: W
tensorflow/compiler/tf2tensorrt/utils/py_utils.cc:38] TF-TRT Warning: Could not
find TensorRT
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)

```



```

(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of

```

Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) This is a deprecated feature. It

will be removed

(ClientAppActor pid=14119) entirely in future versions of

Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) This is a deprecated feature. It

will be removed

(ClientAppActor pid=14119) entirely in future versions of

Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) This is a deprecated feature. It

will be removed

(ClientAppActor pid=14119) entirely in future versions of

Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)

```

```

(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of

```



Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) This is a deprecated feature. It will be removed

(ClientAppActor pid=14119) entirely in future versions of

Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) This is a deprecated feature. It will be removed

(ClientAppActor pid=14119) entirely in future versions of

Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) This is a deprecated feature. It will be removed

(ClientAppActor pid=14119) entirely in future versions of

Flower.

(ClientAppActor pid=14119)

(ClientAppActor pid=14119) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119)           entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=14119) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=14119)
(ClientAppActor pid=14119) This is a deprecated feature. It
will be removed
(ClientAppActor pid=14119) entirely in future versions of
Flower.
(ClientAppActor pid=14119)

```

```

(ClientAppActor pid=14119) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 50 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=14118) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=14118) [repeated 4x across
cluster]
(ClientAppActor pid=14118) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=14118) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=14118) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 50 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=14118) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 154x
across cluster]
(ClientAppActor pid=14118) [repeated 308x across
cluster]
(ClientAppActor pid=14118) This is a deprecated feature. It
will be removed [repeated 154x across cluster]
(ClientAppActor pid=14118) entirely in future versions of
Flower. [repeated 154x across cluster]
(ClientAppActor pid=14118) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 154x across cluster]

```
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
```

```
INFO :
```

```
INFO :      [ROUND 4]
```

```
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
```

```
(ClientAppActor pid=14118) WARNING :   DEPRECATED FEATURE:
```

```
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 107x
```

```
across cluster]
```

```
(ClientAppActor pid=14118)           [repeated 214x across
```

```
cluster]
```

```
(ClientAppActor pid=14118)           This is a deprecated feature. It
will be removed [repeated 107x across cluster]
```

```
(ClientAppActor pid=14118)           entirely in future versions of
Flower. [repeated 107x across cluster]
```

```
(ClientAppActor pid=14118) WARNING :   Deprecation Warning:
```

```
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 107x across cluster]
```

```
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
```

```
INFO :
```

```
INFO :      [ROUND 5]
```

```
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
```

```
INFO :      aggregate_fit: received 50 results and 0 failures
```

```
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
```

```
(ClientAppActor pid=14118) WARNING :   DEPRECATED FEATURE:
```

```
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 173x
```

```
across cluster]
```

```
(ClientAppActor pid=14118)           [repeated 346x across
```

```
cluster]
```

```
(ClientAppActor pid=14118)           This is a deprecated feature. It
will be removed [repeated 173x across cluster]
```

```
(ClientAppActor pid=14118)           entirely in future versions of
Flower. [repeated 173x across cluster]
```

```
(ClientAppActor pid=14118) WARNING :   Deprecation Warning:
```

```
The `client_fn` function must return an instance of `Client`, but an instance of
```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 173x across cluster]
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=14118) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 154x
across cluster]
(ClientAppActor pid=14118)           [repeated 308x across
cluster]
(ClientAppActor pid=14118)           This is a deprecated feature. It
will be removed [repeated 154x across cluster]
(ClientAppActor pid=14118)           entirely in future versions of
Flower. [repeated 154x across cluster]
(ClientAppActor pid=14118) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 153x across cluster]
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=14118) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 126x
across cluster]
(ClientAppActor pid=14118)           [repeated 252x across
cluster]
(ClientAppActor pid=14118)           This is a deprecated feature. It
will be removed [repeated 126x across cluster]
(ClientAppActor pid=14118)           entirely in future versions of

```

```

Flower. [repeated 126x across cluster]
(ClientAppActor pid=14118) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 127x across cluster]
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 50 clients (out of 50)
(ClientAppActor pid=14118) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 173x
across cluster]
(ClientAppActor pid=14118) [repeated 346x across
cluster]
(ClientAppActor pid=14118) This is a deprecated feature. It
will be removed [repeated 173x across cluster]
(ClientAppActor pid=14118) entirely in future versions of
Flower. [repeated 173x across cluster]
(ClientAppActor pid=14118) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 173x across cluster]
INFO :      aggregate_fit: received 50 results and 0 failures
INFO :      configure_evaluate: strategy sampled 50 clients (out of 50)
INFO :      aggregate_evaluate: received 50 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 37.64s
INFO :      History (loss, distributed):
INFO :      round 1: 0.0
INFO :      round 2: 0.0
INFO :      round 3: 0.0
INFO :      round 4: 0.0
INFO :      round 5: 0.0
INFO :      round 6: 0.0
INFO :      round 7: 0.0
INFO :      round 8: 0.0
INFO :      round 9: 0.0

```

```

INFO :                round 10: 0.0
INFO :
(ClientAppActor pid=14119) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 62x
across cluster]
(ClientAppActor pid=14119)                [repeated 124x across
cluster]
(ClientAppActor pid=14119)                This is a deprecated feature. It
will be removed [repeated 62x across cluster]
(ClientAppActor pid=14119)                entirely in future versions of
Flower. [repeated 62x across cluster]
(ClientAppActor pid=14119) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 62x across cluster]

Execution time with Ray: 58.82 seconds

--- Comparison ---
Execution time without Ray: 55.35 seconds
Execution time with Ray: 58.82 seconds
Speedup with Ray: 0.94x

```

```

[22]: # Configuration
NUM_CLIENTS = 50
NUM_ROUNDS = 10
BATCH_SIZE = 32
INPUT_SIZE = 30
NUM_CLASSES = 2
EPOCHS = 1
LR = 0.01

# Create synthetic credit card fraud data for demonstration purposes
def create_credit_card_data(n_samples=10000):
    X, y = make_classification(
        n_samples=n_samples, n_features=INPUT_SIZE, n_informative=20,
        n_classes=NUM_CLASSES, random_state=42, weights=[0.99, 0.01] #
    )
    scaler = StandardScaler()
    X = scaler.fit_transform(X)
    return X, y

# Split data for clients
def split_data(X, y, num_clients=NUM_CLIENTS):

```

```

client_data = []
X_split = np.array_split(X, num_clients)
y_split = np.array_split(y, num_clients)
for Xc, yc in zip(X_split, y_split):
    client_data.append((Xc, yc))
return client_data

# Define the model
class FraudNet(nn.Module):
    def __init__(self, input_size=INPUT_SIZE, num_classes=NUM_CLASSES):
        super(FraudNet, self).__init__()
        self.fc1 = nn.Linear(input_size, 64)
        self.fc2 = nn.Linear(64, 32)
        self.fc3 = nn.Linear(32, num_classes)

    def forward(self, x):
        x = torch.relu(self.fc1(x))
        x = torch.relu(self.fc2(x))
        return self.fc3(x)

# Training function
def train(model, train_data, optimizer, criterion, epochs=EPOCHS):
    model.train()
    X_train, y_train = train_data
    X_train = torch.tensor(X_train, dtype=torch.float32)
    y_train = torch.tensor(y_train, dtype=torch.long)
    for _ in range(epochs):
        optimizer.zero_grad()
        outputs = model(X_train)
        loss = criterion(outputs, y_train)
        loss.backward()
        optimizer.step()

# Evaluation function
def evaluate(model, test_data):
    model.eval()
    X_test, y_test = test_data
    X_test = torch.tensor(X_test, dtype=torch.float32)
    y_test = torch.tensor(y_test, dtype=torch.long)
    with torch.no_grad():
        outputs = model(X_test)
        _, predicted = torch.max(outputs, 1)
        acc = accuracy_score(y_test, predicted.numpy())
    return acc

# Define a Flower client
class CreditCardClient(fl.client.NumPyClient):

```

```

def __init__(self, model, train_data, test_data):
    self.model = model
    self.train_data = train_data
    self.test_data = test_data

def get_parameters(self, config=None): # Add config parameter with a
↳ default value of None.
    return [val.cpu().numpy() for _, val in self.model.state_dict().items()]

def set_parameters(self, parameters):
    params_dict = zip(self.model.state_dict().keys(), parameters)
    state_dict = {k: torch.tensor(v) for k, v in params_dict}
    self.model.load_state_dict(state_dict, strict=True)

def fit(self, parameters, config):
    self.set_parameters(parameters)
    optimizer = optim.SGD(self.model.parameters(), lr=LR)
    criterion = nn.CrossEntropyLoss()
    train(self.model, self.train_data, optimizer, criterion)
    return self.get_parameters(), len(self.train_data[0]), {}

def evaluate(self, parameters, config):
    self.set_parameters(parameters)
    accuracy = evaluate(self.model, self.test_data)
    return float(0), len(self.test_data[0]), {"accuracy": accuracy}

# Function to run federated learning simulation without Ray
# Function to run federated learning simulation without Ray
# Update the federated simulation function to take num_clients as input
def run_federated_simulation(num_clients, use_ray=False):
    # Generate synthetic data
    X, y = create_credit_card_data(n_samples=10000)
    X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
↳ random_state=42)

    # Split data among clients
    client_data = split_data(X_train, y_train, num_clients)

    def client_fn(cid):
        model = FraudNet()
        train_data = client_data[int(cid)]
        test_data = (X_test, y_test)
        return CreditCardClient(model, train_data, test_data)

    # Start federated simulation with or without Ray
    strategy = fl.server.strategy.FedAvg(min_fit_clients=num_clients,
↳ min_available_clients=num_clients)

```

```

    if use_ray:
        ray.init(ignore_reinit_error=True) # Initialize Ray
        start_time = time.time()
        fl.simulation.start_simulation(client_fn=client_fn,
        ↪ num_clients=num_clients, config=fl.server.
        ↪ ServerConfig(num_rounds=NUM_ROUNDS), ray_init_args={"ignore_reinit_error":
        ↪ True})
        ray.shutdown() # Shutdown Ray after simulation
    else:
        start_time = time.time()
        # Use num_clients instead of NUM_CLIENTS
        fl.simulation.start_simulation(client_fn=client_fn,
        ↪ num_clients=num_clients, config=fl.server.
        ↪ ServerConfig(num_rounds=NUM_ROUNDS))

    end_time = time.time()
    execution_time = end_time - start_time
    print(f"Execution time {'with Ray' if use_ray else 'without Ray'} for
    ↪ {num_clients} clients: {execution_time:.2f} seconds")
    return execution_time

# Function to compare execution with and without Ray for multiple numbers of
↪ clients
def compare_ray_vs_no_ray_for_clients():
    client_range = range(10, 50) # Clients from 1 to 100
    exec_times_with_ray = []
    exec_times_without_ray = []

    for num_clients in client_range:
        print(f"\nRunning Federated Learning for {num_clients} clients...")

        # Run without Ray
        exec_time_without_ray = run_federated_simulation(num_clients,
        ↪ use_ray=False)
        exec_times_without_ray.append(exec_time_without_ray)

        # Run with Ray
        exec_time_with_ray = run_federated_simulation(num_clients, use_ray=True)
        exec_times_with_ray.append(exec_time_with_ray)

    # Plot the results
    plt.figure(figsize=(10, 6))
    plt.plot(client_range, exec_times_without_ray, label='Without Ray',
    ↪ marker='o')
    plt.plot(client_range, exec_times_with_ray, label='With Ray', marker='x')

```

```

plt.xlabel('Number of Clients')
plt.ylabel('Execution Time (seconds)')
plt.title('Execution Time Comparison: Ray vs No Ray')
plt.legend()
plt.grid(True)
plt.show()

if __name__ == "__main__":
    compare_ray_vs_no_ray_for_clients()

```

```

INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

```

Running Federated Learning for 10 clients...

```

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.

```

```

    self.pid = _posixsubprocess.fork_exec(
2024-09-20 09:59:12,256 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'object_store_memory': 3990947020.0, 'memory': 7981894043.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
(ClientAppActor pid=29252) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252)           entirely in future versions of
Flower.

```



```

(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252) entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252) entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252) entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252) entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252) entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252) entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=29252)           entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252)           entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29252) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29252)
(ClientAppActor pid=29252)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=29252)           entirely in future versions of
Flower.
(ClientAppActor pid=29252)
(ClientAppActor pid=29252) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 10 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
(ClientAppActor pid=29250) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 5x
across cluster]
(ClientAppActor pid=29250)           [repeated 10x across
cluster]
(ClientAppActor pid=29250)           This is a deprecated feature. It

```

```

will be removed [repeated 5x across cluster]
(ClientAppActor pid=29250) entirely in future versions of
Flower. [repeated 5x across cluster]
(ClientAppActor pid=29250) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 5x across cluster]
INFO : aggregate_evaluate: received 10 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 10 clients (out of 10)
INFO : aggregate_fit: received 10 results and 0 failures
INFO : configure_evaluate: strategy sampled 10 clients (out of 10)
INFO : aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 10 clients (out of 10)
INFO : aggregate_fit: received 10 results and 0 failures
INFO : configure_evaluate: strategy sampled 10 clients (out of 10)
INFO : aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 10 clients (out of 10)
INFO : aggregate_fit: received 10 results and 0 failures
INFO : configure_evaluate: strategy sampled 10 clients (out of 10)
INFO : aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 10 clients (out of 10)
INFO : aggregate_fit: received 10 results and 0 failures
INFO : configure_evaluate: strategy sampled 10 clients (out of 10)
INFO : aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 10 clients (out of 10)
INFO : aggregate_fit: received 10 results and 0 failures
INFO : configure_evaluate: strategy sampled 10 clients (out of 10)
INFO : aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 10 clients (out of 10)
INFO : aggregate_fit: received 10 results and 0 failures
INFO : configure_evaluate: strategy sampled 10 clients (out of 10)
INFO : aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 10 clients (out of 10)

```

```

INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
(ClientAppActor pid=29250) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 158x
across cluster]
(ClientAppActor pid=29250)           [repeated 316x across
cluster]
(ClientAppActor pid=29250)           This is a deprecated feature. It
will be removed [repeated 158x across cluster]
(ClientAppActor pid=29250)           entirely in future versions of
Flower. [repeated 158x across cluster]
(ClientAppActor pid=29250) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 158x across cluster]
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 10.95s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 09:59:37,207 INFO worker.py:1585 -- Calling ray.init() again after it

```

```

has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=29250) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 28x
across cluster]
(ClientAppActor pid=29250)           [repeated 56x across
cluster]
(ClientAppActor pid=29250)           This is a deprecated feature. It
will be removed [repeated 28x across cluster]
(ClientAppActor pid=29250)           entirely in future versions of
Flower. [repeated 28x across cluster]
(ClientAppActor pid=29250) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 28x across cluster]

Execution time without Ray for 10 clients: 31.71 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 09:59:42,880 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3990446899.0, 'memory': 7980893799.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
(ClientAppActor pid=29747) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29747) entirely in future versions of
Flower.
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29747) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29747) entirely in future versions of
Flower.
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29747) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29747) entirely in future versions of
Flower.
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29747) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) This is a deprecated feature. It
will be removed
(ClientAppActor pid=29747) entirely in future versions of

```



Flower.

(ClientAppActor pid=29747)

(ClientAppActor pid=29747) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=29747) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=29747)

(ClientAppActor pid=29747) This is a deprecated feature. It will be removed

(ClientAppActor pid=29747) entirely in future versions of

Flower.

(ClientAppActor pid=29747)

(ClientAppActor pid=29747) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=29747) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=29747)

(ClientAppActor pid=29747) This is a deprecated feature. It will be removed

(ClientAppActor pid=29747) entirely in future versions of

Flower.

(ClientAppActor pid=29747)

(ClientAppActor pid=29747) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=29747) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=29747)

(ClientAppActor pid=29747) This is a deprecated feature. It will be removed

(ClientAppActor pid=29747) entirely in future versions of

Flower.

(ClientAppActor pid=29747)

(ClientAppActor pid=29747) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=29747) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29747)
(ClientAppActor pid=29747)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=29747)           entirely in future versions of
Flower.
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29747) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29747)
(ClientAppActor pid=29747)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=29747)           entirely in future versions of
Flower.
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=29747) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=29747)
(ClientAppActor pid=29747)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=29747)           entirely in future versions of
Flower.
(ClientAppActor pid=29747)
(ClientAppActor pid=29747) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 10 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :

```

```

INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
(ClientAppActor pid=29747) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 24x

across cluster]
(ClientAppActor pid=29747)           [repeated 48x across

cluster]
(ClientAppActor pid=29747)           This is a deprecated feature. It
will be removed [repeated 24x across cluster]
(ClientAppActor pid=29747)           entirely in future versions of
Flower. [repeated 24x across cluster]
(ClientAppActor pid=29747) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 24x across cluster]
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 7]

```

```

INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
(ClientAppActor pid=29747) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 142x
across cluster]
(ClientAppActor pid=29747)           [repeated 284x across
cluster]
(ClientAppActor pid=29747)           This is a deprecated feature. It
will be removed [repeated 142x across cluster]
(ClientAppActor pid=29747)           entirely in future versions of
Flower. [repeated 142x across cluster]
(ClientAppActor pid=29747) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 142x across cluster]
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 10 clients (out of 10)
INFO :      aggregate_fit: received 10 results and 0 failures
INFO :      configure_evaluate: strategy sampled 10 clients (out of 10)
INFO :      aggregate_evaluate: received 10 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 11.34s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0

```

```

INFO :                round 6: 0.0
INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
(ClientAppActor pid=29746) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 25x
across cluster]
(ClientAppActor pid=29746)                [repeated 50x across
cluster]
(ClientAppActor pid=29746)                This is a deprecated feature. It
will be removed [repeated 25x across cluster]
(ClientAppActor pid=29746)                entirely in future versions of
Flower. [repeated 25x across cluster]
(ClientAppActor pid=29746) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 25x across cluster]
INFO :                Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 10 clients: 32.61 seconds

Running Federated Learning for 11 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:00:13,730 INFO worker.py:1752 -- Started a local Ray instance.
INFO :                Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3990481305.0, 'memory': 7980962612.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :                Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :                No `client_resources` specified. Using minimal resources
for clients.
INFO :                Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :                Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :                [INIT]
INFO :                Requesting initial parameters from one random client
INFO :                Received initial parameters from one random client

```

```

INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
(ClientAppActor pid=30237) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237)           entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237)           entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237)           entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237) entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237) entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237) entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) This is a deprecated feature. It
will be removed

```



```

(ClientAppActor pid=30237) entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237) entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237) entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30237) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237) entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=30237) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30237)
(ClientAppActor pid=30237)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30237)           entirely in future versions of
Flower.
(ClientAppActor pid=30237)
(ClientAppActor pid=30237) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 11 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
(ClientAppActor pid=30237) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 18x
across cluster]
(ClientAppActor pid=30237)           [repeated 36x across
cluster]
(ClientAppActor pid=30237)           This is a deprecated feature. It
will be removed [repeated 18x across cluster]
(ClientAppActor pid=30237)           entirely in future versions of
Flower. [repeated 18x across cluster]
(ClientAppActor pid=30237) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 18x across cluster]
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)

```

```

INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
(ClientAppActor pid=30237) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 139x
across cluster]
(ClientAppActor pid=30237)           [repeated 278x across
cluster]
(ClientAppActor pid=30237)           This is a deprecated feature. It
will be removed [repeated 139x across cluster]
(ClientAppActor pid=30237)           entirely in future versions of
Flower. [repeated 139x across cluster]
(ClientAppActor pid=30237) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 139x across cluster]
INFO :      aggregate_evaluate: received 11 results and 0 failures

```

```

INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 11 clients (out of 11)
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 11 clients (out of 11)
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 12.91s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
2024-09-20 10:00:41,353 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=30236) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 53x
across cluster]
(ClientAppActor pid=30236) [repeated 106x across
cluster]
(ClientAppActor pid=30236) This is a deprecated feature. It
will be removed [repeated 53x across cluster]
(ClientAppActor pid=30236) entirely in future versions of
Flower. [repeated 53x across cluster]
(ClientAppActor pid=30236) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 53x across cluster]

```

Execution time without Ray for 11 clients: 31.40 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.  
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so  
this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:00:46,551 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'object_store_memory': 3990394060.0, 'memory': 7980788123.0, 'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
(ClientAppActor pid=30741) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30741)           entirely in future versions of
Flower.
(ClientAppActor pid=30741)
(ClientAppActor pid=30741) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumPyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30741) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30741)           entirely in future versions of
```

Flower.

(ClientAppActor pid=30741)

(ClientAppActor pid=30741) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=30741) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=30741)

(ClientAppActor pid=30741) This is a deprecated feature. It will be removed

(ClientAppActor pid=30741) entirely in future versions of

Flower.

(ClientAppActor pid=30741)

(ClientAppActor pid=30741) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=30741) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=30741)

(ClientAppActor pid=30741) This is a deprecated feature. It will be removed

(ClientAppActor pid=30741) entirely in future versions of

Flower.

(ClientAppActor pid=30741)

(ClientAppActor pid=30741) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=30741) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=30741)

(ClientAppActor pid=30741) This is a deprecated feature. It will be removed

(ClientAppActor pid=30741) entirely in future versions of

Flower.

(ClientAppActor pid=30741)

(ClientAppActor pid=30741) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=30741) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30741)           entirely in future versions of
Flower.
(ClientAppActor pid=30741)
(ClientAppActor pid=30741) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30741) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30741)           entirely in future versions of
Flower.
(ClientAppActor pid=30741)
(ClientAppActor pid=30741) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30741) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30741)           entirely in future versions of
Flower.
(ClientAppActor pid=30741)
(ClientAppActor pid=30741) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30741) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=30741)           entirely in future versions of
Flower.
(ClientAppActor pid=30741)
(ClientAppActor pid=30741) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30741) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30741)           entirely in future versions of
Flower.
(ClientAppActor pid=30741)
(ClientAppActor pid=30741) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=30741) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=30741)
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=30741)           entirely in future versions of
Flower.
(ClientAppActor pid=30741)
(ClientAppActor pid=30741) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 11 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
(ClientAppActor pid=30740) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 19x
across cluster]
(ClientAppActor pid=30740) [repeated 38x across
cluster]
(ClientAppActor pid=30740) This is a deprecated feature. It
will be removed [repeated 19x across cluster]
(ClientAppActor pid=30740) entirely in future versions of
Flower. [repeated 19x across cluster]
(ClientAppActor pid=30740) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 19x across cluster]
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 11 clients (out of 11)
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 11 clients (out of 11)
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 11 clients (out of 11)
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 11 clients (out of 11)
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 11 clients (out of 11)
INFO : aggregate_fit: received 11 results and 0 failures
INFO : configure_evaluate: strategy sampled 11 clients (out of 11)
INFO : aggregate_evaluate: received 11 results and 0 failures
INFO :

```

```

INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
(ClientAppActor pid=30740) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 129x

across cluster]
(ClientAppActor pid=30740)          [repeated 258x across

cluster]
(ClientAppActor pid=30740)          This is a deprecated feature. It
will be removed [repeated 129x across cluster]
(ClientAppActor pid=30740)          entirely in future versions of
Flower. [repeated 129x across cluster]
(ClientAppActor pid=30740) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 129x across cluster]
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 11 clients (out of 11)
INFO :      aggregate_fit: received 11 results and 0 failures
INFO :      configure_evaluate: strategy sampled 11 clients (out of 11)
INFO :      aggregate_evaluate: received 11 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 13.18s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0

```

```

INFO :
(ClientAppActor pid=30741) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 62x
across cluster]
(ClientAppActor pid=30741)           [repeated 124x across
cluster]
(ClientAppActor pid=30741)           This is a deprecated feature. It
will be removed [repeated 62x across cluster]
(ClientAppActor pid=30741)           entirely in future versions of
Flower. [repeated 62x across cluster]
(ClientAppActor pid=30741) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 62x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 11 clients: 34.57 seconds

Running Federated Learning for 12 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:01:19,770 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7980763547.0, 'object_store_memory': 3990381772.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)

```

```

(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247)           entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=31247)
(ClientAppActor pid=31247) This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247) entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31247) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) This is a deprecated feature. It
will be removed
(ClientAppActor pid=31247) entirely in future versions of
Flower.
(ClientAppActor pid=31247)
(ClientAppActor pid=31247) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 12 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 12 clients (out of 12)
INFO : aggregate_evaluate: received 12 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 12 clients (out of 12)
(ClientAppActor pid=31245) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 19x
across cluster]
(ClientAppActor pid=31245) [repeated 38x across
cluster]
(ClientAppActor pid=31245) This is a deprecated feature. It
will be removed [repeated 19x across cluster]
(ClientAppActor pid=31245) entirely in future versions of
Flower. [repeated 19x across cluster]
(ClientAppActor pid=31245) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 19x across cluster]
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
(ClientAppActor pid=31245) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 113x
across cluster]
(ClientAppActor pid=31245)           [repeated 226x across
cluster]
(ClientAppActor pid=31245)           This is a deprecated feature. It
will be removed [repeated 113x across cluster]
(ClientAppActor pid=31245)           entirely in future versions of
Flower. [repeated 113x across cluster]
(ClientAppActor pid=31245) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 113x across cluster]
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)

```

```

INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 13.90s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:01:48,500 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=31247) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 97x
across cluster]
(ClientAppActor pid=31247)          [repeated 194x across
cluster]

```

```

(ClientAppActor pid=31247) This is a deprecated feature. It
will be removed [repeated 97x across cluster]
(ClientAppActor pid=31247) entirely in future versions of
Flower. [repeated 97x across cluster]
(ClientAppActor pid=31247) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 97x across cluster]

Execution time without Ray for 12 clients: 32.47 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:01:53,816 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'object_store_memory':
3990473932.0, 'memory': 7980947867.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 12 clients (out of 12)
(ClientAppActor pid=31753) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753) entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.

```

```

(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=31753)
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753)           entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=31753)
(ClientAppActor pid=31753) This is a deprecated feature. It
will be removed
(ClientAppActor pid=31753) entirely in future versions of
Flower.
(ClientAppActor pid=31753)
(ClientAppActor pid=31753) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 12 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 12 clients (out of 12)
INFO : aggregate_evaluate: received 12 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 12 clients (out of 12)
(ClientAppActor pid=31752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 12x
across cluster]
(ClientAppActor pid=31752) [repeated 24x across
cluster]
(ClientAppActor pid=31752) This is a deprecated feature. It
will be removed [repeated 12x across cluster]
(ClientAppActor pid=31752) entirely in future versions of
Flower. [repeated 12x across cluster]
(ClientAppActor pid=31752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 12x across cluster]
INFO : aggregate_fit: received 12 results and 0 failures
INFO : configure_evaluate: strategy sampled 12 clients (out of 12)
INFO : aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 12 clients (out of 12)
INFO : aggregate_fit: received 12 results and 0 failures
INFO : configure_evaluate: strategy sampled 12 clients (out of 12)
INFO : aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 12 clients (out of 12)
INFO : aggregate_fit: received 12 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
(ClientAppActor pid=31752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 101x

across cluster]
(ClientAppActor pid=31752)           [repeated 202x across

cluster]
(ClientAppActor pid=31752)           This is a deprecated feature. It
will be removed [repeated 101x across cluster]
(ClientAppActor pid=31752)           entirely in future versions of
Flower. [repeated 101x across cluster]
(ClientAppActor pid=31752) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 101x across cluster]
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)

```

```

INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 12 clients (out of 12)
INFO :      aggregate_fit: received 12 results and 0 failures
INFO :      configure_evaluate: strategy sampled 12 clients (out of 12)
INFO :      aggregate_evaluate: received 12 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 13.58s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=31753) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 115x
across cluster]
(ClientAppActor pid=31753)           [repeated 230x across
cluster]
(ClientAppActor pid=31753)           This is a deprecated feature. It
will be removed [repeated 115x across cluster]
(ClientAppActor pid=31753)           entirely in future versions of
Flower. [repeated 115x across cluster]
(ClientAppActor pid=31753) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 115x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 12 clients: 35.55 seconds

Running Federated Learning for 13 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.

```

```

self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:02:27,941 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3990260121.0, 'memory': 7980520244.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
(ClientAppActor pid=32264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264)           entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264)           entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=32264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264)           entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264)           entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264)           entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)

```

```

(ClientAppActor pid=32264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264) entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264) entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264) entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264) entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=32264) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=32264)
```

```
(ClientAppActor pid=32264) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=32264) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=32264)
```

```
(ClientAppActor pid=32264) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=32264) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=32264)
```

```
(ClientAppActor pid=32264) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=32264) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=32264)
```

```
(ClientAppActor pid=32264) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=32264) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=32264)
```

```
(ClientAppActor pid=32264) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=32264) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=32264)
```

```
(ClientAppActor pid=32264) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=32264) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32264) entirely in future versions of
Flower.
(ClientAppActor pid=32264)
(ClientAppActor pid=32264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 13 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 13 clients (out of 13)
(ClientAppActor pid=32262) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=32262) [repeated 4x across
cluster]
(ClientAppActor pid=32262) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=32262) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=32262) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 13 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 13 clients (out of 13)
INFO : aggregate_fit: received 13 results and 0 failures
INFO : configure_evaluate: strategy sampled 13 clients (out of 13)
INFO : aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 13 clients (out of 13)
INFO : aggregate_fit: received 13 results and 0 failures
INFO : configure_evaluate: strategy sampled 13 clients (out of 13)
INFO : aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 13 clients (out of 13)

```

```

INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
(ClientAppActor pid=32264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 143x

across cluster]
(ClientAppActor pid=32264)           [repeated 286x across

cluster]
(ClientAppActor pid=32264)           This is a deprecated feature. It
will be removed [repeated 143x across cluster]
(ClientAppActor pid=32264)           entirely in future versions of
Flower. [repeated 143x across cluster]
(ClientAppActor pid=32264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumPyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 143x across cluster]
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 13.65s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:02:57,071 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=32262) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 103x
across cluster]
(ClientAppActor pid=32262)          [repeated 206x across
cluster]
(ClientAppActor pid=32262)          This is a deprecated feature. It
will be removed [repeated 103x across cluster]
(ClientAppActor pid=32262)          entirely in future versions of
Flower. [repeated 103x across cluster]
(ClientAppActor pid=32262) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]

Execution time without Ray for 13 clients: 32.90 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so

```

this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:03:03,221 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3990526771.0, 'memory': 7981053543.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
(ClientAppActor pid=32778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778)           entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778)           entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778)           entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778)           entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778)           entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)

```

```

(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778)
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=32777) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32777) [repeated 2x across
cluster]
(ClientAppActor pid=32777) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32777) entirely in future versions of
Flower.
(ClientAppActor pid=32777) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 13 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 13 clients (out of 13)
(ClientAppActor pid=32778) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=32778) This is a deprecated feature. It
will be removed
(ClientAppActor pid=32778) entirely in future versions of
Flower.
(ClientAppActor pid=32778) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 13 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 13 clients (out of 13)
INFO : aggregate_fit: received 13 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
(ClientAppActor pid=32778)      [repeated 288x across
cluster]
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
(ClientAppActor pid=32777) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=32777)      This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=32777)      entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=32777) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]

```

```

INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 13 clients (out of 13)
INFO :      aggregate_fit: received 13 results and 0 failures
INFO :      configure_evaluate: strategy sampled 13 clients (out of 13)
INFO :      aggregate_evaluate: received 13 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 13.73s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=32777)      [repeated 206x across
cluster]
(ClientAppActor pid=32777) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 80x
across cluster]
(ClientAppActor pid=32777)      This is a deprecated feature. It
will be removed [repeated 80x across cluster]
(ClientAppActor pid=32777)      entirely in future versions of
Flower. [repeated 80x across cluster]
(ClientAppActor pid=32777) WARNING :   Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 80x across cluster]

```
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
```

Execution time with Ray for 13 clients: 35.54 seconds

Running Federated Learning for 14 clients...

```
/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
```

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:03:37,501 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3990631219.0, 'memory': 7981262439.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
```

```
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
```

```
INFO :      No `client_resources` specified. Using minimal resources
for clients.
```

```
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
```

```
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
```

```
INFO :      [INIT]
```

```
INFO :      Requesting initial parameters from one random client
```

```
INFO :      Received initial parameters from one random client
```

```
INFO :      Starting evaluation of initial global parameters
```

```
INFO :      Evaluation returned no results (`None`)
```

```
INFO :
```

```
INFO :      [ROUND 1]
```

```
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
```

```
(ClientAppActor pid=33274) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=33274)
```

```
(ClientAppActor pid=33274)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=33274)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=33274)
```

```
(ClientAppActor pid=33274) WARNING :   Deprecation Warning:
```

```
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
```

```
(ClientAppActor pid=33274) WARNING :   DEPRECATED FEATURE:
```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=33274) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274)           entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274)           entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274)           entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)

```



```

(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33274) entirely in future versions of
Flower.
(ClientAppActor pid=33274)
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 14 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
(ClientAppActor pid=33272) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=33272) [repeated 4x across
cluster]

```

```

(ClientAppActor pid=33272) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=33272) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=33272) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 14 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
(ClientAppActor pid=33274) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=33274) [repeated 330x across
cluster]
(ClientAppActor pid=33274) This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=33274) entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=33274) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 14 clients (out of 14)
INFO : aggregate_fit: received 14 results and 0 failures
INFO : configure_evaluate: strategy sampled 14 clients (out of 14)
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 14.25s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :

```

```

2024-09-20 10:04:05,637 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=33272) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 100x
across cluster]
(ClientAppActor pid=33272)          [repeated 200x across
cluster]
(ClientAppActor pid=33272)          This is a deprecated feature. It
will be removed [repeated 100x across cluster]
(ClientAppActor pid=33272)          entirely in future versions of
Flower. [repeated 100x across cluster]
(ClientAppActor pid=33272) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 100x across cluster]

Execution time without Ray for 14 clients: 32.85 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:04:11,427 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'memory':
7980815156.0, 'object_store_memory': 3990407577.0, 'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
(ClientAppActor pid=33790) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790) entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790) entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790) entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=33790)           entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790)           entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790)           entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790)           entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=33790) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790)           entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790)           entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790)           entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)

```



```

(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790) entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790) entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790) entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed
(ClientAppActor pid=33790) entirely in future versions of
Flower.
(ClientAppActor pid=33790)
(ClientAppActor pid=33790) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
INFO :      aggregate_fit: received 14 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
(ClientAppActor pid=33790) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 24x
```

across cluster]

```
(ClientAppActor pid=33790) [repeated 48x across
```

cluster]

```
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed [repeated 24x across cluster]
```

```
(ClientAppActor pid=33790) entirely in future versions of
Flower. [repeated 24x across cluster]
```

```
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 24x across cluster]
```

```
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
```

```

INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
(ClientAppActor pid=33790) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 134x
across cluster]
(ClientAppActor pid=33790)           [repeated 268x across
cluster]
(ClientAppActor pid=33790)           This is a deprecated feature. It
will be removed [repeated 134x across cluster]
(ClientAppActor pid=33790)           entirely in future versions of
Flower. [repeated 134x across cluster]
(ClientAppActor pid=33790) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 134x across cluster]
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
INFO :      aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 14 clients (out of 14)
INFO :      aggregate_fit: received 14 results and 0 failures
INFO :      configure_evaluate: strategy sampled 14 clients (out of 14)
(ClientAppActor pid=33790) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 104x
across cluster]
(ClientAppActor pid=33790) [repeated 208x across
cluster]
(ClientAppActor pid=33790) This is a deprecated feature. It
will be removed [repeated 104x across cluster]
(ClientAppActor pid=33790) entirely in future versions of
Flower. [repeated 104x across cluster]
(ClientAppActor pid=33790) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 104x across cluster]
INFO : aggregate_evaluate: received 14 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 15.21s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=33789) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 5x
across cluster]
(ClientAppActor pid=33789) [repeated 10x across
cluster]
(ClientAppActor pid=33789) This is a deprecated feature. It
will be removed [repeated 5x across cluster]
(ClientAppActor pid=33789) entirely in future versions of
Flower. [repeated 5x across cluster]
(ClientAppActor pid=33789) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 5x across cluster]

```

```

INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 14 clients: 37.31 seconds

Running Federated Learning for 15 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:04:46,859 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3990315417.0, 'memory': 7980630836.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
(ClientAppActor pid=34303) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303)           entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)

```

```

(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of
Flower.
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34303)
(ClientAppActor pid=34303) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34303) entirely in future versions of

```

Flower.

(ClientAppActor pid=34303)

(ClientAppActor pid=34303) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=34303)

(ClientAppActor pid=34303) This is a deprecated feature. It will be removed

(ClientAppActor pid=34303) entirely in future versions of

Flower.

(ClientAppActor pid=34303)

(ClientAppActor pid=34303) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=34303)

(ClientAppActor pid=34303) This is a deprecated feature. It will be removed

(ClientAppActor pid=34303) entirely in future versions of

Flower.

(ClientAppActor pid=34303)

(ClientAppActor pid=34303) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=34303)

(ClientAppActor pid=34303) This is a deprecated feature. It will be removed

(ClientAppActor pid=34303) entirely in future versions of

Flower.

(ClientAppActor pid=34303)

(ClientAppActor pid=34303) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

INFO :      aggregate_fit: received 15 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
(ClientAppActor pid=34302) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 27x

across cluster]
(ClientAppActor pid=34302)           [repeated 54x across

cluster]
(ClientAppActor pid=34302)           This is a deprecated feature. It
will be removed [repeated 27x across cluster]
(ClientAppActor pid=34302)           entirely in future versions of
Flower. [repeated 27x across cluster]
(ClientAppActor pid=34302) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 27x across cluster]
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
(ClientAppActor pid=34302) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 90x

across cluster]

```

```

(ClientAppActor pid=34302)           [repeated 180x across
cluster]
(ClientAppActor pid=34302)           This is a deprecated feature. It
will be removed [repeated 90x across cluster]
(ClientAppActor pid=34302)           entirely in future versions of
Flower. [repeated 90x across cluster]
(ClientAppActor pid=34302) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 90x across cluster]
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
(ClientAppActor pid=34302) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 150x
across cluster]

```

```

(ClientAppActor pid=34302)           [repeated 300x across
cluster]
(ClientAppActor pid=34302)           This is a deprecated feature. It
will be removed [repeated 150x across cluster]
(ClientAppActor pid=34302)           entirely in future versions of
Flower. [repeated 150x across cluster]
(ClientAppActor pid=34302) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 150x across cluster]
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 15.76s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:05:17,685 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=34303) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 19x
across cluster]
(ClientAppActor pid=34303)           [repeated 38x across
cluster]
(ClientAppActor pid=34303)           This is a deprecated feature. It
will be removed [repeated 19x across cluster]
(ClientAppActor pid=34303)           entirely in future versions of
Flower. [repeated 19x across cluster]
(ClientAppActor pid=34303) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

convert it to `Client`. [repeated 19x across cluster]

Execution time without Ray for 15 clients: 34.62 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:05:23,039 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3990308044.0, 'memory': 7980616091.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
```

```

(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```



```

convert it to `Client`.
(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823)           entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)

```

```

(ClientAppActor pid=34823) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823) entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823) entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823) entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) This is a deprecated feature. It
will be removed
(ClientAppActor pid=34823) entirely in future versions of
Flower.
(ClientAppActor pid=34823)
(ClientAppActor pid=34823) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=34823)
```

```
(ClientAppActor pid=34823) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=34823) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=34823)
```

```
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=34823)
```

```
(ClientAppActor pid=34823) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=34823) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=34823)
```

```
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=34823) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=34823)
```

```
(ClientAppActor pid=34823) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=34823) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=34823)
```

```
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
INFO : aggregate_fit: received 15 results and 0 failures
```

```
WARNING : No fit_metrics_aggregation_fn provided
```

```
INFO : configure_evaluate: strategy sampled 15 clients (out of 15)
```

```

(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=34823)           [repeated 4x across
cluster]
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=34823)           entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=34823) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 15 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
(ClientAppActor pid=34823) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 118x
across cluster]

```

```

(ClientAppActor pid=34823)           [repeated 236x across
cluster]
(ClientAppActor pid=34823)           This is a deprecated feature. It
will be removed [repeated 118x across cluster]
(ClientAppActor pid=34823)           entirely in future versions of
Flower. [repeated 118x across cluster]
(ClientAppActor pid=34823) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 118x across cluster]
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 15 clients (out of 15)
INFO :      aggregate_fit: received 15 results and 0 failures
INFO :      configure_evaluate: strategy sampled 15 clients (out of 15)
INFO :      aggregate_evaluate: received 15 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 15.46s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0

```

```

INFO :                round 3: 0.0
INFO :                round 4: 0.0
INFO :                round 5: 0.0
INFO :                round 6: 0.0
INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
(ClientAppActor pid=34822) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=34822)                [repeated 332x across
cluster]
(ClientAppActor pid=34822)                This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=34822)                entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=34822) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :                Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 15 clients: 37.63 seconds

Running Federated Learning for 16 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:05:59,777 INFO worker.py:1752 -- Started a local Ray instance.
INFO :                Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3990122496.0, 'memory': 7980244992.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :                Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :                No `client_resources` specified. Using minimal resources
for clients.
INFO :                Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :                Flower VCE: Creating VirtualClientEngineActorPool with 2
actors

```

```

INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349)          entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349)          entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349)          entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349)           entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349)           entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349)           entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)

```

```

(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35349) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35349) entirely in future versions of
Flower.
(ClientAppActor pid=35349)
(ClientAppActor pid=35349) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35347) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35347) [repeated 2x across
cluster]
(ClientAppActor pid=35347) This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=35347)           entirely in future versions of
Flower.
(ClientAppActor pid=35347) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 16 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
(ClientAppActor pid=35347) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35347)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=35347)           entirely in future versions of
Flower.
(ClientAppActor pid=35347) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 16 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)

```

```

(ClientAppActor pid=35349) [repeated 272x across
cluster]
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
(ClientAppActor pid=35349) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=35349)           This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=35349)           entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=35349) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures

```

```

INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 16.21s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=35349) [repeated 334x across
cluster]
2024-09-20 10:06:29,734 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=35347) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 137x
across cluster]
(ClientAppActor pid=35347) This is a deprecated feature. It
will be removed [repeated 137x across cluster]
(ClientAppActor pid=35347) entirely in future versions of
Flower. [repeated 137x across cluster]
(ClientAppActor pid=35347) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 137x across cluster]
(ClientAppActor pid=35347) [repeated 2x across
cluster]

Execution time without Ray for 16 clients: 34.25 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:06:35,932 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3990099148.0, 'memory': 7980198299.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}

```



```

INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
(ClientAppActor pid=35856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856)           entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
(ClientAppActor pid=35856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856)           entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)

```

```

(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of
Flower.
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=35856)
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=35856) entirely in future versions of

```

Flower.

(ClientAppActor pid=35856)

(ClientAppActor pid=35856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=35856)

(ClientAppActor pid=35856) This is a deprecated feature. It will be removed

(ClientAppActor pid=35856) entirely in future versions of

Flower.

(ClientAppActor pid=35856)

(ClientAppActor pid=35856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=35856)

(ClientAppActor pid=35856) This is a deprecated feature. It will be removed

(ClientAppActor pid=35856) entirely in future versions of

Flower.

(ClientAppActor pid=35856)

(ClientAppActor pid=35856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=35856)

(ClientAppActor pid=35856) This is a deprecated feature. It will be removed

(ClientAppActor pid=35856) entirely in future versions of

Flower.

(ClientAppActor pid=35856)

(ClientAppActor pid=35856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

INFO :      aggregate_fit: received 16 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
(ClientAppActor pid=35856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 10x
across cluster]
(ClientAppActor pid=35856) [repeated 20x across
cluster]
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed [repeated 10x across cluster]
(ClientAppActor pid=35856) entirely in future versions of
Flower. [repeated 10x across cluster]
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 10x across cluster]
INFO :      aggregate_evaluate: received 16 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO : [ROUND 6]

```

```

INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
(ClientAppActor pid=35856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 171x
across cluster]
(ClientAppActor pid=35856)           [repeated 342x across
cluster]
(ClientAppActor pid=35856)           This is a deprecated feature. It
will be removed [repeated 171x across cluster]
(ClientAppActor pid=35856)           entirely in future versions of
Flower. [repeated 171x across cluster]
(ClientAppActor pid=35856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 171x across cluster]
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
INFO :      aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 16 clients (out of 16)
INFO :      aggregate_fit: received 16 results and 0 failures
INFO :      configure_evaluate: strategy sampled 16 clients (out of 16)
(ClientAppActor pid=35856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```



```

the `Context` like this: `from flwr.common import Context` [repeated 111x
across cluster]
(ClientAppActor pid=35856) [repeated 222x across
cluster]
(ClientAppActor pid=35856) This is a deprecated feature. It
will be removed [repeated 111x across cluster]
(ClientAppActor pid=35856) entirely in future versions of
Flower. [repeated 111x across cluster]
(ClientAppActor pid=35856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 111x across cluster]
INFO : aggregate_evaluate: received 16 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 15.82s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=35854) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 12x
across cluster]
(ClientAppActor pid=35854) [repeated 24x across
cluster]
(ClientAppActor pid=35854) This is a deprecated feature. It
will be removed [repeated 12x across cluster]
(ClientAppActor pid=35854) entirely in future versions of
Flower. [repeated 12x across cluster]
(ClientAppActor pid=35854) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 12x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

```

Execution time with Ray for 16 clients: 38.01 seconds

Running Federated Learning for 17 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:07:11,665 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'memory': 7981056000.0,
'object_store_memory': 3990528000.0}
```

INFO : Optimize your simulation with Flower VCE:

<https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 17 clients (out of 17)

(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:  
`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=36366)

(ClientAppActor pid=36366) This is a deprecated feature. It will be removed

(ClientAppActor pid=36366) entirely in future versions of Flower.

(ClientAppActor pid=36366)

(ClientAppActor pid=36366) WARNING : Deprecation Warning:  
The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:  
`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=36366)

(ClientAppActor pid=36366) This is a deprecated feature. It

```

will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366)           entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366)           entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366)           entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)

```

```

(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36366) entirely in future versions of
Flower.
(ClientAppActor pid=36366)
(ClientAppActor pid=36366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 17 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 17 clients (out of 17)
INFO : aggregate_evaluate: received 17 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 17 clients (out of 17)
(ClientAppActor pid=36366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 22x
across cluster]
(ClientAppActor pid=36366) [repeated 44x across
cluster]
(ClientAppActor pid=36366) This is a deprecated feature. It
will be removed [repeated 22x across cluster]
(ClientAppActor pid=36366) entirely in future versions of
Flower. [repeated 22x across cluster]
(ClientAppActor pid=36366) WARNING : Deprecation Warning:

```



The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 22x across cluster]

```
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
```

```
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
```

```
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
```

```
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
```

```
(ClientAppActor pid=36366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 127x
```

across cluster]

```
(ClientAppActor pid=36366)           [repeated 254x across
```

cluster]

```
(ClientAppActor pid=36366)           This is a deprecated feature. It
will be removed [repeated 127x across cluster]
```

```
(ClientAppActor pid=36366)           entirely in future versions of
Flower. [repeated 127x across cluster]
```

```
(ClientAppActor pid=36366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 127x across cluster]
```

```
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
```

```

INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
(ClientAppActor pid=36366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 124x
across cluster]
(ClientAppActor pid=36366)           [repeated 248x across
cluster]
(ClientAppActor pid=36366)           This is a deprecated feature. It
will be removed [repeated 124x across cluster]
(ClientAppActor pid=36366)           entirely in future versions of
Flower. [repeated 124x across cluster]
(ClientAppActor pid=36366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 124x across cluster]
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 16.61s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0

```

```

INFO :                round 5: 0.0
INFO :                round 6: 0.0
INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
2024-09-20 10:07:43,418 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :    Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=36365) WARNING :    DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 51x
across cluster]
(ClientAppActor pid=36365)                [repeated 102x across
cluster]
(ClientAppActor pid=36365)                This is a deprecated feature. It
will be removed [repeated 51x across cluster]
(ClientAppActor pid=36365)                entirely in future versions of
Flower. [repeated 51x across cluster]
(ClientAppActor pid=36365) WARNING :    Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 51x across cluster]

Execution time without Ray for 17 clients: 35.56 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:07:48,832 INFO worker.py:1752 -- Started a local Ray instance.
INFO :    Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'memory': 7979645339.0,
'object_store_memory': 3989822668.0}
INFO :    Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :    No `client_resources` specified. Using minimal resources
for clients.
INFO :    Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :    Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :    [INIT]
INFO :    Requesting initial parameters from one random client

```

```

INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.

```

```

(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891)           entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=36891)
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=36891)
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed
(ClientAppActor pid=36891) entirely in future versions of
Flower.
(ClientAppActor pid=36891)

```

```

(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 17 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=36891) [repeated 4x across
cluster]
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=36891) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 17 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 101x
across cluster]

```

```

(ClientAppActor pid=36891) [repeated 202x across
cluster]
(ClientAppActor pid=36891) This is a deprecated feature. It
will be removed [repeated 101x across cluster]
(ClientAppActor pid=36891) entirely in future versions of
Flower. [repeated 101x across cluster]
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 101x across cluster]
INFO : aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 17 clients (out of 17)
INFO : aggregate_fit: received 17 results and 0 failures
INFO : configure_evaluate: strategy sampled 17 clients (out of 17)
INFO : aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 17 clients (out of 17)
INFO : aggregate_fit: received 17 results and 0 failures
INFO : configure_evaluate: strategy sampled 17 clients (out of 17)
INFO : aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 17 clients (out of 17)
INFO : aggregate_fit: received 17 results and 0 failures
INFO : configure_evaluate: strategy sampled 17 clients (out of 17)
INFO : aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 17 clients (out of 17)
INFO : aggregate_fit: received 17 results and 0 failures
INFO : configure_evaluate: strategy sampled 17 clients (out of 17)
INFO : aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 17 clients (out of 17)
INFO : aggregate_fit: received 17 results and 0 failures
INFO : configure_evaluate: strategy sampled 17 clients (out of 17)
(ClientAppActor pid=36891) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 172x
across cluster]

```

```

(ClientAppActor pid=36891)           [repeated 344x across
cluster]
(ClientAppActor pid=36891)           This is a deprecated feature. It
will be removed [repeated 172x across cluster]
(ClientAppActor pid=36891)           entirely in future versions of
Flower. [repeated 172x across cluster]
(ClientAppActor pid=36891) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 172x across cluster]
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 17 clients (out of 17)
INFO :      aggregate_fit: received 17 results and 0 failures
INFO :      configure_evaluate: strategy sampled 17 clients (out of 17)
INFO :      aggregate_evaluate: received 17 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 16.81s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=36890) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 49x
across cluster]
(ClientAppActor pid=36890)           [repeated 98x across
cluster]
(ClientAppActor pid=36890)           This is a deprecated feature. It
will be removed [repeated 49x across cluster]
(ClientAppActor pid=36890)           entirely in future versions of
Flower. [repeated 49x across cluster]
(ClientAppActor pid=36890) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 49x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 17 clients: 38.49 seconds

Running Federated Learning for 18 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:08:26,798 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'object_store_memory': 3990120038.0, 'memory': 7980240078.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
(ClientAppActor pid=37415) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
(ClientAppActor pid=37415) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415) entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=37415) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37415) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37415)
(ClientAppActor pid=37415)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37415)           entirely in future versions of
Flower.
(ClientAppActor pid=37415)
(ClientAppActor pid=37415) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 18 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
(ClientAppActor pid=37415) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=37415) [repeated 4x across
cluster]
(ClientAppActor pid=37415) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=37415) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 18 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 18 clients (out of 18)
INFO : aggregate_fit: received 18 results and 0 failures
INFO : configure_evaluate: strategy sampled 18 clients (out of 18)
INFO : aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 18 clients (out of 18)
INFO : aggregate_fit: received 18 results and 0 failures
INFO : configure_evaluate: strategy sampled 18 clients (out of 18)
INFO : aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 18 clients (out of 18)
INFO : aggregate_fit: received 18 results and 0 failures
INFO : configure_evaluate: strategy sampled 18 clients (out of 18)
INFO : aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 18 clients (out of 18)
INFO : aggregate_fit: received 18 results and 0 failures
INFO : configure_evaluate: strategy sampled 18 clients (out of 18)
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 156x
across cluster]
(ClientAppActor pid=37415) [repeated 312x across
cluster]

```

```

(ClientAppActor pid=37415)          This is a deprecated feature. It
will be removed [repeated 156x across cluster]
(ClientAppActor pid=37415)          entirely in future versions of
Flower. [repeated 156x across cluster]
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 156x across cluster]
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
(ClientAppActor pid=37415) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 122x
across cluster]
(ClientAppActor pid=37415)          [repeated 244x across
cluster]
(ClientAppActor pid=37415)          This is a deprecated feature. It
will be removed [repeated 122x across cluster]
(ClientAppActor pid=37415)          entirely in future versions of
Flower. [repeated 122x across cluster]
(ClientAppActor pid=37415) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 122x across cluster]
INFO :      aggregate_fit: received 18 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 18.27s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:08:58,481 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=37413) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 63x
across cluster]
(ClientAppActor pid=37413)          [repeated 126x across
cluster]
(ClientAppActor pid=37413)          This is a deprecated feature. It
will be removed [repeated 63x across cluster]
(ClientAppActor pid=37413)          entirely in future versions of
Flower. [repeated 63x across cluster]
(ClientAppActor pid=37413) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 63x across cluster]

Execution time without Ray for 18 clients: 36.45 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so

```

this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:09:04,138 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources:
{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0,
'object_store_memory': 3989989785.0, 'memory': 7979979572.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 18 clients (out of 18)
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935)           entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935)           entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935)           entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)

```

```

(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of
Flower.
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=37935)
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed
(ClientAppActor pid=37935) entirely in future versions of

```

Flower.

(ClientAppActor pid=37935)

(ClientAppActor pid=37935) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=37935)

(ClientAppActor pid=37935) This is a deprecated feature. It will be removed

(ClientAppActor pid=37935) entirely in future versions of Flower.

(ClientAppActor pid=37935)

(ClientAppActor pid=37935) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=37935)

(ClientAppActor pid=37935) This is a deprecated feature. It will be removed

(ClientAppActor pid=37935) entirely in future versions of Flower.

(ClientAppActor pid=37935)

(ClientAppActor pid=37935) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

INFO : aggregate\_fit: received 18 results and 0 failures

WARNING : No fit\_metrics\_aggregation\_fn provided

INFO : configure\_evaluate: strategy sampled 18 clients (out of 18)

(ClientAppActor pid=37934) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 11x

across cluster]

(ClientAppActor pid=37934) [repeated 22x across

cluster]

(ClientAppActor pid=37934) This is a deprecated feature. It will be removed [repeated 11x across cluster]

```

(ClientAppActor pid=37934)           entirely in future versions of
Flower. [repeated 11x across cluster]
(ClientAppActor pid=37934) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 11x across cluster]
INFO :      aggregate_evaluate: received 18 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
(ClientAppActor pid=37934) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 104x
across cluster]
(ClientAppActor pid=37934)           [repeated 208x across
cluster]
(ClientAppActor pid=37934)           This is a deprecated feature. It
will be removed [repeated 104x across cluster]
(ClientAppActor pid=37934)           entirely in future versions of
Flower. [repeated 104x across cluster]
(ClientAppActor pid=37934) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 104x across cluster]
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)

```

```

INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
(ClientAppActor pid=37934) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 142x

across cluster]
(ClientAppActor pid=37934)           [repeated 284x across

cluster]
(ClientAppActor pid=37934)           This is a deprecated feature. It
will be removed [repeated 142x across cluster]
(ClientAppActor pid=37934)           entirely in future versions of
Flower. [repeated 142x across cluster]
(ClientAppActor pid=37934) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 142x across cluster]
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 18 clients (out of 18)
INFO :      aggregate_fit: received 18 results and 0 failures
INFO :      configure_evaluate: strategy sampled 18 clients (out of 18)
INFO :      aggregate_evaluate: received 18 results and 0 failures

```



```

INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 17.64s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=37935) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 86x
across cluster]
(ClientAppActor pid=37935) [repeated 172x across
cluster]
(ClientAppActor pid=37935) This is a deprecated feature. It
will be removed [repeated 86x across cluster]
(ClientAppActor pid=37935) entirely in future versions of
Flower. [repeated 86x across cluster]
(ClientAppActor pid=37935) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 86x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 18 clients: 39.84 seconds

Running Federated Learning for 19 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:09:41,683 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7979517543.0, 'object_store_memory': 3989758771.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html

```

```

INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446)           entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446)           entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446)           entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446)           entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446)           entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)

```

```

(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38446) entirely in future versions of
Flower.
(ClientAppActor pid=38446)
(ClientAppActor pid=38446) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38445) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38445) [repeated 2x across
cluster]
(ClientAppActor pid=38445) This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=38445)           entirely in future versions of
Flower.
(ClientAppActor pid=38445) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 19 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38445) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38445)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38445)           entirely in future versions of
Flower.
(ClientAppActor pid=38445) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38445) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38445)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38445)           entirely in future versions of
Flower.
(ClientAppActor pid=38445) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 19 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures

```

```

INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38445)      [repeated 270x across
cluster]
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38445) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=38445)      This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=38445)      entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=38445) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38446) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def clien
(ClientAppActor pid=38446) t_fn(context: Context)`. The provided
`client_fn` has signature: {'cid': <Parameter "cid">}. You can import the

```

```

`Context` like this: `from flwr.common import Context`
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38445)      [repeated 342x across
cluster]
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38445) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 161x
across cluster]
(ClientAppActor pid=38445)      This is a deprecated feature. It
will be removed [repeated 162x across cluster]
(ClientAppActor pid=38445)      entirely in future versions of
Flower. [repeated 162x across cluster]
(ClientAppActor pid=38445) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumPyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 162x across cluster]
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 18.41s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :

```

2024-09-20 10:10:15,448 INFO worker.py:1585 -- Calling ray.init() again after it has already been called.

INFO : Starting Flower simulation, config: num\_rounds=10, no round\_timeout

(ClientAppActor pid=38446) [repeated 110x across cluster]

(ClientAppActor pid=38446) WARNING : DEPRECATED FEATURE: `client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 31x across cluster]

(ClientAppActor pid=38446) This is a deprecated feature. It will be removed [repeated 31x across cluster]

(ClientAppActor pid=38446) entirely in future versions of Flower. [repeated 31x across cluster]

(ClientAppActor pid=38446) WARNING : Deprecation Warning: The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 31x across cluster]

Execution time without Ray for 19 clients: 36.98 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

self.pid = \_posixsubprocess.fork\_exec(

2024-09-20 10:10:20,904 INFO worker.py:1752 -- Started a local Ray instance.

INFO : Flower VCE: Ray initialized with resources:

{'object\_store\_memory': 3989794406.0, 'memory': 7979588814.0, 'node:\_\_internal\_head\_\_': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0}

INFO : Optimize your simulation with Flower VCE:

<https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 19 clients (out of 19)

(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987) entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987) entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987) entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=38987) entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987) entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987) entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987) entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=38987) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)           entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)           entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)           entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)

```



```

(ClientAppActor pid=38987)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)          entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)          entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)          entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)          entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=38987)
```

```
(ClientAppActor pid=38987) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=38987) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=38987)
```

```
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=38987)
```

```
(ClientAppActor pid=38987) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=38987) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=38987)
```

```
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=38987)
```

```
(ClientAppActor pid=38987) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=38987) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=38987)
```

```
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)          entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=38987)
(ClientAppActor pid=38987)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=38987)          entirely in future versions of
Flower.
(ClientAppActor pid=38987)
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 19 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38987) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 23x
across cluster]
(ClientAppActor pid=38987)          [repeated 46x across
cluster]
(ClientAppActor pid=38987)          This is a deprecated feature. It
will be removed [repeated 23x across cluster]
(ClientAppActor pid=38987)          entirely in future versions of
Flower. [repeated 23x across cluster]
(ClientAppActor pid=38987) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 22x across cluster]
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38987) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x
across cluster]
(ClientAppActor pid=38987)           [repeated 270x across
cluster]
(ClientAppActor pid=38987)           This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=38987)           entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=38987) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 136x across cluster]
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 7]

```

```

INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
(ClientAppActor pid=38987) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 124x
across cluster]
(ClientAppActor pid=38987)           [repeated 248x across
cluster]
(ClientAppActor pid=38987)           This is a deprecated feature. It
will be removed [repeated 124x across cluster]
(ClientAppActor pid=38987)           entirely in future versions of
Flower. [repeated 124x across cluster]
(ClientAppActor pid=38987) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 124x across cluster]
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 19 clients (out of 19)
INFO :      aggregate_fit: received 19 results and 0 failures
INFO :      configure_evaluate: strategy sampled 19 clients (out of 19)
INFO :      aggregate_evaluate: received 19 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 17.70s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0

```

```

INFO :                round 6: 0.0
INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
(ClientAppActor pid=38985) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 80x
across cluster]
(ClientAppActor pid=38985)                [repeated 160x across
cluster]
(ClientAppActor pid=38985)                This is a deprecated feature. It
will be removed [repeated 80x across cluster]
(ClientAppActor pid=38985)                entirely in future versions of
Flower. [repeated 80x across cluster]
(ClientAppActor pid=38985) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 80x across cluster]
INFO :                Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 19 clients: 39.90 seconds

Running Federated Learning for 20 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:10:59,327 INFO worker.py:1752 -- Started a local Ray instance.
INFO :                Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'memory': 7979291444.0,
'object_store_memory': 3989645721.0}
INFO :                Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :                No `client_resources` specified. Using minimal resources
for clients.
INFO :                Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :                Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :                [INIT]
INFO :                Requesting initial parameters from one random client
INFO :                Received initial parameters from one random client

```

```

INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)

```

```

(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) This is a deprecated feature. It
will be removed
(ClientAppActor pid=39513) entirely in future versions of
Flower.
(ClientAppActor pid=39513)
(ClientAppActor pid=39513) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=39513)
```

```
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=39513)
```

```
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=39513)
```

```
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=39513)
```

```
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=39513)
```

```
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=39513)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=39513)
```

```
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
INFO :      aggregate_fit: received 20 results and 0 failures
```

```
WARNING :    No fit_metrics_aggregation_fn provided
```

```
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
```

```

(ClientAppActor pid=39513) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=39513)           [repeated 4x across
cluster]
(ClientAppActor pid=39513)           This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=39513)           entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=39513) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 20 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
(ClientAppActor pid=39512) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 120x
across cluster]
(ClientAppActor pid=39512)           [repeated 240x across
cluster]
(ClientAppActor pid=39512)           This is a deprecated feature. It
will be removed [repeated 120x across cluster]
(ClientAppActor pid=39512)           entirely in future versions of
Flower. [repeated 120x across cluster]

```

```

(ClientAppActor pid=39512) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 120x across cluster]
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'c
(ClientAppActor pid=39513) id': <Parameter "cid">}. You can import the
`Context` like this: `from flwr.common import Context`
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
(ClientAppActor pid=39513) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 170x
across cluster]
(ClientAppActor pid=39513)      [repeated 342x across
cluster]
(ClientAppActor pid=39513)      This is a deprecated feature. It
will be removed [repeated 171x across cluster]
(ClientAppActor pid=39513)      entirely in future versions of
Flower. [repeated 171x across cluster]
(ClientAppActor pid=39513) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 171x across cluster]
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 18.48s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:11:32,868 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=39512) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 88x
across cluster]
(ClientAppActor pid=39512)          [repeated 176x across
cluster]
(ClientAppActor pid=39512)          This is a deprecated feature. It
will be removed [repeated 88x across cluster]
(ClientAppActor pid=39512)          entirely in future versions of
Flower. [repeated 88x across cluster]
(ClientAppActor pid=39512) WARNING :   Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 88x across cluster]

Execution time without Ray for 20 clients: 37.37 seconds

```
/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.  
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so  
this will likely lead to a deadlock.
```

```
    self.pid = _posixsubprocess.fork_exec(  
2024-09-20 10:11:38,555 INFO worker.py:1752 -- Started a local Ray instance.  
INFO :      Flower VCE: Ray initialized with resources: {'memory':  
7979485595.0, 'object_store_memory': 3989742796.0, 'CPU': 2.0,  
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}  
INFO :      Optimize your simulation with Flower VCE:  
https://flower.ai/docs/framework/how-to-run-simulations.html  
INFO :      No `client_resources` specified. Using minimal resources  
for clients.  
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':  
1, 'num_gpus': 0.0}  
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2  
actors  
INFO :      [INIT]  
INFO :      Requesting initial parameters from one random client  
INFO :      Received initial parameters from one random client  
INFO :      Starting evaluation of initial global parameters  
INFO :      Evaluation returned no results (`None`)  
INFO :  
INFO :      [ROUND 1]  
INFO :      configure_fit: strategy sampled 20 clients (out of 20)  
(ClientAppActor pid=40039) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`  
(ClientAppActor pid=40039)  
(ClientAppActor pid=40039)           This is a deprecated feature. It  
will be removed  
(ClientAppActor pid=40039)           entirely in future versions of  
Flower.  
(ClientAppActor pid=40039)  
(ClientAppActor pid=40039) WARNING :   Deprecation Warning:  
The `client_fn` function must return an instance of `Client`, but an instance of  
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to  
convert it to `Client`.  
(ClientAppActor pid=40039) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`  
(ClientAppActor pid=40039)
```

```

(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=40039)
```

```
(ClientAppActor pid=40039) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=40039) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=40039)
```

```
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=40039)
```

```
(ClientAppActor pid=40039) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=40039) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=40039)
```

```
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=40039)
```

```
(ClientAppActor pid=40039) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=40039) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=40039)
```

```
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039)           entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039)           entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039)           entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039) entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) This is a deprecated feature. It
will be removed

```



```

(ClientAppActor pid=40039)           entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40039) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40039)
(ClientAppActor pid=40039)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40039)           entirely in future versions of
Flower.
(ClientAppActor pid=40039)
(ClientAppActor pid=40039) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 20 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
(ClientAppActor pid=40038) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 9x

across cluster]
(ClientAppActor pid=40038)           [repeated 18x across

cluster]
(ClientAppActor pid=40038)           This is a deprecated feature. It
will be removed [repeated 9x across cluster]
(ClientAppActor pid=40038)           entirely in future versions of
Flower. [repeated 9x across cluster]
(ClientAppActor pid=40038) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 9x across cluster]
INFO :      aggregate_evaluate: received 20 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)

```

```

INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
(ClientAppActor pid=40038) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 152x

across cluster]
(ClientAppActor pid=40038)           [repeated 304x across

cluster]
(ClientAppActor pid=40038)           This is a deprecated feature. It
will be removed [repeated 152x across cluster]
(ClientAppActor pid=40038)           entirely in future versions of
Flower. [repeated 152x across cluster]
(ClientAppActor pid=40038) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 152x across cluster]
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures

```

```

INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
(ClientAppActor pid=40038) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 101x

across cluster]
(ClientAppActor pid=40038)              [repeated 202x across

cluster]
(ClientAppActor pid=40038)              This is a deprecated feature. It
will be removed [repeated 101x across cluster]
(ClientAppActor pid=40038)              entirely in future versions of
Flower. [repeated 101x across cluster]
(ClientAppActor pid=40038) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 101x across cluster]
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 20 clients (out of 20)
INFO :      aggregate_fit: received 20 results and 0 failures
INFO :      configure_evaluate: strategy sampled 20 clients (out of 20)
INFO :      aggregate_evaluate: received 20 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 18.73s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0

```

```

INFO :                round 10: 0.0
INFO :
(ClientAppActor pid=40039) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 119x
across cluster]
(ClientAppActor pid=40039)                [repeated 238x across
cluster]
(ClientAppActor pid=40039)                This is a deprecated feature. It
will be removed [repeated 119x across cluster]
(ClientAppActor pid=40039)                entirely in future versions of
Flower. [repeated 119x across cluster]
(ClientAppActor pid=40039) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 119x across cluster]
INFO :                Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 20 clients: 40.56 seconds

Running Federated Learning for 21 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:12:17,388 INFO worker.py:1752 -- Started a local Ray instance.
INFO :                Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7977885696.0, 'object_store_memory': 3988942848.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO :                Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :                No `client_resources` specified. Using minimal resources
for clients.
INFO :                Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :                Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :                [INIT]
INFO :                Requesting initial parameters from one random client
INFO :                Received initial parameters from one random client
INFO :                Starting evaluation of initial global parameters
INFO :                Evaluation returned no results (`None`)
INFO :
INFO :                [ROUND 1]

```

```

INFO :      configure_fit: strategy sampled 21 clients (out of 21)
(ClientAppActor pid=40569) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569)           entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569)           entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569)           entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)

```

```

(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=40569)
```

```
(ClientAppActor pid=40569) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=40569) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=40569)
```

```
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=40569)
```

```
(ClientAppActor pid=40569) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=40569) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=40569)
```

```
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=40569)
```

```
(ClientAppActor pid=40569) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=40569) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=40569)
```

```
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569)           entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569)           entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569)           entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed
(ClientAppActor pid=40569) entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=40569)           entirely in future versions of
Flower.
(ClientAppActor pid=40569)
(ClientAppActor pid=40569) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 21 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
(ClientAppActor pid=40569) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=40569)           [repeated 4x across
cluster]
(ClientAppActor pid=40569)           This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=40569)           entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=40569) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 21 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
(ClientAppActor pid=40569) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 138x
across cluster]
(ClientAppActor pid=40569) [repeated 276x across
cluster]
(ClientAppActor pid=40569) This is a deprecated feature. It
will be removed [repeated 138x across cluster]
(ClientAppActor pid=40569) entirely in future versions of
Flower. [repeated 138x across cluster]
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 138x across cluster]
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
(ClientAppActor pid=40569) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 172x
across cluster]
(ClientAppActor pid=40569) [repeated 344x across
cluster]
(ClientAppActor pid=40569) This is a deprecated feature. It

```

```

will be removed [repeated 172x across cluster]
(ClientAppActor pid=40569) entirely in future versions of
Flower. [repeated 172x across cluster]
(ClientAppActor pid=40569) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 172x across cluster]
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 18.97s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:12:51,790 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=40568) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 88x
across cluster]
(ClientAppActor pid=40568) [repeated 176x across
cluster]

```

```

(ClientAppActor pid=40568) This is a deprecated feature. It
will be removed [repeated 88x across cluster]
(ClientAppActor pid=40568) entirely in future versions of
Flower. [repeated 88x across cluster]
(ClientAppActor pid=40568) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 88x across cluster]

Execution time without Ray for 21 clients: 38.22 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:12:57,638 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'memory': 7978156032.0,
'object_store_memory': 3989078016.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
INFO : Starting evaluation of initial global parameters
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 21 clients (out of 21)

```



```

(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098)           entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)

```

```

(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41098) entirely in future versions of
Flower.
(ClientAppActor pid=41098)
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 21 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 20x
across cluster]
(ClientAppActor pid=41098) [repeated 40x across
cluster]
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed [repeated 20x across cluster]
(ClientAppActor pid=41098) entirely in future versions of
Flower. [repeated 20x across cluster]
(ClientAppActor pid=41098) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 20x across cluster]
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
(ClientAppActor pid=41098) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 148x
across cluster]
(ClientAppActor pid=41098) [repeated 296x across
cluster]
(ClientAppActor pid=41098) This is a deprecated feature. It
will be removed [repeated 148x across cluster]

```



```

(ClientAppActor pid=41098)           entirely in future versions of
Flower. [repeated 148x across cluster]
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 148x across cluster]
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
(ClientAppActor pid=41098) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 89x
across cluster]
(ClientAppActor pid=41098)           [repeated 178x across
cluster]
(ClientAppActor pid=41098)           This is a deprecated feature. It
will be removed [repeated 89x across cluster]
(ClientAppActor pid=41098)           entirely in future versions of
Flower. [repeated 89x across cluster]
(ClientAppActor pid=41098) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 89x across cluster]
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
INFO :      aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 21 clients (out of 21)
INFO :      aggregate_fit: received 21 results and 0 failures
INFO :      configure_evaluate: strategy sampled 21 clients (out of 21)
INFO :      aggregate_evaluate: received 21 results and 0 failures

```

```

INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 21 clients (out of 21)
INFO : aggregate_fit: received 21 results and 0 failures
INFO : configure_evaluate: strategy sampled 21 clients (out of 21)
INFO : aggregate_evaluate: received 21 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 19.39s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=41097) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 143x
across cluster]
(ClientAppActor pid=41097) [repeated 286x across
cluster]
(ClientAppActor pid=41097) This is a deprecated feature. It
will be removed [repeated 143x across cluster]
(ClientAppActor pid=41097) entirely in future versions of
Flower. [repeated 143x across cluster]
(ClientAppActor pid=41097) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 143x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 21 clients: 41.21 seconds

Running Federated Learning for 22 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(

```

```

2024-09-20 10:13:36,982 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0,
'object_store_memory': 3988905984.0, 'memory': 7977811968.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.

```

```

(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630)           entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)

```



```

(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed
(ClientAppActor pid=41630) entirely in future versions of
Flower.
(ClientAppActor pid=41630)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=41629) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41629) [repeated 2x across
cluster]
(ClientAppActor pid=41629) This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=41629)           entirely in future versions of
Flower.
(ClientAppActor pid=41629) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 22 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41629) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=41629)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=41629)           entirely in future versions of
Flower.
(ClientAppActor pid=41630) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 22 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41630)           [repeated 180x across
cluster]
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41630) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 128x
across cluster]

```

```

(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed [repeated 128x across cluster]
(ClientAppActor pid=41630) entirely in future versions of
Flower. [repeated 128x across cluster]
INFO : aggregate_fit: received 22 results and 0 failures
INFO : configure_evaluate: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 132x across cluster]
INFO : aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 22 clients (out of 22)
INFO : aggregate_fit: received 22 results and 0 failures
INFO : configure_evaluate: strategy sampled 22 clients (out of 22)
INFO : aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 22 clients (out of 22)
INFO : aggregate_fit: received 22 results and 0 failures
INFO : configure_evaluate: strategy sampled 22 clients (out of 22)
INFO : aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41630) [repeated 336x across
cluster]
INFO : aggregate_fit: received 22 results and 0 failures
INFO : configure_evaluate: strategy sampled 22 clients (out of 22)
INFO : aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41630) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=41630) This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=41630) entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=41630) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 168x across cluster]
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=41630)      [repeated 296x across
cluster]
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 20.92s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:14:12,888 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=41629) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 122x
across cluster]
(ClientAppActor pid=41629)      This is a deprecated feature. It
will be removed [repeated 122x across cluster]
(ClientAppActor pid=41629)      entirely in future versions of
Flower. [repeated 122x across cluster]

```

```
(ClientAppActor pid=41629) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 117x across cluster]
(ClientAppActor pid=41629) [repeated 24x across
cluster]
```

Execution time without Ray for 22 clients: 39.76 seconds

```
/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
```

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:14:18,430 INFO worker.py:1752 -- Started a local Ray instance.
```

```
INFO : Flower VCE: Ray initialized with resources:
{'object_store_memory': 3989193523.0, 'memory': 7978387047.0, 'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
```

```
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
```

```
INFO : No `client_resources` specified. Using minimal resources
for clients.
```

```
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
```

```
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
```

```
INFO : [INIT]
```

```
INFO : Requesting initial parameters from one random client
```

```
INFO : Received initial parameters from one random client
```

```
INFO : Starting evaluation of initial global parameters
```

```
INFO : Evaluation returned no results (`None`)
```

```
INFO :
```

```
INFO : [ROUND 1]
```

```
INFO : configure_fit: strategy sampled 22 clients (out of 22)
```

```
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=42167) entirely in future versions of
Flower.
```

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
```

```
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
```

```
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed

```



```

(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=42167) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167)           entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167)           entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167)           entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)

```

```

(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167) entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=42167) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=42167) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=42167) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=42167)
```

```
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167)           entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167)           entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167)           entirely in future versions of
Flower.
(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42167)
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42167)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=42167)
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 22 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=42166) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 18x

across cluster]
(ClientAppActor pid=42166)          [repeated 36x across

cluster]
(ClientAppActor pid=42166)          This is a deprecated feature. It
will be removed [repeated 18x across cluster]
(ClientAppActor pid=42166)          entirely in future versions of
Flower. [repeated 18x across cluster]
(ClientAppActor pid=42166) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 18x across cluster]
INFO :      aggregate_evaluate: received 22 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has
(ClientAppActor pid=42167) s signature: {'cid': <Parameter "cid">}. You
can import the `Context` like this: `from flwr.common import Context`
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=42167) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`Num
(ClientAppActor pid=42167) pyClient` was returned. Please use
`NumPyClient.to_client()` method to convert it to `Client`.
(ClientAppActor pid=42167) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 145x

across cluster]
(ClientAppActor pid=42167)           [repeated 292x across
cluster]
(ClientAppActor pid=42167)           This is a deprecated feature. It
will be removed [repeated 146x across cluster]
(ClientAppActor pid=42167)           entirely in future versions of
Flower. [repeated 146x across cluster]
(ClientAppActor pid=42167) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 145x across cluster]
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
(ClientAppActor pid=42166) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 103x

across cluster]

```



```

(ClientAppActor pid=42166)           [repeated 206x across
cluster]
(ClientAppActor pid=42166)           This is a deprecated feature. It
will be removed [repeated 103x across cluster]
(ClientAppActor pid=42166)           entirely in future versions of
Flower. [repeated 103x across cluster]
(ClientAppActor pid=42166) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 22 clients (out of 22)
INFO :      aggregate_fit: received 22 results and 0 failures
INFO :      configure_evaluate: strategy sampled 22 clients (out of 22)
INFO :      aggregate_evaluate: received 22 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 19.62s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=42167) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 152x
across cluster]
(ClientAppActor pid=42167) [repeated 304x across
cluster]
(ClientAppActor pid=42167) This is a deprecated feature. It
will be removed [repeated 152x across cluster]
(ClientAppActor pid=42167) entirely in future versions of
Flower. [repeated 152x across cluster]
(ClientAppActor pid=42167) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 152x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 22 clients: 41.67 seconds

Running Federated Learning for 23 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:14:58,475 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3988892467.0, 'memory': 7977784935.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)

```

```

(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704) entirely in future versions of

```

Flower.

(ClientAppActor pid=42704)

(ClientAppActor pid=42704) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=42704)

(ClientAppActor pid=42704) This is a deprecated feature. It

will be removed

(ClientAppActor pid=42704) entirely in future versions of

Flower.

(ClientAppActor pid=42704)

(ClientAppActor pid=42704) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=42704)

(ClientAppActor pid=42704) This is a deprecated feature. It

will be removed

(ClientAppActor pid=42704) entirely in future versions of

Flower.

(ClientAppActor pid=42704)

(ClientAppActor pid=42704) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=42704)

(ClientAppActor pid=42704) This is a deprecated feature. It

will be removed

(ClientAppActor pid=42704) entirely in future versions of

Flower.

(ClientAppActor pid=42704)

(ClientAppActor pid=42704) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=42704) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42704) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42704)
(ClientAppActor pid=42704)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42704)           entirely in future versions of
Flower.
(ClientAppActor pid=42704)
(ClientAppActor pid=42704) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42702) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42702)           [repeated 2x across
cluster]
(ClientAppActor pid=42702)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42702)           entirely in future versions of
Flower.
(ClientAppActor pid=42702) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 23 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)

```

```

(ClientAppActor pid=42702) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42702)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42702)           entirely in future versions of
Flower.
(ClientAppActor pid=42702) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumPyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=42702) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=42702)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=42702)           entirely in future versions of
Flower.
(ClientAppActor pid=42702) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumPyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 23 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=42702)           [repeated 226x across
cluster]
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=42702) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 149x
across cluster]
(ClientAppActor pid=42702) This is a deprecated feature. It
will be removed [repeated 149x across cluster]
(ClientAppActor pid=42702) entirely in future versions of
Flower. [repeated 149x across cluster]
(ClientAppActor pid=42702) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 149x across cluster]
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=42702) [repeated 338x across
cluster]
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=42702) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 169x
across cluster]
(ClientAppActor pid=42702) This is a deprecated feature. It
will be removed [repeated 169x across cluster]
(ClientAppActor pid=42702) entirely in future versions of
Flower. [repeated 169x across cluster]
(ClientAppActor pid=42702) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 169x across cluster]
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=42702)      [repeated 252x across
cluster]
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=42702) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 109x
across cluster]
(ClientAppActor pid=42702)      This is a deprecated feature. It
will be removed [repeated 109x across cluster]
(ClientAppActor pid=42702)      entirely in future versions of
Flower. [repeated 109x across cluster]
(ClientAppActor pid=42702) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 109x across cluster]
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 21.88s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0

```

```

INFO :
2024-09-20 10:15:35,544 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=42702)          [repeated 58x across
cluster]
(ClientAppActor pid=42702) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 8x
across cluster]
(ClientAppActor pid=42702)          This is a deprecated feature. It
will be removed [repeated 8x across cluster]
(ClientAppActor pid=42702)          entirely in future versions of
Flower. [repeated 8x across cluster]
(ClientAppActor pid=42704) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 8x across cluster]

Execution time without Ray for 23 clients: 40.82 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:15:41,219 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3988310016.0, 'memory': 7976620032.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)

```

```

(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249)           entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)

```

```

(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of

```

Flower.

```
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43249) entirely in future versions of
Flower.
(ClientAppActor pid=43249)
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 23 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=43249) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 20x
across cluster]
(ClientAppActor pid=43249) [repeated 40x across
cluster]
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed [repeated 20x across cluster]
```

```

(ClientAppActor pid=43249)           entirely in future versions of
Flower. [repeated 20x across cluster]
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 20x across cluster]
INFO :      aggregate_evaluate: received 23 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 111x
across cluster]
(ClientAppActor pid=43249)           [repeated 222x across
cluster]
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed [repeated 111x across cluster]
(ClientAppActor pid=43249)           entirely in future versions of
Flower. [repeated 111x across cluster]
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 111x across cluster]
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)

```



```

INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 125x
across cluster]
(ClientAppActor pid=43249)           [repeated 250x across
cluster]
(ClientAppActor pid=43249)           This is a deprecated feature. It
will be removed [repeated 125x across cluster]
(ClientAppActor pid=43249)           entirely in future versions of
Flower. [repeated 125x across cluster]
(ClientAppActor pid=43249) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 125x across cluster]
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
INFO :      aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 23 clients (out of 23)
INFO :      aggregate_fit: received 23 results and 0 failures
INFO :      configure_evaluate: strategy sampled 23 clients (out of 23)
(ClientAppActor pid=43249) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 172x

across cluster]
(ClientAppActor pid=43249) [repeated 344x across

cluster]
(ClientAppActor pid=43249) This is a deprecated feature. It
will be removed [repeated 172x across cluster]
(ClientAppActor pid=43249) entirely in future versions of
Flower. [repeated 172x across cluster]
(ClientAppActor pid=43249) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 172x across cluster]
INFO : aggregate_evaluate: received 23 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 20.52s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=43248) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 10x

across cluster]
(ClientAppActor pid=43248) [repeated 20x across

cluster]
(ClientAppActor pid=43248) This is a deprecated feature. It
will be removed [repeated 10x across cluster]
(ClientAppActor pid=43248) entirely in future versions of
Flower. [repeated 10x across cluster]
(ClientAppActor pid=43248) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 10x across cluster]

```

```

INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 23 clients: 42.54 seconds

Running Federated Learning for 24 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:16:23,081 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0, 'memory':
7977745614.0, 'object_store_memory': 3988872806.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)

```

```

(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779) entirely in future versions of

```

Flower.

(ClientAppActor pid=43779)

(ClientAppActor pid=43779) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=43779)

(ClientAppActor pid=43779) This is a deprecated feature. It will be removed

(ClientAppActor pid=43779) entirely in future versions of

Flower.

(ClientAppActor pid=43779)

(ClientAppActor pid=43779) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=43779)

(ClientAppActor pid=43779) This is a deprecated feature. It will be removed

(ClientAppActor pid=43779) entirely in future versions of

Flower.

(ClientAppActor pid=43779)

(ClientAppActor pid=43779) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=43779)

(ClientAppActor pid=43779) This is a deprecated feature. It will be removed

(ClientAppActor pid=43779) entirely in future versions of

Flower.

(ClientAppActor pid=43779)

(ClientAppActor pid=43779) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43779) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43779)
(ClientAppActor pid=43779)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43779)           entirely in future versions of
Flower.
(ClientAppActor pid=43779)
(ClientAppActor pid=43779) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43778)           [repeated 2x across
cluster]
(ClientAppActor pid=43778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43778)           entirely in future versions of
Flower.
(ClientAppActor pid=43778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 24 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)

```

```

(ClientAppActor pid=43778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43778)           entirely in future versions of
Flower.
(ClientAppActor pid=43778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43778)           entirely in future versions of
Flower.
(ClientAppActor pid=43778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=43778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=43778)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=43778)           entirely in future versions of
Flower.
(ClientAppActor pid=43778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 24 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=43778)      [repeated 252x across
cluster]
(ClientAppActor pid=43778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 127x across cluster]
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=43778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 147x
across cluster]
(ClientAppActor pid=43778)      This is a deprecated feature. It
will be removed [repeated 147x across cluster]
(ClientAppActor pid=43778)      entirely in future versions of
Flower. [repeated 147x across cluster]
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=43778)      [repeated 286x across
cluster]
(ClientAppActor pid=43778) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 141x across cluster]
(ClientAppActor pid=43778) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The

```

provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 133x

across cluster]

(ClientAppActor pid=43778) This is a deprecated feature. It will be removed [repeated 133x across cluster]

(ClientAppActor pid=43778) entirely in future versions of Flower. [repeated 133x across cluster]

INFO : aggregate\_fit: received 24 results and 0 failures  
INFO : configure\_evaluate: strategy sampled 24 clients (out of 24)  
INFO : aggregate\_evaluate: received 24 results and 0 failures

INFO :

INFO : [ROUND 8]

INFO : configure\_fit: strategy sampled 24 clients (out of 24)  
INFO : aggregate\_fit: received 24 results and 0 failures  
INFO : configure\_evaluate: strategy sampled 24 clients (out of 24)  
INFO : aggregate\_evaluate: received 24 results and 0 failures

INFO :

INFO : [ROUND 9]

INFO : configure\_fit: strategy sampled 24 clients (out of 24)  
INFO : aggregate\_fit: received 24 results and 0 failures  
INFO : configure\_evaluate: strategy sampled 24 clients (out of 24)

(ClientAppActor pid=43778) [repeated 226x across

cluster]

(ClientAppActor pid=43778) WARNING : Deprecation Warning:  
The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 114x across cluster]

INFO : aggregate\_evaluate: received 24 results and 0 failures

INFO :

INFO : [ROUND 10]

INFO : configure\_fit: strategy sampled 24 clients (out of 24)

(ClientAppActor pid=43778) WARNING : DEPRECATED FEATURE:  
`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 124x

across cluster]

(ClientAppActor pid=43778) This is a deprecated feature. It will be removed [repeated 124x across cluster]

(ClientAppActor pid=43778) entirely in future versions of Flower. [repeated 124x across cluster]

INFO : aggregate\_fit: received 24 results and 0 failures  
INFO : configure\_evaluate: strategy sampled 24 clients (out of 24)  
INFO : aggregate\_evaluate: received 24 results and 0 failures

INFO :

INFO : [SUMMARY]

INFO : Run finished 10 round(s) in 22.77s

```

INFO :          History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:16:59,044 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :          Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=43779)          [repeated 148x across
cluster]
(ClientAppActor pid=43779) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 71x across cluster]
(ClientAppActor pid=43779) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 49x
across cluster]
(ClientAppActor pid=43779)          This is a deprecated feature. It
will be removed [repeated 49x across cluster]
(ClientAppActor pid=43779)          entirely in future versions of
Flower. [repeated 49x across cluster]

Execution time without Ray for 24 clients: 40.85 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:17:04,578 INFO worker.py:1752 -- Started a local Ray instance.
INFO :          Flower VCE: Ray initialized with resources: {'memory':
7977384347.0, 'object_store_memory': 3988692172.0, 'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0}
INFO :          Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :          No `client_resources` specified. Using minimal resources
for clients.
INFO :          Flower VCE: Resources for each Virtual Client: {'num_cpus':

```



```

1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328)           entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328)           entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328)           entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328)           entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328)           entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)

```

```

(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=44328)
```

```
(ClientAppActor pid=44328) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=44328) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=44328)
```

```
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=44328)
```

```
(ClientAppActor pid=44328) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=44328) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=44328)
```

```
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=44328)
```

```
(ClientAppActor pid=44328) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=44328) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=44328)
```

```
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44328) entirely in future versions of
Flower.
(ClientAppActor pid=44328)
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 24 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=44327) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=44327) [repeated 4x across
cluster]
(ClientAppActor pid=44327) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=44327) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=44327) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 24 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 24 clients (out of 24)
INFO : aggregate_fit: received 24 results and 0 failures
INFO : configure_evaluate: strategy sampled 24 clients (out of 24)
INFO : aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 24 clients (out of 24)
INFO : aggregate_fit: received 24 results and 0 failures
INFO : configure_evaluate: strategy sampled 24 clients (out of 24)
INFO : aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 24 clients (out of 24)

```

```

(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 127x
across cluster]
(ClientAppActor pid=44328)           [repeated 254x across
cluster]
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed [repeated 127x across cluster]
(ClientAppActor pid=44328)           entirely in future versions of
Flower. [repeated 127x across cluster]
(ClientAppActor pid=44328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 127x across cluster]
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 172x
across cluster]
(ClientAppActor pid=44328)           [repeated 344x across
cluster]
(ClientAppActor pid=44328)           This is a deprecated feature. It
will be removed [repeated 172x across cluster]
(ClientAppActor pid=44328)           entirely in future versions of

```

```

Flower. [repeated 172x across cluster]
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 172x across cluster]
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 24 clients (out of 24)
INFO :      aggregate_fit: received 24 results and 0 failures
INFO :      configure_evaluate: strategy sampled 24 clients (out of 24)
(ClientAppActor pid=44328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 132x
across cluster]
(ClientAppActor pid=44328) [repeated 264x across
cluster]
(ClientAppActor pid=44328) This is a deprecated feature. It
will be removed [repeated 132x across cluster]
(ClientAppActor pid=44328) entirely in future versions of
Flower. [repeated 132x across cluster]
(ClientAppActor pid=44328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 131x across cluster]
INFO :      aggregate_evaluate: received 24 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 21.86s
INFO :      History (loss, distributed):
INFO :      round 1: 0.0
INFO :      round 2: 0.0
INFO :      round 3: 0.0

```

```

INFO :                round 4: 0.0
INFO :                round 5: 0.0
INFO :                round 6: 0.0
INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
(ClientAppActor pid=44328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 24x
across cluster]
(ClientAppActor pid=44328)                [repeated 48x across
cluster]
(ClientAppActor pid=44328)                This is a deprecated feature. It
will be removed [repeated 24x across cluster]
(ClientAppActor pid=44328)                entirely in future versions of
Flower. [repeated 24x across cluster]
(ClientAppActor pid=44328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 25x across cluster]
INFO :                Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 24 clients: 44.53 seconds

Running Federated Learning for 25 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:17:47,481 INFO worker.py:1752 -- Started a local Ray instance.
INFO :                Flower VCE: Ray initialized with resources: {'memory':
7976870708.0, 'object_store_memory': 3988435353.0, 'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0}
INFO :                Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :                No `client_resources` specified. Using minimal resources
for clients.
INFO :                Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :                Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :                [INIT]

```

```

INFO :      Requesting initial parameters from one random client
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)      entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)      entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)      entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)

```

```

(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:

```



The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=44870)
```

```
(ClientAppActor pid=44870)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=44870)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=44870)
```

```
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=44870)
```

```
(ClientAppActor pid=44870)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=44870)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=44870)
```

```
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=44870)
```

```
(ClientAppActor pid=44870)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=44870)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=44870)
```

```
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870) entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=44870)
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=44870)           entirely in future versions of
Flower.
(ClientAppActor pid=44870)
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 25 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 6x

across cluster]
(ClientAppActor pid=44870)           [repeated 12x across

cluster]
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed [repeated 6x across cluster]
(ClientAppActor pid=44870)           entirely in future versions of
Flower. [repeated 6x across cluster]
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 6x across cluster]
INFO :      aggregate_evaluate: received 25 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)

```

```

INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 119x

across cluster]
(ClientAppActor pid=44870)           [repeated 238x across

cluster]
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed [repeated 119x across cluster]
(ClientAppActor pid=44870)           entirely in future versions of
Flower. [repeated 119x across cluster]
(ClientAppActor pid=44870) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 119x across cluster]
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=44870) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 132x

across cluster]

```

```

(ClientAppActor pid=44870)           [repeated 264x across
cluster]
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed [repeated 132x across cluster]
(ClientAppActor pid=44870)           entirely in future versions of
Flower. [repeated 132x across cluster]
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 132x across cluster]
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=44870) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 171x
across cluster]
(ClientAppActor pid=44870)           [repeated 342x across
cluster]
(ClientAppActor pid=44870)           This is a deprecated feature. It
will be removed [repeated 171x across cluster]
(ClientAppActor pid=44870)           entirely in future versions of
Flower. [repeated 171x across cluster]
(ClientAppActor pid=44870) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```



```

convert it to `Client`. [repeated 171x across cluster]
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 21.61s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:18:24,166 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=44869) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 48x
across cluster]
(ClientAppActor pid=44869)          [repeated 96x across
cluster]
(ClientAppActor pid=44869)          This is a deprecated feature. It
will be removed [repeated 48x across cluster]
(ClientAppActor pid=44869)          entirely in future versions of
Flower. [repeated 48x across cluster]
(ClientAppActor pid=44869) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 48x across cluster]

Execution time without Ray for 25 clients: 40.46 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:18:30,773 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:

```

```

{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'memory': 7977526887.0,
'object_store_memory': 3988763443.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of

```

Flower.

```
(ClientAppActor pid=45417)
```

```
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=45417)
```

```
(ClientAppActor pid=45417) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=45417) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=45417)
```

```
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=45417)
```

```
(ClientAppActor pid=45417) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=45417) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=45417)
```

```
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=45417)
```

```
(ClientAppActor pid=45417) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=45417) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=45417)
```

```
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417)           entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)

```

```

(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45417) entirely in future versions of
Flower.
(ClientAppActor pid=45417)
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 25 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=45416) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 12x

across cluster]
(ClientAppActor pid=45416) [repeated 24x across

cluster]
(ClientAppActor pid=45416) This is a deprecated feature. It
will be removed [repeated 12x across cluster]
(ClientAppActor pid=45416) entirely in future versions of
Flower. [repeated 12x across cluster]

```

```

(ClientAppActor pid=45416) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 11x across cluster]
INFO :      aggregate_evaluate: received 25 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=45416) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 170x
across cluster]
(ClientAppActor pid=45416)      [repeated 340x across
cluster]
(ClientAppActor pid=45416)      This is a deprecated feature. It
will be removed [repeated 170x across cluster]
(ClientAppActor pid=45416)      entirely in future versions of
Flower. [repeated 170x across cluster]
(ClientAppActor pid=45416) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 171x across cluster]
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :

```

```

INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=45416) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 97x

across cluster]
(ClientAppActor pid=45416)           [repeated 194x across
cluster]
(ClientAppActor pid=45416)           This is a deprecated feature. It
will be removed [repeated 97x across cluster]
(ClientAppActor pid=45416)           entirely in future versions of
Flower. [repeated 97x across cluster]
(ClientAppActor pid=45416) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 97x across cluster]
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 25 clients (out of 25)
(ClientAppActor pid=45416) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 158x

across cluster]

```

```

(ClientAppActor pid=45416)           [repeated 316x across
cluster]
(ClientAppActor pid=45416)           This is a deprecated feature. It
will be removed [repeated 158x across cluster]
(ClientAppActor pid=45416)           entirely in future versions of
Flower. [repeated 158x across cluster]
(ClientAppActor pid=45416) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 158x across cluster]
INFO :      aggregate_fit: received 25 results and 0 failures
INFO :      configure_evaluate: strategy sampled 25 clients (out of 25)
INFO :      aggregate_evaluate: received 25 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 21.32s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=45417) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 38x
across cluster]
(ClientAppActor pid=45417)           [repeated 76x across
cluster]
(ClientAppActor pid=45417)           This is a deprecated feature. It
will be removed [repeated 38x across cluster]
(ClientAppActor pid=45417)           entirely in future versions of
Flower. [repeated 38x across cluster]
(ClientAppActor pid=45417) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 38x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

```

Execution time with Ray for 25 clients: 43.61 seconds

Running Federated Learning for 26 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:19:11,790 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0,
'object_store_memory': 3988899840.0, 'memory': 7977799680.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
```

```

will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)

```

```

(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949) entirely in future versions of

```

Flower.

(ClientAppActor pid=45949)

(ClientAppActor pid=45949) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=45949)

(ClientAppActor pid=45949) This is a deprecated feature. It will be removed

(ClientAppActor pid=45949) entirely in future versions of

Flower.

(ClientAppActor pid=45949)

(ClientAppActor pid=45949) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=45949)

(ClientAppActor pid=45949) This is a deprecated feature. It will be removed

(ClientAppActor pid=45949) entirely in future versions of

Flower.

(ClientAppActor pid=45949)

(ClientAppActor pid=45949) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=45949)

(ClientAppActor pid=45949) This is a deprecated feature. It will be removed

(ClientAppActor pid=45949) entirely in future versions of

Flower.

(ClientAppActor pid=45949)

(ClientAppActor pid=45949) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)
(ClientAppActor pid=45949)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949)
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=45947) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45947)           [repeated 2x across
cluster]
(ClientAppActor pid=45947)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45947)           entirely in future versions of
Flower.
(ClientAppActor pid=45947) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 26 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=45949)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=45949)           entirely in future versions of
Flower.
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 26 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 3]

```



```

INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949)      [repeated 228x across
cluster]
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 151x
across cluster]
(ClientAppActor pid=45949)      This is a deprecated feature. It
will be removed [repeated 151x across cluster]
(ClientAppActor pid=45949)      entirely in future versions of
Flower. [repeated 151x across cluster]
(ClientAppActor pid=45949) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 151x across cluster]
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949)      [repeated 318x across
cluster]
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 159x
across cluster]
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed [repeated 159x across cluster]
(ClientAppActor pid=45949) entirely in future versions of
Flower. [repeated 159x across cluster]
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 159x across cluster]
INFO : aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 26 clients (out of 26)
INFO : aggregate_fit: received 26 results and 0 failures
INFO : configure_evaluate: strategy sampled 26 clients (out of 26)
INFO : aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949) [repeated 248x across
cluster]
INFO : aggregate_fit: received 26 results and 0 failures
INFO : configure_evaluate: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=45949) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 108x
across cluster]
(ClientAppActor pid=45949) This is a deprecated feature. It
will be removed [repeated 108x across cluster]
(ClientAppActor pid=45949) entirely in future versions of
Flower. [repeated 108x across cluster]
(ClientAppActor pid=45949) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 108x across cluster]
INFO : aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 26 clients (out of 26)
INFO : aggregate_fit: received 26 results and 0 failures
INFO : configure_evaluate: strategy sampled 26 clients (out of 26)
INFO : aggregate_evaluate: received 26 results and 0 failures
INFO :

```

```

INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 24.47s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:19:50,544 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=45947)          [repeated 194x across
cluster]
(ClientAppActor pid=45947) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 75x
across cluster]
(ClientAppActor pid=45947)          This is a deprecated feature. It
will be removed [repeated 75x across cluster]
(ClientAppActor pid=45947)          entirely in future versions of
Flower. [repeated 75x across cluster]
(ClientAppActor pid=45947) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 75x across cluster]

Execution time without Ray for 26 clients: 42.64 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:19:56,104 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'object_store_memory': 3988845772.0, 'memory': 7977691547.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources

```

```

for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)           entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)           entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)           This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)           entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)           entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)           entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)

```

```

(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:

```



The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=46501)
```

```
(ClientAppActor pid=46501) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=46501) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=46501)
```

```
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=46501)
```

```
(ClientAppActor pid=46501) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=46501) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=46501)
```

```
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=46501)
```

```
(ClientAppActor pid=46501) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=46501) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=46501)
```

```
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)          entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)          entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)          entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501)          entirely in future versions of
Flower.

```

```

(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed
(ClientAppActor pid=46501) entirely in future versions of
Flower.
(ClientAppActor pid=46501)
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 26 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=46501) [repeated 4x across
cluster]
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=46501) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 26 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 26 clients (out of 26)
INFO : aggregate_fit: received 26 results and 0 failures
INFO : configure_evaluate: strategy sampled 26 clients (out of 26)
INFO : aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=46501) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 97x
across cluster]
(ClientAppActor pid=46501) [repeated 194x across
cluster]
(ClientAppActor pid=46501) This is a deprecated feature. It
will be removed [repeated 97x across cluster]
(ClientAppActor pid=46501) entirely in future versions of
Flower. [repeated 97x across cluster]
(ClientAppActor pid=46501) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 97x across cluster]
INFO : aggregate_fit: received 26 results and 0 failures
INFO : configure_evaluate: strategy sampled 26 clients (out of 26)
INFO : aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 26 clients (out of 26)
INFO : aggregate_fit: received 26 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
(ClientAppActor pid=46501) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=46501)           [repeated 330x across
cluster]
(ClientAppActor pid=46501)           This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=46501)           entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=46501) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)

```

```

(ClientAppActor pid=46502) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x

across cluster]
(ClientAppActor pid=46502)           [repeated 332x across

cluster]
(ClientAppActor pid=46502)           This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=46502)           entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=46502) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 26 clients (out of 26)
INFO :      aggregate_fit: received 26 results and 0 failures
INFO :      configure_evaluate: strategy sampled 26 clients (out of 26)
INFO :      aggregate_evaluate: received 26 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 23.69s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=46502) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 65x

across cluster]
(ClientAppActor pid=46502)           [repeated 130x across

cluster]
(ClientAppActor pid=46502)           This is a deprecated feature. It

```



```

will be removed [repeated 65x across cluster]
(ClientAppActor pid=46502) entirely in future versions of
Flower. [repeated 65x across cluster]
(ClientAppActor pid=46502) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 65x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

```

Execution time with Ray for 26 clients: 46.40 seconds

Running Federated Learning for 27 clients...

```

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.

```

```

self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:20:40,888 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7976020379.0, 'object_store_memory': 3988010188.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=47057)
```

```
(ClientAppActor pid=47057) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=47057) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=47057)
```

```
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=47057)
```

```
(ClientAppActor pid=47057) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=47057) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=47057)
```

```
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=47057)
```

```
(ClientAppActor pid=47057) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=47057) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=47057)
```

```
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057)           entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057)           entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057)           entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=47057) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057)           entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057)           entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057)           entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)

```



```

(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47057) entirely in future versions of
Flower.
(ClientAppActor pid=47057)
(ClientAppActor pid=47057) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:  
``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=47057)

(ClientAppActor pid=47057) This is a deprecated feature. It will be removed

(ClientAppActor pid=47057) entirely in future versions of Flower.

(ClientAppActor pid=47057)

(ClientAppActor pid=47057) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=47057)

(ClientAppActor pid=47057) This is a deprecated feature. It will be removed

(ClientAppActor pid=47057) entirely in future versions of Flower.

(ClientAppActor pid=47057)

(ClientAppActor pid=47057) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

INFO : aggregate\_fit: received 27 results and 0 failures

WARNING : No fit\_metrics\_aggregation\_fn provided

INFO : configure\_evaluate: strategy sampled 27 clients (out of 27)

(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context`` [repeated 14x

across cluster]

(ClientAppActor pid=47057) [repeated 28x across

cluster]

(ClientAppActor pid=47057) This is a deprecated feature. It will be removed [repeated 14x across cluster]

(ClientAppActor pid=47057) entirely in future versions of Flower. [repeated 14x across cluster]

(ClientAppActor pid=47057) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 14x across cluster]

INFO : aggregate\_evaluate: received 27 results and 0 failures

WARNING : No evaluate\_metrics\_aggregation\_fn provided

INFO :

INFO : [ROUND 2]

INFO : configure\_fit: strategy sampled 27 clients (out of 27)

INFO : aggregate\_fit: received 27 results and 0 failures

INFO : configure\_evaluate: strategy sampled 27 clients (out of 27)

INFO : aggregate\_evaluate: received 27 results and 0 failures

INFO :

INFO : [ROUND 3]

INFO : configure\_fit: strategy sampled 27 clients (out of 27)

INFO : aggregate\_fit: received 27 results and 0 failures

INFO : configure\_evaluate: strategy sampled 27 clients (out of 27)

INFO : aggregate\_evaluate: received 27 results and 0 failures

INFO :

INFO : [ROUND 4]

INFO : configure\_fit: strategy sampled 27 clients (out of 27)

(ClientAppActor pid=47057) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context`` [repeated 123x across cluster]

across cluster]

(ClientAppActor pid=47057) [repeated 246x across

cluster]

(ClientAppActor pid=47057) This is a deprecated feature. It will be removed [repeated 123x across cluster]

(ClientAppActor pid=47057) entirely in future versions of Flower. [repeated 123x across cluster]

(ClientAppActor pid=47057) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 123x across cluster]

INFO : aggregate\_fit: received 27 results and 0 failures

INFO : configure\_evaluate: strategy sampled 27 clients (out of 27)

INFO : aggregate\_evaluate: received 27 results and 0 failures

INFO :

INFO : [ROUND 5]

INFO : configure\_fit: strategy sampled 27 clients (out of 27)

INFO : aggregate\_fit: received 27 results and 0 failures

INFO : configure\_evaluate: strategy sampled 27 clients (out of 27)

INFO : aggregate\_evaluate: received 27 results and 0 failures

INFO :

INFO : [ROUND 6]

```

INFO :      configure_fit: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47057) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 125x
across cluster]
(ClientAppActor pid=47057)           [repeated 250x across
cluster]
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed [repeated 125x across cluster]
(ClientAppActor pid=47057)           entirely in future versions of
Flower. [repeated 125x across cluster]
(ClientAppActor pid=47057) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 125x across cluster]
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47057) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=47057)           [repeated 332x across
cluster]
(ClientAppActor pid=47057)           This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=47057)           entirely in future versions of
Flower. [repeated 166x across cluster]

```

```

(ClientAppActor pid=47057) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 22.78s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:21:18,426 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=47055) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 86x
across cluster]
(ClientAppActor pid=47055) [repeated 172x across
cluster]
(ClientAppActor pid=47055) This is a deprecated feature. It
will be removed [repeated 86x across cluster]
(ClientAppActor pid=47055) entirely in future versions of
Flower. [repeated 86x across cluster]
(ClientAppActor pid=47055) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

convert it to `Client`. [repeated 86x across cluster]

Execution time without Ray for 27 clients: 41.36 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:21:24,333 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'memory':
7976651982.0, 'object_store_memory': 3988325990.0, 'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
```

```

(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```



```

convert it to `Client`.
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)

```

```

(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=47603)
```

```
(ClientAppActor pid=47603)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=47603)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=47603)
```

```
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=47603)
```

```
(ClientAppActor pid=47603)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=47603)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=47603)
```

```
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=47603)
```

```
(ClientAppActor pid=47603)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=47603)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=47603)
```

```
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603) entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=47603)
(ClientAppActor pid=47603)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=47603)           entirely in future versions of
Flower.
(ClientAppActor pid=47603)
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 27 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47602) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=47602)           [repeated 4x across

cluster]
(ClientAppActor pid=47602)           This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=47602)           entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=47602) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 27 results and 0 failures
WARNING :    No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)

```



```

INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47602) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 146x
across cluster]
(ClientAppActor pid=47602)           [repeated 292x across
cluster]
(ClientAppActor pid=47602)           This is a deprecated feature. It
will be removed [repeated 146x across cluster]
(ClientAppActor pid=47602)           entirely in future versions of
Flower. [repeated 146x across cluster]
(ClientAppActor pid=47602) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 146x across cluster]
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47602) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 98x
across cluster]
(ClientAppActor pid=47602)           [repeated 196x across
cluster]
(ClientAppActor pid=47602)           This is a deprecated feature. It

```

```

will be removed [repeated 98x across cluster]
(ClientAppActor pid=47602) entirely in future versions of
Flower. [repeated 98x across cluster]
(ClientAppActor pid=47602) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 97x across cluster]
INFO : aggregate_fit: received 27 results and 0 failures
INFO : configure_evaluate: strategy sampled 27 clients (out of 27)
INFO : aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 27 clients (out of 27)
INFO : aggregate_fit: received 27 results and 0 failures
INFO : configure_evaluate: strategy sampled 27 clients (out of 27)
INFO : aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 27 clients (out of 27)
INFO : aggregate_fit: received 27 results and 0 failures
INFO : configure_evaluate: strategy sampled 27 clients (out of 27)
INFO : aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 27 clients (out of 27)
(ClientAppActor pid=47602) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=47602) [repeated 334x across
cluster]
(ClientAppActor pid=47602) This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=47602) entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=47602) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 168x across cluster]
INFO : aggregate_fit: received 27 results and 0 failures
INFO : configure_evaluate: strategy sampled 27 clients (out of 27)
INFO : aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 27 clients (out of 27)

```

```

INFO :      aggregate_fit: received 27 results and 0 failures
INFO :      configure_evaluate: strategy sampled 27 clients (out of 27)
INFO :      aggregate_evaluate: received 27 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 23.28s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=47603) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 101x
across cluster]
(ClientAppActor pid=47603)          [repeated 202x across
cluster]
(ClientAppActor pid=47603)          This is a deprecated feature. It
will be removed [repeated 101x across cluster]
(ClientAppActor pid=47603)          entirely in future versions of
Flower. [repeated 101x across cluster]
(ClientAppActor pid=47603) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 101x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 27 clients: 45.37 seconds

Running Federated Learning for 28 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:22:08,904 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7977313076.0, 'object_store_memory': 3988656537.0,

```

```

'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48153) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed

```



```

(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=48153) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)

```

```

(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153) entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=48153)
```

```
(ClientAppActor pid=48153) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=48153) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=48153)
```

```
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=48153)
```

```
(ClientAppActor pid=48153) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=48153) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=48153)
```

```
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=48153)
```

```
(ClientAppActor pid=48153) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=48153) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=48153)
```

```
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48153) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48153)
(ClientAppActor pid=48153)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48153)           entirely in future versions of
Flower.
(ClientAppActor pid=48153)
(ClientAppActor pid=48153) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 28 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48152) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=48152)           [repeated 6x across
cluster]
(ClientAppActor pid=48152)           This is a deprecated feature. It
will be removed [repeated 3x across cluster]
(ClientAppActor pid=48152)           entirely in future versions of
Flower. [repeated 3x across cluster]
(ClientAppActor pid=48152) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 3x across cluster]
INFO :      aggregate_evaluate: received 28 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :

```

```

INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48152) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=48152)           [repeated 334x across
cluster]
(ClientAppActor pid=48152)           This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=48152)           entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=48152) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48152) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 110x
across cluster]
(ClientAppActor pid=48152) [repeated 220x across
cluster]
(ClientAppActor pid=48152) This is a deprecated feature. It
will be removed [repeated 110x across cluster]
(ClientAppActor pid=48152) entirely in future versions of
Flower. [repeated 110x across cluster]
(ClientAppActor pid=48152) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 110x across cluster]
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48152) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 138x
across cluster]
(ClientAppActor pid=48152) [repeated 276x across
cluster]
(ClientAppActor pid=48152) This is a deprecated feature. It
will be removed [repeated 138x across cluster]
(ClientAppActor pid=48152) entirely in future versions of
Flower. [repeated 138x across cluster]
(ClientAppActor pid=48152) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 138x across cluster]
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)

```



```

INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 24.03s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:22:47,054 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=48152) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 115x
across cluster]
(ClientAppActor pid=48152)          [repeated 230x across
cluster]
(ClientAppActor pid=48152)          This is a deprecated feature. It
will be removed [repeated 115x across cluster]
(ClientAppActor pid=48152)          entirely in future versions of
Flower. [repeated 115x across cluster]
(ClientAppActor pid=48152) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 115x across cluster]

Execution time without Ray for 28 clients: 43.09 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.

```

```

self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:22:52,698 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3986660966.0, 'memory': 7973321934.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)

```

```

(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=48715)
```

```
(ClientAppActor pid=48715)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=48715)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=48715)
```

```
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=48715)
```

```
(ClientAppActor pid=48715)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=48715)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=48715)
```

```
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=48715)
```

```
(ClientAppActor pid=48715)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=48715)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=48715)
```

```
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715) entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48715)
(ClientAppActor pid=48715)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48715)           entirely in future versions of
Flower.
(ClientAppActor pid=48715)
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48714) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48714)           [repeated 2x across
cluster]
(ClientAppActor pid=48714)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=48714)           entirely in future versions of
Flower.
(ClientAppActor pid=48714) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 28 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48714) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48714) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48714) entirely in future versions of
Flower.
(ClientAppActor pid=48714) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48714) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48714) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48714) entirely in future versions of
Flower.
(ClientAppActor pid=48714) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=48714) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=48714) This is a deprecated feature. It
will be removed
(ClientAppActor pid=48714) entirely in future versions of
Flower.
(ClientAppActor pid=48714) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 28 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)

```

```

(ClientAppActor pid=48714) [repeated 268x across
cluster]
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48714) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=48714)           This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=48714)           entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=48714) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
INFO :      aggregate_fit: received 28 results and 0 failures
INFO :      configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48714) [repeated 332x across
cluster]
INFO :      aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48714) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 154x
across cluster]
(ClientAppActor pid=48714)           This is a deprecated feature. It

```

```

will be removed [repeated 154x across cluster]
(ClientAppActor pid=48714) entirely in future versions of
Flower. [repeated 154x across cluster]
(ClientAppActor pid=48714) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 154x across cluster]
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)
(ClientAppActor pid=48714) [repeated 194x across
cluster]
(ClientAppActor pid=48714) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 96x
across cluster]
(ClientAppActor pid=48714) This is a deprecated feature. It
will be removed [repeated 96x across cluster]
(ClientAppActor pid=48714) entirely in future versions of
Flower. [repeated 96x across cluster]
(ClientAppActor pid=48714) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 96x across cluster]
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 28 clients (out of 28)
INFO : aggregate_fit: received 28 results and 0 failures
INFO : configure_evaluate: strategy sampled 28 clients (out of 28)
INFO : aggregate_evaluate: received 28 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 26.25s

```

```

INFO :          History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=48715)          [repeated 268x across
cluster]
(ClientAppActor pid=48715) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 113x
across cluster]
(ClientAppActor pid=48715)          This is a deprecated feature. It
will be removed [repeated 113x across cluster]
(ClientAppActor pid=48715)          entirely in future versions of
Flower. [repeated 113x across cluster]
(ClientAppActor pid=48715) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 113x across cluster]
INFO :          Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 28 clients: 47.60 seconds

Running Federated Learning for 29 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:23:38,604 INFO worker.py:1752 -- Started a local Ray instance.
INFO :          Flower VCE: Ray initialized with resources: {'memory':
7974897255.0, 'object_store_memory': 3987448627.0, 'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0}
INFO :          Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :          No `client_resources` specified. Using minimal resources
for clients.
INFO :          Flower VCE: Resources for each Virtual Client: {'num_cpus':

```



```

1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)

```

```

(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=49264)
```

```
(ClientAppActor pid=49264)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=49264)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=49264)
```

```
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=49264)
```

```
(ClientAppActor pid=49264)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=49264)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=49264)
```

```
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=49264)
```

```
(ClientAppActor pid=49264)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=49264)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=49264)
```

```
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49264) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49264) entirely in future versions of
Flower.
(ClientAppActor pid=49264)
(ClientAppActor pid=49264) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 29 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49263) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=49263) [repeated 4x across
cluster]
(ClientAppActor pid=49263) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=49263) entirely in future versions of

```

```

Flower. [repeated 2x across cluster]
(ClientAppActor pid=49263) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 29 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49263) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 103x
across cluster]
(ClientAppActor pid=49263) [repeated 206x across
cluster]
(ClientAppActor pid=49263) This is a deprecated feature. It
will be removed [repeated 103x across cluster]
(ClientAppActor pid=49263) entirely in future versions of
Flower. [repeated 103x across cluster]
(ClientAppActor pid=49263) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures

```

```

INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49263) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x

across cluster]
(ClientAppActor pid=49263)           [repeated 330x across

cluster]
(ClientAppActor pid=49263)           This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=49263)           entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=49263) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49263) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 140x

across cluster]
(ClientAppActor pid=49263)           [repeated 280x across

cluster]
(ClientAppActor pid=49263)           This is a deprecated feature. It
will be removed [repeated 140x across cluster]
(ClientAppActor pid=49263)           entirely in future versions of
Flower. [repeated 140x across cluster]
(ClientAppActor pid=49263) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 141x across cluster]
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49263) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 108x
across cluster]
(ClientAppActor pid=49263)           [repeated 216x across
cluster]
(ClientAppActor pid=49263)           This is a deprecated feature. It
will be removed [repeated 108x across cluster]
(ClientAppActor pid=49263)           entirely in future versions of
Flower. [repeated 108x across cluster]
(ClientAppActor pid=49263) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 108x across cluster]
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 26.82s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:24:21,018 INFO worker.py:1585 -- Calling ray.init() again after it

```

```

has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=49264) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 34x
across cluster]
(ClientAppActor pid=49264)           [repeated 68x across
cluster]
(ClientAppActor pid=49264)           This is a deprecated feature. It
will be removed [repeated 34x across cluster]
(ClientAppActor pid=49264)           entirely in future versions of
Flower. [repeated 34x across cluster]
(ClientAppActor pid=49264) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 34x across cluster]

Execution time without Ray for 29 clients: 46.26 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:24:26,517 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'object_store_memory':
3987111936.0, 'memory': 7974223872.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of

```



Flower.

(ClientAppActor pid=49819)

(ClientAppActor pid=49819) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=49819)

(ClientAppActor pid=49819) This is a deprecated feature. It

will be removed

(ClientAppActor pid=49819) entirely in future versions of

Flower.

(ClientAppActor pid=49819)

(ClientAppActor pid=49819) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=49819)

(ClientAppActor pid=49819) This is a deprecated feature. It

will be removed

(ClientAppActor pid=49819) entirely in future versions of

Flower.

(ClientAppActor pid=49819)

(ClientAppActor pid=49819) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=49819)

(ClientAppActor pid=49819) This is a deprecated feature. It

will be removed

(ClientAppActor pid=49819) entirely in future versions of

Flower.

(ClientAppActor pid=49819)

(ClientAppActor pid=49819) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819)           entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)

```

```

(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of

```



```

Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=49819) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) This is a deprecated feature. It
will be removed
(ClientAppActor pid=49819) entirely in future versions of
Flower.
(ClientAppActor pid=49819)
(ClientAppActor pid=49819) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 29 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49818) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=49818) [repeated 4x across
cluster]
(ClientAppActor pid=49818) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=49818) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=49818) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 29 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 29 clients (out of 29)
INFO : aggregate_fit: received 29 results and 0 failures
INFO : configure_evaluate: strategy sampled 29 clients (out of 29)
INFO : aggregate_evaluate: received 29 results and 0 failures

```

```

INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49818) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 90x
across cluster]
(ClientAppActor pid=49818)           [repeated 180x across
cluster]
(ClientAppActor pid=49818)           This is a deprecated feature. It
will be removed [repeated 90x across cluster]
(ClientAppActor pid=49818)           entirely in future versions of
Flower. [repeated 90x across cluster]
(ClientAppActor pid=49818) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 90x across cluster]
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49818) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 160x
across cluster]
(ClientAppActor pid=49818)           [repeated 320x across
cluster]
(ClientAppActor pid=49818)           This is a deprecated feature. It
will be removed [repeated 160x across cluster]
(ClientAppActor pid=49818)           entirely in future versions of
Flower. [repeated 160x across cluster]
(ClientAppActor pid=49818) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 160x across cluster]
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
(ClientAppActor pid=49818) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=49818)           [repeated 334x across
cluster]
(ClientAppActor pid=49818)           This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=49818)           entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=49818) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 29 clients (out of 29)
INFO :      aggregate_fit: received 29 results and 0 failures

```

```

(ClientAppActor pid=49818) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 103x
across cluster]
(ClientAppActor pid=49818)           [repeated 206x across
cluster]
(ClientAppActor pid=49818)           This is a deprecated feature. It
will be removed [repeated 103x across cluster]
(ClientAppActor pid=49818)           entirely in future versions of
Flower. [repeated 103x across cluster]
(ClientAppActor pid=49818) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]
INFO :      configure_evaluate: strategy sampled 29 clients (out of 29)
INFO :      aggregate_evaluate: received 29 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 26.83s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=49819) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 29x
across cluster]
(ClientAppActor pid=49819)           [repeated 58x across
cluster]
(ClientAppActor pid=49819)           This is a deprecated feature. It
will be removed [repeated 29x across cluster]
(ClientAppActor pid=49819)           entirely in future versions of
Flower. [repeated 29x across cluster]
(ClientAppActor pid=49819) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

`NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 29x across cluster]

INFO : Starting Flower simulation, config: num\_rounds=10, no round\_timeout

Execution time with Ray for 29 clients: 49.12 seconds

Running Federated Learning for 30 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

self.pid = \_posixsubprocess.fork\_exec(  
2024-09-20 10:25:14,112 INFO worker.py:1752 -- Started a local Ray instance.

INFO : Flower VCE: Ray initialized with resources: {'memory': 7973056512.0, 'object\_store\_memory': 3986528256.0, 'CPU': 2.0, 'node:172.28.0.12': 1.0, 'node:\_\_internal\_head\_\_': 1.0}

INFO : Optimize your simulation with Flower VCE:  
<https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 30 clients (out of 30)

(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=50392)

(ClientAppActor pid=50392) This is a deprecated feature. It will be removed

(ClientAppActor pid=50392) entirely in future versions of Flower.

(ClientAppActor pid=50392)

(ClientAppActor pid=50392) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of

```

Flower.

```
(ClientAppActor pid=50392)
```

```
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=50392)
```

```
(ClientAppActor pid=50392) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=50392) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=50392)
```

```
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=50392)
```

```
(ClientAppActor pid=50392) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=50392) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=50392)
```

```
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=50392)
```

```
(ClientAppActor pid=50392) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=50392) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=50392)
```

```
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.



```

(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392)           entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)

```

```

(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of

```

```

Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50392) entirely in future versions of
Flower.
(ClientAppActor pid=50392)
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 30 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50390) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 7x
across cluster]
(ClientAppActor pid=50390) [repeated 14x across
cluster]
(ClientAppActor pid=50390) This is a deprecated feature. It
will be removed [repeated 7x across cluster]
(ClientAppActor pid=50390) entirely in future versions of
Flower. [repeated 7x across cluster]
(ClientAppActor pid=50390) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 7x across cluster]
INFO : aggregate_evaluate: received 30 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 30 clients (out of 30)
INFO : aggregate_fit: received 30 results and 0 failures
INFO : configure_evaluate: strategy sampled 30 clients (out of 30)
INFO : aggregate_evaluate: received 30 results and 0 failures

```



```

INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50390) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 103x

across cluster]
(ClientAppActor pid=50390)           [repeated 206x across

cluster]
(ClientAppActor pid=50390)           This is a deprecated feature. It
will be removed [repeated 103x across cluster]
(ClientAppActor pid=50390)           entirely in future versions of
Flower. [repeated 103x across cluster]
(ClientAppActor pid=50390) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50390) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 141x

across cluster]
(ClientAppActor pid=50390)           [repeated 282x across

cluster]
(ClientAppActor pid=50390)           This is a deprecated feature. It
will be removed [repeated 141x across cluster]
(ClientAppActor pid=50390)           entirely in future versions of
Flower. [repeated 141x across cluster]
(ClientAppActor pid=50390) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 141x across cluster]
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50390) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=50390)          [repeated 332x across
cluster]
(ClientAppActor pid=50390)          This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=50390)          entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=50390) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50390) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 118x
across cluster]
(ClientAppActor pid=50390) [repeated 236x across
cluster]
(ClientAppActor pid=50390) This is a deprecated feature. It
will be removed [repeated 118x across cluster]
(ClientAppActor pid=50390) entirely in future versions of
Flower. [repeated 118x across cluster]
(ClientAppActor pid=50390) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 118x across cluster]
INFO : aggregate_fit: received 30 results and 0 failures
INFO : configure_evaluate: strategy sampled 30 clients (out of 30)
INFO : aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 27.29s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
2024-09-20 10:25:56,851 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=50392) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 36x
across cluster]
(ClientAppActor pid=50392) [repeated 72x across
cluster]
(ClientAppActor pid=50392) This is a deprecated feature. It
will be removed [repeated 36x across cluster]

```

```

(ClientAppActor pid=50392) entirely in future versions of
Flower. [repeated 36x across cluster]
(ClientAppActor pid=50392) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 36x across cluster]

Execution time without Ray for 30 clients: 46.56 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:26:02,359 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3986388172.0, 'memory': 7972776347.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of

```

Flower.

(ClientAppActor pid=50958)

(ClientAppActor pid=50958) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=50958)

(ClientAppActor pid=50958) This is a deprecated feature. It

will be removed

(ClientAppActor pid=50958) entirely in future versions of

Flower.

(ClientAppActor pid=50958)

(ClientAppActor pid=50958) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=50958)

(ClientAppActor pid=50958) This is a deprecated feature. It

will be removed

(ClientAppActor pid=50958) entirely in future versions of

Flower.

(ClientAppActor pid=50958)

(ClientAppActor pid=50958) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=50958)

(ClientAppActor pid=50958) This is a deprecated feature. It

will be removed

(ClientAppActor pid=50958) entirely in future versions of

Flower.

(ClientAppActor pid=50958)

(ClientAppActor pid=50958) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :  DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :  Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958)           entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)

```

```

(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of

```

```

Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed
(ClientAppActor pid=50958) entirely in future versions of
Flower.
(ClientAppActor pid=50958)
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 30 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50958) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=50958) [repeated 4x across
cluster]
(ClientAppActor pid=50958) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=50958) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=50958) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 30 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 30 clients (out of 30)
INFO : aggregate_fit: received 30 results and 0 failures
INFO : configure_evaluate: strategy sampled 30 clients (out of 30)
INFO : aggregate_evaluate: received 30 results and 0 failures

```

```

INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 116x

across cluster]
(ClientAppActor pid=50958)           [repeated 232x across

cluster]
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed [repeated 116x across cluster]
(ClientAppActor pid=50958)           entirely in future versions of
Flower. [repeated 116x across cluster]
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 116x across cluster]
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x

across cluster]
(ClientAppActor pid=50958)           [repeated 270x across

cluster]
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=50958)           entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 134x across cluster]
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 169x
across cluster]
(ClientAppActor pid=50958)           [repeated 338x across
cluster]
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed [repeated 169x across cluster]
(ClientAppActor pid=50958)           entirely in future versions of
Flower. [repeated 169x across cluster]
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 170x across cluster]
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures
INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 30 clients (out of 30)
INFO :      aggregate_fit: received 30 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 30 clients (out of 30)
(ClientAppActor pid=50958) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 129x

across cluster]
(ClientAppActor pid=50958)           [repeated 258x across

cluster]
(ClientAppActor pid=50958)           This is a deprecated feature. It
will be removed [repeated 129x across cluster]
(ClientAppActor pid=50958)           entirely in future versions of
Flower. [repeated 129x across cluster]
(ClientAppActor pid=50958) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 129x across cluster]
INFO :      aggregate_evaluate: received 30 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 26.42s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=50957) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 20x

across cluster]
(ClientAppActor pid=50957)           [repeated 40x across

cluster]
(ClientAppActor pid=50957)           This is a deprecated feature. It
will be removed [repeated 20x across cluster]
(ClientAppActor pid=50957)           entirely in future versions of
Flower. [repeated 20x across cluster]
(ClientAppActor pid=50957) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

`NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 20x across cluster]

INFO : Starting Flower simulation, config: num\_rounds=10, no round\_timeout

Execution time with Ray for 30 clients: 48.69 seconds

Running Federated Learning for 31 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:26:49,530 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7972619060.0, 'object_store_memory': 3986309529.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
```

INFO : Optimize your simulation with Flower VCE:

<https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 31 clients (out of 31)

(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) This is a deprecated feature. It will be removed

(ClientAppActor pid=51523) entirely in future versions of Flower.

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of

```

Flower.

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) This is a deprecated feature. It will be removed

(ClientAppActor pid=51523) entirely in future versions of

Flower.

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) This is a deprecated feature. It will be removed

(ClientAppActor pid=51523) entirely in future versions of

Flower.

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) This is a deprecated feature. It will be removed

(ClientAppActor pid=51523) entirely in future versions of

Flower.

(ClientAppActor pid=51523)

(ClientAppActor pid=51523) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)           entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)

```

```

(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)          entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)          entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)          entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523)          entirely in future versions of

```

Flower.

```
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=51523) entirely in future versions of
Flower.
(ClientAppActor pid=51523)
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 31 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 9x
across cluster]
(ClientAppActor pid=51523) [repeated 18x across
cluster]
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed [repeated 9x across cluster]
```

```

(ClientAppActor pid=51523) entirely in future versions of
Flower. [repeated 9x across cluster]
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 9x across cluster]
INFO : aggregate_evaluate: received 31 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 31 clients (out of 31)
INFO : aggregate_fit: received 31 results and 0 failures
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)
INFO : aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 31 clients (out of 31)
INFO : aggregate_fit: received 31 results and 0 failures
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=51523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 126x
across cluster]
(ClientAppActor pid=51523) [repeated 252x across
cluster]
(ClientAppActor pid=51523) This is a deprecated feature. It
will be removed [repeated 126x across cluster]
(ClientAppActor pid=51523) entirely in future versions of
Flower. [repeated 126x across cluster]
(ClientAppActor pid=51523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 126x across cluster]
INFO : aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 31 clients (out of 31)
INFO : aggregate_fit: received 31 results and 0 failures
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)
INFO : aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 31 clients (out of 31)
INFO : aggregate_fit: received 31 results and 0 failures
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)

```

```

(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 123x
across cluster]
(ClientAppActor pid=51523)           [repeated 246x across
cluster]
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed [repeated 123x across cluster]
(ClientAppActor pid=51523)           entirely in future versions of
Flower. [repeated 123x across cluster]
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 123x across cluster]
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=51523)           [repeated 332x across
cluster]
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=51523)           entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```



```

convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=51523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 140x
across cluster]
(ClientAppActor pid=51523)           [repeated 280x across
cluster]
(ClientAppActor pid=51523)           This is a deprecated feature. It
will be removed [repeated 140x across cluster]
(ClientAppActor pid=51523)           entirely in future versions of
Flower. [repeated 140x across cluster]
(ClientAppActor pid=51523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 140x across cluster]
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 26.59s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :

```

2024-09-20 10:27:31,398 INFO worker.py:1585 -- Calling ray.init() again after it has already been called.

INFO : Starting Flower simulation, config: num\_rounds=10, no round\_timeout

(ClientAppActor pid=51522) WARNING : DEPRECATED FEATURE: `client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 26x

across cluster]

(ClientAppActor pid=51522) [repeated 52x across

cluster]

(ClientAppActor pid=51522) This is a deprecated feature. It will be removed [repeated 26x across cluster]

(ClientAppActor pid=51522) entirely in future versions of Flower. [repeated 26x across cluster]

(ClientAppActor pid=51522) WARNING : Deprecation Warning: The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 26x across cluster]

Execution time without Ray for 31 clients: 45.74 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

self.pid = \_posixsubprocess.fork\_exec(

2024-09-20 10:27:37,012 INFO worker.py:1752 -- Started a local Ray instance.

INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0, 'object\_store\_memory': 3987068928.0, 'memory': 7974137856.0, 'node:\_\_internal\_head\_\_': 1.0, 'node:172.28.0.12': 1.0}

INFO : Optimize your simulation with Flower VCE: <https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 31 clients (out of 31)

(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=52084) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)           entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)           entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)           entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)

```

```

(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=52084)
```

```
(ClientAppActor pid=52084) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=52084) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=52084)
```

```
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=52084)
```

```
(ClientAppActor pid=52084) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=52084) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=52084)
```

```
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=52084)
```

```
(ClientAppActor pid=52084) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=52084) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=52084)
```

```
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)          entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)          entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)          entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)          entirely in future versions of
Flower.

```

```

(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084) entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=52084)           entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)           entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)           entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52084)
(ClientAppActor pid=52084)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52084)           entirely in future versions of
Flower.
(ClientAppActor pid=52084)
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
INFO :      aggregate_fit: received 31 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=52084) [repeated 4x across

cluster]
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=52084) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 31 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=52083) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 124x

across cluster]
(ClientAppActor pid=52083) [repeated 248x across

cluster]
(ClientAppActor pid=52083) This is a deprecated feature. It
will be removed [repeated 124x across cluster]
(ClientAppActor pid=52083) entirely in future versions of
Flower. [repeated 124x across cluster]
(ClientAppActor pid=52083) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 124x across cluster]
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=52084) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 122x
across cluster]
(ClientAppActor pid=52084)           [repeated 244x across
cluster]
(ClientAppActor pid=52084)           This is a deprecated feature. It
will be removed [repeated 122x across cluster]
(ClientAppActor pid=52084)           entirely in future versions of
Flower. [repeated 122x across cluster]
(ClientAppActor pid=52084) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 122x across cluster]
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
INFO :      aggregate_fit: received 31 results and 0 failures
INFO :      configure_evaluate: strategy sampled 31 clients (out of 31)
INFO :      aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=52084) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=52084) [repeated 334x across
cluster]
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=52084) entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO : aggregate_fit: received 31 results and 0 failures
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)
INFO : aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 31 clients (out of 31)
INFO : aggregate_fit: received 31 results and 0 failures
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)
INFO : aggregate_evaluate: received 31 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 31 clients (out of 31)
(ClientAppActor pid=52084) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 136x
across cluster]
(ClientAppActor pid=52084) [repeated 272x across
cluster]
(ClientAppActor pid=52084) This is a deprecated feature. It
will be removed [repeated 136x across cluster]
(ClientAppActor pid=52084) entirely in future versions of
Flower. [repeated 136x across cluster]
(ClientAppActor pid=52084) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 136x across cluster]
INFO : aggregate_fit: received 31 results and 0 failures
INFO : configure_evaluate: strategy sampled 31 clients (out of 31)
INFO : aggregate_evaluate: received 31 results and 0 failures
INFO :

```



```

INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 27.68s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=52083) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 39x
across cluster]
(ClientAppActor pid=52083)          [repeated 78x across
cluster]
(ClientAppActor pid=52083)          This is a deprecated feature. It
will be removed [repeated 39x across cluster]
(ClientAppActor pid=52083)          entirely in future versions of
Flower. [repeated 39x across cluster]
(ClientAppActor pid=52083) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 39x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 31 clients: 50.03 seconds

Running Federated Learning for 32 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:28:25,648 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'memory':
7973287527.0, 'object_store_memory': 3986643763.0, 'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources

```

```

for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)           entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)           entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)           entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)           entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)           entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)

```

```

(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=52651)
```

```
(ClientAppActor pid=52651) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=52651) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=52651)
```

```
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=52651)
```

```
(ClientAppActor pid=52651) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=52651) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=52651)
```

```
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=52651)
```

```
(ClientAppActor pid=52651) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=52651) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=52651)
```

```
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)          entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)          entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)          entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)          entirely in future versions of
Flower.

```



```

(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651) entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)           entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=52651)
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=52651)           entirely in future versions of
Flower.
(ClientAppActor pid=52651)
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 32 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 8x
across cluster]
(ClientAppActor pid=52651)           [repeated 16x across
cluster]
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed [repeated 8x across cluster]
(ClientAppActor pid=52651)           entirely in future versions of
Flower. [repeated 8x across cluster]
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 8x across cluster]
INFO :      aggregate_evaluate: received 32 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 114x
across cluster]
(ClientAppActor pid=52651) [repeated 228x across
cluster]
(ClientAppActor pid=52651) This is a deprecated feature. It
will be removed [repeated 114x across cluster]
(ClientAppActor pid=52651) entirely in future versions of
Flower. [repeated 114x across cluster]
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 114x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 131x
across cluster]

```

```

(ClientAppActor pid=52651)           [repeated 262x across
cluster]
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed [repeated 131x across cluster]
(ClientAppActor pid=52651)           entirely in future versions of
Flower. [repeated 131x across cluster]
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 131x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=52651) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 169x
across cluster]
(ClientAppActor pid=52651)           [repeated 338x across
cluster]
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed [repeated 169x across cluster]
(ClientAppActor pid=52651)           entirely in future versions of
Flower. [repeated 169x across cluster]
(ClientAppActor pid=52651) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 169x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures

```

```

INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 123x
across cluster]
(ClientAppActor pid=52651)          [repeated 246x across
cluster]
(ClientAppActor pid=52651)          This is a deprecated feature. It
will be removed [repeated 123x across cluster]
(ClientAppActor pid=52651)          entirely in future versions of
Flower. [repeated 123x across cluster]
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 123x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 28.44s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:29:08,979 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

```



```

(ClientAppActor pid=52651) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 64x
across cluster]
(ClientAppActor pid=52651)           [repeated 128x across
cluster]
(ClientAppActor pid=52651)           This is a deprecated feature. It
will be removed [repeated 64x across cluster]
(ClientAppActor pid=52651)           entirely in future versions of
Flower. [repeated 64x across cluster]
(ClientAppActor pid=52651) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 64x across cluster]

Execution time without Ray for 32 clients: 47.41 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:29:14,667 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3986552832.0, 'memory': 7973105664.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)

```

```

(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53215)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53215)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53215)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215)           entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215)           entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215)           entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```



```

convert it to `Client`.
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215)           entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215)           entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215)           entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)

```

```

(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53215) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53215) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53215) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53215)
```

```
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53215) entirely in future versions of
Flower.
(ClientAppActor pid=53215)
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 32 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 8x
across cluster]
(ClientAppActor pid=53215) [repeated 16x across
cluster]
(ClientAppActor pid=53215) This is a deprecated feature. It
will be removed [repeated 8x across cluster]
(ClientAppActor pid=53215) entirely in future versions of
Flower. [repeated 8x across cluster]
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 8x across cluster]
INFO : aggregate_evaluate: received 32 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 32 clients (out of 32)
INFO : aggregate_fit: received 32 results and 0 failures
INFO : configure_evaluate: strategy sampled 32 clients (out of 32)
INFO : aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 108x
across cluster]

```

```

(ClientAppActor pid=53215)           [repeated 216x across
cluster]
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed [repeated 108x across cluster]
(ClientAppActor pid=53215)           entirely in future versions of
Flower. [repeated 108x across cluster]
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 108x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=53215) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 134x
across cluster]
(ClientAppActor pid=53215)           [repeated 268x across
cluster]
(ClientAppActor pid=53215)           This is a deprecated feature. It
will be removed [repeated 134x across cluster]
(ClientAppActor pid=53215)           entirely in future versions of
Flower. [repeated 134x across cluster]
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 134x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures

```

```

INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 169x
across cluster]
(ClientAppActor pid=53215)          [repeated 338x across
cluster]
(ClientAppActor pid=53215)          This is a deprecated feature. It
will be removed [repeated 169x across cluster]
(ClientAppActor pid=53215)          entirely in future versions of
Flower. [repeated 169x across cluster]
(ClientAppActor pid=53215) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 169x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 32 clients (out of 32)
(ClientAppActor pid=53215) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 125x
across cluster]
(ClientAppActor pid=53215)          [repeated 250x across
cluster]
(ClientAppActor pid=53215)          This is a deprecated feature. It
will be removed [repeated 125x across cluster]

```

```

(ClientAppActor pid=53215)           entirely in future versions of
Flower. [repeated 125x across cluster]
(ClientAppActor pid=53215) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 125x across cluster]
INFO :      aggregate_fit: received 32 results and 0 failures
INFO :      configure_evaluate: strategy sampled 32 clients (out of 32)
INFO :      aggregate_evaluate: received 32 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 28.58s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=53214) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 65x
across cluster]
(ClientAppActor pid=53214)           [repeated 130x across
cluster]
(ClientAppActor pid=53214)           This is a deprecated feature. It
will be removed [repeated 65x across cluster]
(ClientAppActor pid=53214)           entirely in future versions of
Flower. [repeated 65x across cluster]
(ClientAppActor pid=53214) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 65x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 32 clients: 52.16 seconds

Running Federated Learning for 33 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.

```



os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:30:05,148 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'memory':
7973127783.0, 'object_store_memory': 3986563891.0, 'node:172.28.0.12': 1.0,
'node:__internal_head__': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=53792) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53792) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53792) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53792) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=53792) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)

```



```

(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792) entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53792) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53792) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=53792) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=53792)
```

```
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.
(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=53792)
(ClientAppActor pid=53792)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=53792)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=53792)
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 33 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=53791) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=53791)          [repeated 4x across
cluster]
(ClientAppActor pid=53791)          This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=53791)          entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=53791) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 33 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=53791) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 88x

across cluster]
(ClientAppActor pid=53791)          [repeated 176x across
cluster]
(ClientAppActor pid=53791)          This is a deprecated feature. It
will be removed [repeated 88x across cluster]
(ClientAppActor pid=53791)          entirely in future versions of
Flower. [repeated 88x across cluster]
(ClientAppActor pid=53791) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 87x across cluster]

```

```

INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=53791) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 142x

across cluster]
(ClientAppActor pid=53791)           [repeated 284x across

cluster]
(ClientAppActor pid=53791)           This is a deprecated feature. It
will be removed [repeated 142x across cluster]
(ClientAppActor pid=53791)           entirely in future versions of
Flower. [repeated 142x across cluster]
(ClientAppActor pid=53791) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 143x across cluster]
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=53791) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x
across cluster]
(ClientAppActor pid=53791) [repeated 328x across
cluster]
(ClientAppActor pid=53791) This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=53791) entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=53791) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO : aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 33 clients (out of 33)
INFO : aggregate_fit: received 33 results and 0 failures
INFO : configure_evaluate: strategy sampled 33 clients (out of 33)
INFO : aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=53792) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 108x
across cluster]
(ClientAppActor pid=53792) [repeated 216x across
cluster]
(ClientAppActor pid=53792) This is a deprecated feature. It
will be removed [repeated 108x across cluster]
(ClientAppActor pid=53792) entirely in future versions of
Flower. [repeated 108x across cluster]
(ClientAppActor pid=53792) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 108x across cluster]
INFO : aggregate_fit: received 33 results and 0 failures
INFO : configure_evaluate: strategy sampled 33 clients (out of 33)
INFO : aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 33 clients (out of 33)

```

```

INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 30.03s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:30:50,260 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=53792) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 124x
across cluster]
(ClientAppActor pid=53792)          [repeated 248x across
cluster]
(ClientAppActor pid=53792)          This is a deprecated feature. It
will be removed [repeated 124x across cluster]
(ClientAppActor pid=53792)          entirely in future versions of
Flower. [repeated 124x across cluster]
(ClientAppActor pid=53792) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 124x across cluster]

Execution time without Ray for 33 clients: 48.98 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:30:55,830 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'memory':
7973668455.0, 'object_store_memory': 3986834227.0, 'CPU': 2.0,

```



```

'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)          entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)          entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)          entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)          entirely in future versions of
Flower.

```

```

(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)

```

```

(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:

```



The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=54366)
```

```
(ClientAppActor pid=54366) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=54366) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=54366)
```

```
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=54366)
```

```
(ClientAppActor pid=54366) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=54366) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=54366)
```

```
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=54366)
```

```
(ClientAppActor pid=54366) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=54366) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=54366)
```

```
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54366) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54366) entirely in future versions of
Flower.
(ClientAppActor pid=54366)
(ClientAppActor pid=54366) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 33 results and 0 failures

```

```

WARNING : No fit_metrics_aggregation_fn provided
INFO :     configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=54365) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=54365) [repeated 4x across

cluster]
(ClientAppActor pid=54365) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=54365) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=54365) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :     aggregate_evaluate: received 33 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :     configure_fit: strategy sampled 33 clients (out of 33)
INFO :     aggregate_fit: received 33 results and 0 failures
INFO :     configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :     aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO :     configure_fit: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=54365) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 123x

across cluster]
(ClientAppActor pid=54365) [repeated 246x across

cluster]
(ClientAppActor pid=54365) This is a deprecated feature. It
will be removed [repeated 123x across cluster]
(ClientAppActor pid=54365) entirely in future versions of
Flower. [repeated 123x across cluster]
(ClientAppActor pid=54365) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 123x across cluster]
INFO :     aggregate_fit: received 33 results and 0 failures
INFO :     configure_evaluate: strategy sampled 33 clients (out of 33)

```

```

INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=54365) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 168x

across cluster]
(ClientAppActor pid=54365)           [repeated 336x across

cluster]
(ClientAppActor pid=54365)           This is a deprecated feature. It
will be removed [repeated 168x across cluster]
(ClientAppActor pid=54365)           entirely in future versions of
Flower. [repeated 168x across cluster]
(ClientAppActor pid=54365) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 168x across cluster]
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=54365) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x

across cluster]

```

```

(ClientAppActor pid=54365)           [repeated 270x across
cluster]
(ClientAppActor pid=54365)           This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=54365)           entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=54365) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 135x across cluster]
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
(ClientAppActor pid=54365) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 111x
across cluster]
(ClientAppActor pid=54365)           [repeated 222x across
cluster]
(ClientAppActor pid=54365)           This is a deprecated feature. It
will be removed [repeated 111x across cluster]
(ClientAppActor pid=54365)           entirely in future versions of
Flower. [repeated 111x across cluster]
(ClientAppActor pid=54365) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 111x across cluster]
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 33 clients (out of 33)
INFO :      aggregate_fit: received 33 results and 0 failures
INFO :      configure_evaluate: strategy sampled 33 clients (out of 33)
INFO :      aggregate_evaluate: received 33 results and 0 failures
INFO :
INFO :      [SUMMARY]

```

```

INFO :      Run finished 10 round(s) in 28.57s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=54366) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 89x
across cluster]
(ClientAppActor pid=54366)          [repeated 178x across
cluster]
(ClientAppActor pid=54366)          This is a deprecated feature. It
will be removed [repeated 89x across cluster]
(ClientAppActor pid=54366)          entirely in future versions of
Flower. [repeated 89x across cluster]
(ClientAppActor pid=54366) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 89x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 33 clients: 51.06 seconds

Running Federated Learning for 34 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:31:45,347 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3986292326.0, 'memory': 7972584654.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.

```



```

INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of

```

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) This is a deprecated feature. It will be removed

(ClientAppActor pid=54945) entirely in future versions of

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) This is a deprecated feature. It will be removed

(ClientAppActor pid=54945) entirely in future versions of

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) This is a deprecated feature. It will be removed

(ClientAppActor pid=54945) entirely in future versions of

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)

```

```

(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945) entirely in future versions of

```

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) This is a deprecated feature. It will be removed

(ClientAppActor pid=54945) entirely in future versions of

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) This is a deprecated feature. It will be removed

(ClientAppActor pid=54945) entirely in future versions of

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) This is a deprecated feature. It will be removed

(ClientAppActor pid=54945) entirely in future versions of

Flower.

(ClientAppActor pid=54945)

(ClientAppActor pid=54945) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=54945)           entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54945) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54945)
(ClientAppActor pid=54945)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=54945) entirely in future versions of
Flower.
(ClientAppActor pid=54945)
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=54943) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54943) [repeated 2x across
cluster]
(ClientAppActor pid=54943) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54943) entirely in future versions of
Flower.
(ClientAppActor pid=54943) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 34 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=54943) This is a deprecated feature. It
will be removed
(ClientAppActor pid=54943) entirely in future versions of
Flower.
(ClientAppActor pid=54943) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 34 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 34 clients (out of 34)
INFO : aggregate_fit: received 34 results and 0 failures
INFO : configure_evaluate: strategy sampled 34 clients (out of 34)
INFO : aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO : [ROUND 3]

```

```

INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943)      [repeated 224x across
cluster]
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 153x
across cluster]
(ClientAppActor pid=54943)      This is a deprecated feature. It
will be removed [repeated 153x across cluster]
(ClientAppActor pid=54943)      entirely in future versions of
Flower. [repeated 153x across cluster]
(ClientAppActor pid=54943) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 153x across cluster]
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943)      [repeated 338x across
cluster]
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 168x
across cluster]
(ClientAppActor pid=54943)      This is a deprecated feature. It
will be removed [repeated 168x across cluster]
(ClientAppActor pid=54943)      entirely in future versions of
Flower. [repeated 168x across cluster]

```

```

(ClientAppActor pid=54943) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 168x across cluster]
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943)      [repeated 249x across
cluster]
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 106x
across cluster]
(ClientAppActor pid=54943)      This is a deprecated feature. It
will be removed [repeated 106x across cluster]
(ClientAppActor pid=54943)      entirely in future versions of
Flower. [repeated 106x across cluster]
(ClientAppActor pid=54943) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 106x across cluster]
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943)      [repeated 244x across
cluster]
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=54943) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 141x
across cluster]
(ClientAppActor pid=54943) This is a deprecated feature. It
will be removed [repeated 141x across cluster]
(ClientAppActor pid=54943) entirely in future versions of
Flower. [repeated 141x across cluster]
(ClientAppActor pid=54943) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 141x across cluster]
INFO : aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 34 clients (out of 34)
INFO : aggregate_fit: received 34 results and 0 failures
INFO : configure_evaluate: strategy sampled 34 clients (out of 34)
INFO : aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 29.43s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
2024-09-20 10:32:30,358 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=54945) [repeated 238x across
cluster]
(ClientAppActor pid=54945) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 77x
across cluster]
(ClientAppActor pid=54945) This is a deprecated feature. It
will be removed [repeated 77x across cluster]
(ClientAppActor pid=54945) entirely in future versions of

```



```

Flower. [repeated 77x across cluster]
(ClientAppActor pid=54945) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 77x across cluster]

Execution time without Ray for 34 clients: 48.91 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:32:36,258 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3984933273.0, 'memory': 7969866548.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)          entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)          entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)          entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)          entirely in future versions of
Flower.

```

```

(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)           entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)           entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)           entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)

```

```

(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:

```



The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=55523)
```

```
(ClientAppActor pid=55523)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=55523)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=55523)
```

```
(ClientAppActor pid=55523) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=55523)
```

```
(ClientAppActor pid=55523)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=55523)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=55523)
```

```
(ClientAppActor pid=55523) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=55523)
```

```
(ClientAppActor pid=55523)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=55523)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=55523)
```

```
(ClientAppActor pid=55523) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)           entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)           entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)           entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55523) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55523) entirely in future versions of
Flower.
(ClientAppActor pid=55523)
(ClientAppActor pid=55523) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55522) [repeated 2x across
cluster]
(ClientAppActor pid=55522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55522) entirely in future versions of
Flower.
(ClientAppActor pid=55522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 34 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55522) entirely in future versions of
Flower.
(ClientAppActor pid=55522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=55522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=55522) This is a deprecated feature. It
will be removed
(ClientAppActor pid=55522) entirely in future versions of
Flower.
(ClientAppActor pid=55522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 34 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 34 clients (out of 34)
INFO : aggregate_fit: received 34 results and 0 failures
INFO : configure_evaluate: strategy sampled 34 clients (out of 34)
INFO : aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) [repeated 232x across
cluster]
(ClientAppActor pid=55522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 118x across cluster]
INFO : aggregate_fit: received 34 results and 0 failures
INFO : configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 153x
across cluster]
(ClientAppActor pid=55522) This is a deprecated feature. It

```

```

will be removed [repeated 153x across cluster]
(ClientAppActor pid=55522) entirely in future versions of
Flower. [repeated 153x across cluster]
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) [repeated 338x across
cluster]
(ClientAppActor pid=55522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 169x across cluster]
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 162x
across cluster]
(ClientAppActor pid=55522) This is a deprecated feature. It
will be removed [repeated 162x across cluster]
(ClientAppActor pid=55522) entirely in future versions of
Flower. [repeated 162x across cluster]
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) [repeated 211x across
cluster]
(ClientAppActor pid=55522) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]

```

```

INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 92x
across cluster]
(ClientAppActor pid=55522)           This is a deprecated feature. It
will be removed [repeated 92x across cluster]
(ClientAppActor pid=55522)           entirely in future versions of
Flower. [repeated 92x across cluster]
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522)           [repeated 272x across
cluster]
(ClientAppActor pid=55522) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 138x across cluster]
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
(ClientAppActor pid=55522) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 159x
across cluster]
(ClientAppActor pid=55522)           This is a deprecated feature. It
will be removed [repeated 159x across cluster]
(ClientAppActor pid=55522)           entirely in future versions of
Flower. [repeated 159x across cluster]
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 34 clients (out of 34)
INFO :      aggregate_fit: received 34 results and 0 failures
INFO :      configure_evaluate: strategy sampled 34 clients (out of 34)
INFO :      aggregate_evaluate: received 34 results and 0 failures
INFO :

```



```

INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 30.12s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=55523)      [repeated 240x across
cluster]
(ClientAppActor pid=55523) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 116x across cluster]
(ClientAppActor pid=55523) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 78x
across cluster]
(ClientAppActor pid=55523)      This is a deprecated feature. It
will be removed [repeated 78x across cluster]
(ClientAppActor pid=55523)      entirely in future versions of
Flower. [repeated 78x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 34 clients: 51.97 seconds

Running Federated Learning for 35 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:33:27,336 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3985051238.0, 'memory': 7970102478.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources

```

```

for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)

```

```

(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=56105)
```

```
(ClientAppActor pid=56105) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=56105) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=56105)
```

```
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=56105)
```

```
(ClientAppActor pid=56105) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=56105) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=56105)
```

```
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=56105)
```

```
(ClientAppActor pid=56105) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=56105) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=56105)
```

```
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.

```



```

(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105)           entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)

```

```

(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56105) entirely in future versions of
Flower.
(ClientAppActor pid=56105)
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56103) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56103) [repeated 2x across
cluster]
(ClientAppActor pid=56103) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56103) entirely in future versions of
Flower.
(ClientAppActor pid=56103) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 35 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56103) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56103) entirely in future versions of

```

```

Flower.
(ClientAppActor pid=56103) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56103) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56103) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56103) entirely in future versions of
Flower.
(ClientAppActor pid=56103) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 35 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 35 clients (out of 35)
INFO : aggregate_fit: received 35 results and 0 failures
INFO : configure_evaluate: strategy sampled 35 clients (out of 35)
INFO : aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 35 clients (out of 35)
INFO : aggregate_fit: received 35 results and 0 failures
(ClientAppActor pid=56103) [repeated 278x across
cluster]
INFO : configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x
across cluster]
(ClientAppActor pid=56103) This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=56103) entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=56103) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO : aggregate_evaluate: received 35 results and 0 failures

```

```

INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103)      [repeated 266x across
cluster]
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 119x
across cluster]
(ClientAppActor pid=56103)      This is a deprecated feature. It
will be removed [repeated 119x across cluster]
(ClientAppActor pid=56103)      entirely in future versions of
Flower. [repeated 119x across cluster]
(ClientAppActor pid=56103) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 119x across cluster]
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103)      [repeated 222x across
cluster]
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 123x
across cluster]
(ClientAppActor pid=56103)      This is a deprecated feature. It
will be removed [repeated 123x across cluster]

```



```

(ClientAppActor pid=56103)           entirely in future versions of
Flower. [repeated 123x across cluster]
(ClientAppActor pid=56103) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 123x across cluster]
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103)           [repeated 320x across
cluster]
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56103) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 163x
across cluster]
(ClientAppActor pid=56103)           This is a deprecated feature. It
will be removed [repeated 163x across cluster]
(ClientAppActor pid=56103)           entirely in future versions of
Flower. [repeated 163x across cluster]
(ClientAppActor pid=56103) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 163x across cluster]
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 30.01s
INFO :      History (loss, distributed):

```

```

INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
2024-09-20 10:34:11,619 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=56105) [repeated 244x across
cluster]
(ClientAppActor pid=56105) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 94x
across cluster]
(ClientAppActor pid=56105) This is a deprecated feature. It
will be removed [repeated 94x across cluster]
(ClientAppActor pid=56105) entirely in future versions of
Flower. [repeated 94x across cluster]
(ClientAppActor pid=56105) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 94x across cluster]

Execution time without Ray for 35 clients: 49.16 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:34:17,633 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7971363227.0, 'object_store_memory': 3985681612.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}

```

```

INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)

```

```

(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of

```

Flower.

(ClientAppActor pid=56675)

(ClientAppActor pid=56675) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=56675)

(ClientAppActor pid=56675) This is a deprecated feature. It will be removed

(ClientAppActor pid=56675) entirely in future versions of

Flower.

(ClientAppActor pid=56675)

(ClientAppActor pid=56675) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=56675)

(ClientAppActor pid=56675) This is a deprecated feature. It will be removed

(ClientAppActor pid=56675) entirely in future versions of

Flower.

(ClientAppActor pid=56675)

(ClientAppActor pid=56675) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=56675)

(ClientAppActor pid=56675) This is a deprecated feature. It will be removed

(ClientAppActor pid=56675) entirely in future versions of

Flower.

(ClientAppActor pid=56675)

(ClientAppActor pid=56675) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675)           entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)

```

```

(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of

```

```

Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed
(ClientAppActor pid=56675) entirely in future versions of
Flower.
(ClientAppActor pid=56675)
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 35 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56675) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=56675) [repeated 4x across
cluster]
(ClientAppActor pid=56675) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=56675) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 35 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 35 clients (out of 35)
INFO : aggregate_fit: received 35 results and 0 failures
INFO : configure_evaluate: strategy sampled 35 clients (out of 35)
INFO : aggregate_evaluate: received 35 results and 0 failures

```

```

INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56674) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 139x

across cluster]
(ClientAppActor pid=56674)          [repeated 278x across

cluster]
(ClientAppActor pid=56674)          This is a deprecated feature. It
will be removed [repeated 139x across cluster]
(ClientAppActor pid=56674)          entirely in future versions of
Flower. [repeated 139x across cluster]
(ClientAppActor pid=56674) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 139x across cluster]
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 107x

across cluster]
(ClientAppActor pid=56675)          [repeated 214x across

cluster]
(ClientAppActor pid=56675)          This is a deprecated feature. It
will be removed [repeated 107x across cluster]
(ClientAppActor pid=56675)          entirely in future versions of
Flower. [repeated 107x across cluster]
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 107x across cluster]

```



```

INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x

across cluster]
(ClientAppActor pid=56675)           [repeated 330x across

cluster]
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=56675)           entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=56675) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumPyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56675) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 149x

across cluster]

```

```

(ClientAppActor pid=56675)           [repeated 298x across
cluster]
(ClientAppActor pid=56675)           This is a deprecated feature. It
will be removed [repeated 149x across cluster]
(ClientAppActor pid=56675)           entirely in future versions of
Flower. [repeated 149x across cluster]
(ClientAppActor pid=56675) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 149x across cluster]
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 35 clients (out of 35)
INFO :      aggregate_fit: received 35 results and 0 failures
INFO :      configure_evaluate: strategy sampled 35 clients (out of 35)
(ClientAppActor pid=56674) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 95x
across cluster]
(ClientAppActor pid=56674)           [repeated 190x across
cluster]
(ClientAppActor pid=56674)           This is a deprecated feature. It
will be removed [repeated 95x across cluster]
(ClientAppActor pid=56674)           entirely in future versions of
Flower. [repeated 95x across cluster]
(ClientAppActor pid=56674) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 95x across cluster]
INFO :      aggregate_evaluate: received 35 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 31.13s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0

```

```

INFO :
(ClientAppActor pid=56674) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 8x
across cluster]
(ClientAppActor pid=56674)           [repeated 16x across
cluster]
(ClientAppActor pid=56674)           This is a deprecated feature. It
will be removed [repeated 8x across cluster]
(ClientAppActor pid=56674)           entirely in future versions of
Flower. [repeated 8x across cluster]
(ClientAppActor pid=56674) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 8x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 35 clients: 53.29 seconds

Running Federated Learning for 36 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:35:08,978 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3985947033.0, 'memory': 7971894068.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)

```

```

(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)

```



```

(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of

```

Flower.

(ClientAppActor pid=57255)

(ClientAppActor pid=57255) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=57255)

(ClientAppActor pid=57255) This is a deprecated feature. It will be removed

(ClientAppActor pid=57255) entirely in future versions of

Flower.

(ClientAppActor pid=57255)

(ClientAppActor pid=57255) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=57255)

(ClientAppActor pid=57255) This is a deprecated feature. It will be removed

(ClientAppActor pid=57255) entirely in future versions of

Flower.

(ClientAppActor pid=57255)

(ClientAppActor pid=57255) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=57255)

(ClientAppActor pid=57255) This is a deprecated feature. It will be removed

(ClientAppActor pid=57255) entirely in future versions of

Flower.

(ClientAppActor pid=57255)

(ClientAppActor pid=57255) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255)           entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57255) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57255) entirely in future versions of
Flower.
(ClientAppActor pid=57255)
(ClientAppActor pid=57255) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 36 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57253) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=57253) [repeated 4x across

cluster]
(ClientAppActor pid=57253) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=57253) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=57253) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO : aggregate_evaluate: received 36 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]

```



```

INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57253) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 93x
across cluster]
(ClientAppActor pid=57253)           [repeated 186x across
cluster]
(ClientAppActor pid=57253)           This is a deprecated feature. It
will be removed [repeated 93x across cluster]
(ClientAppActor pid=57253)           entirely in future versions of
Flower. [repeated 93x across cluster]
(ClientAppActor pid=57253) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 93x across cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57253) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 146x
across cluster]
(ClientAppActor pid=57253)           [repeated 292x across
cluster]
(ClientAppActor pid=57253)           This is a deprecated feature. It
will be removed [repeated 146x across cluster]
(ClientAppActor pid=57253)           entirely in future versions of
Flower. [repeated 146x across cluster]
(ClientAppActor pid=57253) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 146x across cluster]

```

```

INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57253) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x

across cluster]
(ClientAppActor pid=57253)           [repeated 334x across

cluster]
(ClientAppActor pid=57253)           This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=57253)           entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=57253) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57253) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 109x

across cluster]

```

```

(ClientAppActor pid=57253)           [repeated 218x across
cluster]
(ClientAppActor pid=57253)           This is a deprecated feature. It
will be removed [repeated 109x across cluster]
(ClientAppActor pid=57253)           entirely in future versions of
Flower. [repeated 109x across cluster]
(ClientAppActor pid=57253) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 109x across cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57253) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 146x
across cluster]
(ClientAppActor pid=57253)           [repeated 292x across
cluster]
(ClientAppActor pid=57253)           This is a deprecated feature. It
will be removed [repeated 146x across cluster]
(ClientAppActor pid=57253)           entirely in future versions of
Flower. [repeated 146x across cluster]
(ClientAppActor pid=57253) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 146x across cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 31.17s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0

```

```

INFO :                round 5: 0.0
INFO :                round 6: 0.0
INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
2024-09-20 10:35:55,387 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :    Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=57255) WARNING :    DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 22x
across cluster]
(ClientAppActor pid=57255)                [repeated 44x across
cluster]
(ClientAppActor pid=57255)                This is a deprecated feature. It
will be removed [repeated 22x across cluster]
(ClientAppActor pid=57255)                entirely in future versions of
Flower. [repeated 22x across cluster]
(ClientAppActor pid=57255) WARNING :    Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 22x across cluster]

Execution time without Ray for 36 clients: 50.37 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:36:01,063 INFO worker.py:1752 -- Started a local Ray instance.
INFO :    Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7970205696.0, 'object_store_memory': 3985102848.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :    Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :    No `client_resources` specified. Using minimal resources
for clients.
INFO :    Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :    Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :    [INIT]
INFO :    Requesting initial parameters from one random client

```

```

INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.

```

```

(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)

```

```

(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832) entirely in future versions of

```

Flower.

(ClientAppActor pid=57832)

(ClientAppActor pid=57832) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=57832)

(ClientAppActor pid=57832) This is a deprecated feature. It

will be removed

(ClientAppActor pid=57832) entirely in future versions of

Flower.

(ClientAppActor pid=57832)

(ClientAppActor pid=57832) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=57832)

(ClientAppActor pid=57832) This is a deprecated feature. It

will be removed

(ClientAppActor pid=57832) entirely in future versions of

Flower.

(ClientAppActor pid=57832)

(ClientAppActor pid=57832) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=57832)

(ClientAppActor pid=57832) This is a deprecated feature. It

will be removed

(ClientAppActor pid=57832) entirely in future versions of

Flower.

(ClientAppActor pid=57832)

(ClientAppActor pid=57832) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57832)
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57832)           entirely in future versions of
Flower.
(ClientAppActor pid=57832)
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=57830) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57830)           [repeated 2x across
cluster]
(ClientAppActor pid=57830)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57830)           entirely in future versions of
Flower.
(ClientAppActor pid=57830) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 36 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)

```

```

(ClientAppActor pid=57830) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=57830)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=57830)           entirely in future versions of
Flower.
(ClientAppActor pid=57830) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 36 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832)           [repeated 220x across
cluster]
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 144x
across cluster]
(ClientAppActor pid=57832)           This is a deprecated feature. It
will be removed [repeated 144x across cluster]
(ClientAppActor pid=57832)           entirely in future versions of
Flower. [repeated 144x across cluster]
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 144x across cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)

```

```

INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832)      [repeated 328x across
cluster]
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x
across cluster]
(ClientAppActor pid=57832)      This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=57832)      entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832)      [repeated 218x across
cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 93x
across cluster]
(ClientAppActor pid=57832)      This is a deprecated feature. It
will be removed [repeated 93x across cluster]
(ClientAppActor pid=57832)      entirely in future versions of
Flower. [repeated 93x across cluster]
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 93x across cluster]
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832)      [repeated 236x across
cluster]
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x
across cluster]
(ClientAppActor pid=57832)      This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=57832)      entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=57832) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 135x across cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 36 clients (out of 36)
INFO :      aggregate_fit: received 36 results and 0 failures
INFO :      configure_evaluate: strategy sampled 36 clients (out of 36)
(ClientAppActor pid=57832)      [repeated 336x across
cluster]
INFO :      aggregate_evaluate: received 36 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 31.52s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0

```

```

INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=57830) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 147x
across cluster]
(ClientAppActor pid=57830)          This is a deprecated feature. It
will be removed [repeated 147x across cluster]
(ClientAppActor pid=57830)          entirely in future versions of
Flower. [repeated 147x across cluster]
(ClientAppActor pid=57830) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 147x across cluster]
(ClientAppActor pid=57830)          [repeated 30x across
cluster]
INFO :          Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 36 clients: 54.00 seconds

Running Federated Learning for 37 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:36:54,612 INFO worker.py:1752 -- Started a local Ray instance.
INFO :          Flower VCE: Ray initialized with resources: {'memory':
7970198324.0, 'object_store_memory': 3985099161.0, 'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0}
INFO :          Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :          No `client_resources` specified. Using minimal resources
for clients.
INFO :          Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :          Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :          [INIT]

```

```

INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)

```



```

(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=58426)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=58426)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=58426)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)

```



```

(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed
(ClientAppActor pid=58426) entirely in future versions of
Flower.
(ClientAppActor pid=58426)
(ClientAppActor pid=58426) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=58426)           entirely in future versions of
Flower.
```

```
(ClientAppActor pid=58426)
```

```
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
INFO :      aggregate_fit: received 37 results and 0 failures
```

```
WARNING :    No fit_metrics_aggregation_fn provided
```

```
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
```

```

INFO :      aggregate_evaluate: received 37 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=58426) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 96x
across cluster]
(ClientAppActor pid=58426)           [repeated 192x across
cluster]
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed [repeated 96x across cluster]
(ClientAppActor pid=58426)           entirely in future versions of
Flower. [repeated 96x across cluster]
(ClientAppActor pid=58426) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 96x across cluster]
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=58425) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x
across cluster]
(ClientAppActor pid=58425)           [repeated 328x across
cluster]

```

```

(ClientAppActor pid=58425) This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=58425) entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=58425) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO : aggregate_fit: received 37 results and 0 failures
INFO : configure_evaluate: strategy sampled 37 clients (out of 37)
INFO : aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 94x
across cluster]
(ClientAppActor pid=58426) [repeated 188x across
cluster]
(ClientAppActor pid=58426) This is a deprecated feature. It
will be removed [repeated 94x across cluster]
(ClientAppActor pid=58426) entirely in future versions of
Flower. [repeated 94x across cluster]
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 94x across cluster]
INFO : aggregate_fit: received 37 results and 0 failures
INFO : configure_evaluate: strategy sampled 37 clients (out of 37)
INFO : aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 37 clients (out of 37)
INFO : aggregate_fit: received 37 results and 0 failures
INFO : configure_evaluate: strategy sampled 37 clients (out of 37)
INFO : aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 157x
across cluster]

```

```

(ClientAppActor pid=58426)           [repeated 314x across
cluster]
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed [repeated 157x across cluster]
(ClientAppActor pid=58426)           entirely in future versions of
Flower. [repeated 157x across cluster]
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 157x across cluster]
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=58426) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=58426)           [repeated 334x across
cluster]
(ClientAppActor pid=58426)           This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=58426)           entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=58426) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 31.31s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0

```

```

INFO :                round 3: 0.0
INFO :                round 4: 0.0
INFO :                round 5: 0.0
INFO :                round 6: 0.0
INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
2024-09-20 10:37:39,586 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=58425) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 26x
across cluster]
(ClientAppActor pid=58425)          [repeated 52x across
cluster]
(ClientAppActor pid=58425)          This is a deprecated feature. It
will be removed [repeated 26x across cluster]
(ClientAppActor pid=58425)          entirely in future versions of
Flower. [repeated 26x across cluster]
(ClientAppActor pid=58425) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 26x across cluster]

Execution time without Ray for 37 clients: 50.07 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:37:45,581 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'object_store_memory':
3983767142.0, 'memory': 7967534286.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors

```

```

INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)

```

```

(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of

```

Flower.

(ClientAppActor pid=59003)

(ClientAppActor pid=59003) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=59003)

(ClientAppActor pid=59003) This is a deprecated feature. It

will be removed

(ClientAppActor pid=59003) entirely in future versions of

Flower.

(ClientAppActor pid=59003)

(ClientAppActor pid=59003) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=59003)

(ClientAppActor pid=59003) This is a deprecated feature. It

will be removed

(ClientAppActor pid=59003) entirely in future versions of

Flower.

(ClientAppActor pid=59003)

(ClientAppActor pid=59003) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=59003)

(ClientAppActor pid=59003) This is a deprecated feature. It

will be removed

(ClientAppActor pid=59003) entirely in future versions of

Flower.

(ClientAppActor pid=59003)

(ClientAppActor pid=59003) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003)           entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)

```

```

(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59003) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59003) entirely in future versions of
Flower.
(ClientAppActor pid=59003)
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 37 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided

```

```

INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=59003)           [repeated 6x across
cluster]
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed [repeated 3x across cluster]
(ClientAppActor pid=59003)           entirely in future versions of
Flower. [repeated 3x across cluster]
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 3x across cluster]
INFO :      aggregate_evaluate: received 37 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 140x
across cluster]
(ClientAppActor pid=59003)           [repeated 280x across
cluster]
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed [repeated 140x across cluster]
(ClientAppActor pid=59003)           entirely in future versions of
Flower. [repeated 140x across cluster]
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 140x across cluster]
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures

```

```

INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 92x

across cluster]
(ClientAppActor pid=59003)           [repeated 184x across

cluster]
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed [repeated 92x across cluster]
(ClientAppActor pid=59003)           entirely in future versions of
Flower. [repeated 92x across cluster]
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 92x across cluster]
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x

across cluster]
(ClientAppActor pid=59003)           [repeated 330x across

cluster]
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=59003)           entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 163x
across cluster]
(ClientAppActor pid=59003)           [repeated 326x across
cluster]
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed [repeated 163x across cluster]
(ClientAppActor pid=59003)           entirely in future versions of
Flower. [repeated 163x across cluster]
(ClientAppActor pid=59003) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 163x across cluster]
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 37 clients (out of 37)
(ClientAppActor pid=59003) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 94x
across cluster]

```

```

(ClientAppActor pid=59003)           [repeated 188x across
cluster]
(ClientAppActor pid=59003)           This is a deprecated feature. It
will be removed [repeated 94x across cluster]
(ClientAppActor pid=59003)           entirely in future versions of
Flower. [repeated 94x across cluster]
(ClientAppActor pid=59003) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 94x across cluster]
INFO :      aggregate_fit: received 37 results and 0 failures
INFO :      configure_evaluate: strategy sampled 37 clients (out of 37)
INFO :      aggregate_evaluate: received 37 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 32.41s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=59002) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 46x
across cluster]
(ClientAppActor pid=59002)           [repeated 92x across
cluster]
(ClientAppActor pid=59002)           This is a deprecated feature. It
will be removed [repeated 46x across cluster]
(ClientAppActor pid=59002)           entirely in future versions of
Flower. [repeated 46x across cluster]
(ClientAppActor pid=59002) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 46x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

```



Execution time with Ray for 37 clients: 54.51 seconds

Running Federated Learning for 38 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:38:38,203 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'object_store_memory': 3984184934.0, 'memory': 7968369870.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
```

```

will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)

```

```

(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of

```

Flower.

(ClientAppActor pid=59580)

(ClientAppActor pid=59580) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=59580)

(ClientAppActor pid=59580) This is a deprecated feature. It

will be removed

(ClientAppActor pid=59580) entirely in future versions of

Flower.

(ClientAppActor pid=59580)

(ClientAppActor pid=59580) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=59580)

(ClientAppActor pid=59580) This is a deprecated feature. It

will be removed

(ClientAppActor pid=59580) entirely in future versions of

Flower.

(ClientAppActor pid=59580)

(ClientAppActor pid=59580) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=59580)

(ClientAppActor pid=59580) This is a deprecated feature. It

will be removed

(ClientAppActor pid=59580) entirely in future versions of

Flower.

(ClientAppActor pid=59580)

(ClientAppActor pid=59580) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580)           entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)

```

```

(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=59580) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) This is a deprecated feature. It
will be removed
(ClientAppActor pid=59580) entirely in future versions of
Flower.
(ClientAppActor pid=59580)
(ClientAppActor pid=59580) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 38 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=59579) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=59579) [repeated 4x across

cluster]
(ClientAppActor pid=59579) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=59579) entirely in future versions of
Flower. [repeated 2x across cluster]

```

```

(ClientAppActor pid=59579) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 38 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=59579) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 94x
across cluster]
(ClientAppActor pid=59579)      [repeated 188x across
cluster]
(ClientAppActor pid=59579)      This is a deprecated feature. It
will be removed [repeated 94x across cluster]
(ClientAppActor pid=59579)      entirely in future versions of
Flower. [repeated 94x across cluster]
(ClientAppActor pid=59579) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 94x across cluster]
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=59579) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 158x
across cluster]
(ClientAppActor pid=59579)      [repeated 316x across
cluster]

```

```

(ClientAppActor pid=59579)          This is a deprecated feature. It
will be removed [repeated 158x across cluster]
(ClientAppActor pid=59579)          entirely in future versions of
Flower. [repeated 158x across cluster]
(ClientAppActor pid=59579) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 158x across cluster]
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=59579) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 158x
across cluster]
(ClientAppActor pid=59579)          [repeated 316x across
cluster]
(ClientAppActor pid=59579)          This is a deprecated feature. It
will be removed [repeated 158x across cluster]
(ClientAppActor pid=59579)          entirely in future versions of
Flower. [repeated 158x across cluster]
(ClientAppActor pid=59579) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 158x across cluster]
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=59579) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 92x
across cluster]
(ClientAppActor pid=59579) [repeated 184x across
cluster]
(ClientAppActor pid=59579) This is a deprecated feature. It
will be removed [repeated 92x across cluster]
(ClientAppActor pid=59579) entirely in future versions of
Flower. [repeated 92x across cluster]
(ClientAppActor pid=59579) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 92x across cluster]
INFO : aggregate_fit: received 38 results and 0 failures
INFO : configure_evaluate: strategy sampled 38 clients (out of 38)
INFO : aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 38 clients (out of 38)
INFO : aggregate_fit: received 38 results and 0 failures
INFO : configure_evaluate: strategy sampled 38 clients (out of 38)
INFO : aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=59579) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 151x
across cluster]
(ClientAppActor pid=59579) [repeated 302x across
cluster]
(ClientAppActor pid=59579) This is a deprecated feature. It
will be removed [repeated 151x across cluster]
(ClientAppActor pid=59579) entirely in future versions of
Flower. [repeated 151x across cluster]
(ClientAppActor pid=59579) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 151x across cluster]
INFO : aggregate_fit: received 38 results and 0 failures
INFO : configure_evaluate: strategy sampled 38 clients (out of 38)
INFO : aggregate_evaluate: received 38 results and 0 failures
INFO :

```

```

INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 32.83s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:39:26,403 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=59580) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 68x
across cluster]
(ClientAppActor pid=59580)          [repeated 136x across
cluster]
(ClientAppActor pid=59580)          This is a deprecated feature. It
will be removed [repeated 68x across cluster]
(ClientAppActor pid=59580)          entirely in future versions of
Flower. [repeated 68x across cluster]
(ClientAppActor pid=59580) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 68x across cluster]

Execution time without Ray for 38 clients: 52.22 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:39:32,257 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3984524083.0, 'memory': 7969048167.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources

```

```

for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)

```

```

(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=60183)
```

```
(ClientAppActor pid=60183) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60183) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60183)
```

```
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=60183)
```

```
(ClientAppActor pid=60183) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60183) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60183)
```

```
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=60183)
```

```
(ClientAppActor pid=60183) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60183) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60183)
```

```
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183)           entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)

```

```

(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60183) entirely in future versions of
Flower.
(ClientAppActor pid=60183)
(ClientAppActor pid=60183) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:  
``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=60183)

(ClientAppActor pid=60183) This is a deprecated feature. It will be removed

(ClientAppActor pid=60183) entirely in future versions of Flower.

(ClientAppActor pid=60183)

(ClientAppActor pid=60183) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

INFO : aggregate\_fit: received 38 results and 0 failures

WARNING : No fit\_metrics\_aggregation\_fn provided

INFO : configure\_evaluate: strategy sampled 38 clients (out of 38)

INFO : aggregate\_evaluate: received 38 results and 0 failures

WARNING : No evaluate\_metrics\_aggregation\_fn provided

INFO :

INFO : [ROUND 2]

INFO : configure\_fit: strategy sampled 38 clients (out of 38)

(ClientAppActor pid=60183) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context`` [repeated 70x

across cluster]

(ClientAppActor pid=60183) [repeated 140x across

cluster]

(ClientAppActor pid=60183) This is a deprecated feature. It will be removed [repeated 70x across cluster]

(ClientAppActor pid=60183) entirely in future versions of Flower. [repeated 70x across cluster]

(ClientAppActor pid=60183) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 70x across cluster]

INFO : aggregate\_fit: received 38 results and 0 failures

INFO : configure\_evaluate: strategy sampled 38 clients (out of 38)

INFO : aggregate\_evaluate: received 38 results and 0 failures

INFO :

INFO : [ROUND 3]

INFO : configure\_fit: strategy sampled 38 clients (out of 38)



```

INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x

across cluster]
(ClientAppActor pid=60183)           [repeated 332x across

cluster]
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=60183)           entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 112x

across cluster]
(ClientAppActor pid=60183)           [repeated 224x across

cluster]
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed [repeated 112x across cluster]
(ClientAppActor pid=60183)           entirely in future versions of
Flower. [repeated 112x across cluster]
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 112x across cluster]

```
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
```

```
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 123x
```

across cluster]

```
(ClientAppActor pid=60183)           [repeated 246x across
```

cluster]

```
(ClientAppActor pid=60183)           This is a deprecated feature. It
will be removed [repeated 123x across cluster]
```

```
(ClientAppActor pid=60183)           entirely in future versions of
Flower. [repeated 123x across cluster]
```

```
(ClientAppActor pid=60183) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 123x across cluster]
```

```
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
INFO :      aggregate_evaluate: received 38 results and 0 failures
INFO :
```

```
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 38 clients (out of 38)
INFO :      aggregate_fit: received 38 results and 0 failures
INFO :      configure_evaluate: strategy sampled 38 clients (out of 38)
```

```
(ClientAppActor pid=60183) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 163x
```

across cluster]

```
(ClientAppActor pid=60183)           [repeated 326x across
```

cluster]

```

(ClientAppActor pid=60183) This is a deprecated feature. It
will be removed [repeated 163x across cluster]
(ClientAppActor pid=60183) entirely in future versions of
Flower. [repeated 163x across cluster]
(ClientAppActor pid=60183) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 163x across cluster]
INFO : aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 38 clients (out of 38)
INFO : aggregate_fit: received 38 results and 0 failures
INFO : configure_evaluate: strategy sampled 38 clients (out of 38)
INFO : aggregate_evaluate: received 38 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 33.03s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=60182) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 89x
across cluster]
(ClientAppActor pid=60182) [repeated 178x across
cluster]
(ClientAppActor pid=60182) This is a deprecated feature. It
will be removed [repeated 89x across cluster]
(ClientAppActor pid=60182) entirely in future versions of
Flower. [repeated 89x across cluster]
(ClientAppActor pid=60182) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 89x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no

```

round\_timeout

Execution time with Ray for 38 clients: 54.85 seconds

Running Federated Learning for 39 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.  
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so  
this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:40:25,693 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7970050868.0, 'object_store_memory': 3985025433.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
```

```

(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60752) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60752) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60752) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)          entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)          entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)          entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)          entirely in future versions of
Flower.

```



```

(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)

```

```

(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60752) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60752) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=60752) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=60752)
```

```
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752)           entirely in future versions of
Flower.

```



```

(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed
(ClientAppActor pid=60752) entirely in future versions of
Flower.
(ClientAppActor pid=60752)
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 39 results and 0 failures

```

```

WARNING : No fit_metrics_aggregation_fn provided
INFO :     configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=60752) [repeated 4x across
cluster]
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=60752) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :     aggregate_evaluate: received 39 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :     configure_fit: strategy sampled 39 clients (out of 39)
INFO :     aggregate_fit: received 39 results and 0 failures
INFO :     configure_evaluate: strategy sampled 39 clients (out of 39)
INFO :     aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO :     configure_fit: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 141x
across cluster]
(ClientAppActor pid=60752) [repeated 282x across
cluster]
(ClientAppActor pid=60752) This is a deprecated feature. It
will be removed [repeated 141x across cluster]
(ClientAppActor pid=60752) entirely in future versions of
Flower. [repeated 141x across cluster]
(ClientAppActor pid=60752) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 141x across cluster]
INFO :     aggregate_fit: received 39 results and 0 failures
INFO :     configure_evaluate: strategy sampled 39 clients (out of 39)

```

```

INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 104x
across cluster]
(ClientAppActor pid=60752)           [repeated 208x across
cluster]
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed [repeated 104x across cluster]
(ClientAppActor pid=60752)           entirely in future versions of
Flower. [repeated 104x across cluster]
(ClientAppActor pid=60752) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]
INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=60752) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 168x
across cluster]
(ClientAppActor pid=60752)           [repeated 336x across
cluster]
(ClientAppActor pid=60752)           This is a deprecated feature. It
will be removed [repeated 168x across cluster]
(ClientAppActor pid=60752)           entirely in future versions of
Flower. [repeated 168x across cluster]
(ClientAppActor pid=60752) WARNING :   Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 169x across cluster]

INFO : aggregate\_evaluate: received 39 results and 0 failures

INFO :

INFO : [ROUND 7]

INFO : configure\_fit: strategy sampled 39 clients (out of 39)

INFO : aggregate\_fit: received 39 results and 0 failures

INFO : configure\_evaluate: strategy sampled 39 clients (out of 39)

INFO : aggregate\_evaluate: received 39 results and 0 failures

INFO :

INFO : [ROUND 8]

INFO : configure\_fit: strategy sampled 39 clients (out of 39)

INFO : aggregate\_fit: received 39 results and 0 failures

INFO : configure\_evaluate: strategy sampled 39 clients (out of 39)

(ClientAppActor pid=60752) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context`` [repeated 154x

across cluster]

(ClientAppActor pid=60752) [repeated 308x across

cluster]

(ClientAppActor pid=60752) This is a deprecated feature. It will be removed [repeated 154x across cluster]

(ClientAppActor pid=60752) entirely in future versions of Flower. [repeated 154x across cluster]

(ClientAppActor pid=60752) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 154x across cluster]

INFO : aggregate\_evaluate: received 39 results and 0 failures

INFO :

INFO : [ROUND 9]

INFO : configure\_fit: strategy sampled 39 clients (out of 39)

INFO : aggregate\_fit: received 39 results and 0 failures

INFO : configure\_evaluate: strategy sampled 39 clients (out of 39)

INFO : aggregate\_evaluate: received 39 results and 0 failures

INFO :

INFO : [ROUND 10]

INFO : configure\_fit: strategy sampled 39 clients (out of 39)

(ClientAppActor pid=60751) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context`` [repeated 96x

across cluster]

```

(ClientAppActor pid=60751) [repeated 192x across
cluster]
(ClientAppActor pid=60751) This is a deprecated feature. It
will be removed [repeated 96x across cluster]
(ClientAppActor pid=60751) entirely in future versions of
Flower. [repeated 96x across cluster]
(ClientAppActor pid=60751) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 96x across cluster]
INFO : aggregate_fit: received 39 results and 0 failures
INFO : configure_evaluate: strategy sampled 39 clients (out of 39)
INFO : aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 33.08s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
2024-09-20 10:41:13,601 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=60751) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 77x
across cluster]
(ClientAppActor pid=60751) [repeated 154x across
cluster]
(ClientAppActor pid=60751) This is a deprecated feature. It
will be removed [repeated 77x across cluster]
(ClientAppActor pid=60751) entirely in future versions of
Flower. [repeated 77x across cluster]
(ClientAppActor pid=60751) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

convert it to `Client`. [repeated 77x across cluster]

Execution time without Ray for 39 clients: 52.23 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:41:19,145 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0, 'memory':
7970166375.0, 'object_store_memory': 3985083187.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
```

```

(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```



```

convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)

```

```

(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=61346) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=61346) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=61346) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```



```

convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346)           entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)

```

```

(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346)
(ClientAppActor pid=61346) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=61346)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=61346)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=61346)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=61346)
```

```
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=61345) WARNING :   DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61345) [repeated 2x across
cluster]
(ClientAppActor pid=61345) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61345) entirely in future versions of
Flower.
(ClientAppActor pid=61345) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 39 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61346) entirely in future versions of
Flower.
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 39 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 39 clients (out of 39)
INFO : aggregate_fit: received 39 results and 0 failures
INFO : configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) [repeated 174x across
cluster]
INFO : aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 125x
across cluster]
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed [repeated 125x across cluster]

```

```

(ClientAppActor pid=61346)           entirely in future versions of
Flower. [repeated 125x across cluster]
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 125x across cluster]
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346)           [repeated 308x across
cluster]
INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 154x
across cluster]
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed [repeated 154x across cluster]
(ClientAppActor pid=61346)           entirely in future versions of
Flower. [repeated 154x across cluster]
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 154x across cluster]
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346)           [repeated 300x across
cluster]
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 134x
across cluster]
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed [repeated 134x across cluster]
(ClientAppActor pid=61346) entirely in future versions of
Flower. [repeated 134x across cluster]
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 134x across cluster]
INFO : aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 39 clients (out of 39)
INFO : aggregate_fit: received 39 results and 0 failures
INFO : configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) [repeated 188x across
cluster]
INFO : aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 106x
across cluster]
(ClientAppActor pid=61346) This is a deprecated feature. It
will be removed [repeated 106x across cluster]
(ClientAppActor pid=61346) entirely in future versions of
Flower. [repeated 106x across cluster]
(ClientAppActor pid=61346) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 106x across cluster]
INFO : aggregate_fit: received 39 results and 0 failures
INFO : configure_evaluate: strategy sampled 39 clients (out of 39)
INFO : aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 39 clients (out of 39)
INFO : aggregate_fit: received 39 results and 0 failures
INFO : configure_evaluate: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) [repeated 284x across
cluster]

```

```

INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 39 clients (out of 39)
(ClientAppActor pid=61346) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 145x
across cluster]
(ClientAppActor pid=61346)           This is a deprecated feature. It
will be removed [repeated 145x across cluster]
(ClientAppActor pid=61346)           entirely in future versions of
Flower. [repeated 145x across cluster]
(ClientAppActor pid=61346) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 145x across cluster]
INFO :      aggregate_fit: received 39 results and 0 failures
INFO :      configure_evaluate: strategy sampled 39 clients (out of 39)
INFO :      aggregate_evaluate: received 39 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 33.66s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=61345)           [repeated 228x across
cluster]
(ClientAppActor pid=61345) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 76x
across cluster]
(ClientAppActor pid=61345)           This is a deprecated feature. It
will be removed [repeated 76x across cluster]
(ClientAppActor pid=61345)           entirely in future versions of
Flower. [repeated 76x across cluster]

```



```

(ClientAppActor pid=61345) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 76x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 39 clients: 55.62 seconds

Running Federated Learning for 40 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:42:14,464 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources:
{'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0,
'object_store_memory': 3982409318.0, 'memory': 7964818638.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 40 clients (out of 40)

```

```

(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)

```

```

(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of

```



Flower.

(ClientAppActor pid=61944)

(ClientAppActor pid=61944) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=61944)

(ClientAppActor pid=61944) This is a deprecated feature. It will be removed

(ClientAppActor pid=61944) entirely in future versions of

Flower.

(ClientAppActor pid=61944)

(ClientAppActor pid=61944) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=61944)

(ClientAppActor pid=61944) This is a deprecated feature. It will be removed

(ClientAppActor pid=61944) entirely in future versions of

Flower.

(ClientAppActor pid=61944)

(ClientAppActor pid=61944) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=61944)

(ClientAppActor pid=61944) This is a deprecated feature. It will be removed

(ClientAppActor pid=61944) entirely in future versions of

Flower.

(ClientAppActor pid=61944)

(ClientAppActor pid=61944) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944)           entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)

```

```

(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) This is a deprecated feature. It
will be removed
(ClientAppActor pid=61944) entirely in future versions of
Flower.
(ClientAppActor pid=61944)
(ClientAppActor pid=61944) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 40 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=61943) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=61943) [repeated 6x across
cluster]
(ClientAppActor pid=61943) This is a deprecated feature. It
will be removed [repeated 3x across cluster]
(ClientAppActor pid=61943) entirely in future versions of
Flower. [repeated 3x across cluster]
(ClientAppActor pid=61943) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 3x across cluster]
INFO : aggregate_evaluate: received 40 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 40 clients (out of 40)
INFO : aggregate_fit: received 40 results and 0 failures
INFO : configure_evaluate: strategy sampled 40 clients (out of 40)
INFO : aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO : [ROUND 3]

```

```

INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=61943) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x

across cluster]
(ClientAppActor pid=61943)           [repeated 328x across

cluster]
(ClientAppActor pid=61943)           This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=61943)           entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=61943) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=61943) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 99x

across cluster]
(ClientAppActor pid=61943)           [repeated 198x across

cluster]
(ClientAppActor pid=61943)           This is a deprecated feature. It
will be removed [repeated 99x across cluster]
(ClientAppActor pid=61943)           entirely in future versions of
Flower. [repeated 99x across cluster]
(ClientAppActor pid=61943) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 98x across cluster]
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)

```



```

INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=61943) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 150x
across cluster]
(ClientAppActor pid=61943)           [repeated 300x across
cluster]
(ClientAppActor pid=61943)           This is a deprecated feature. It
will be removed [repeated 150x across cluster]
(ClientAppActor pid=61943)           entirely in future versions of
Flower. [repeated 150x across cluster]
(ClientAppActor pid=61943) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 151x across cluster]
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=61943) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=61943)           [repeated 334x across
cluster]
(ClientAppActor pid=61943)           This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=61943)           entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=61943) WARNING :   Deprecation Warning:

```

```

The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=61943) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 105x
across cluster]
(ClientAppActor pid=61943)           [repeated 210x across
cluster]
(ClientAppActor pid=61943)           This is a deprecated feature. It
will be removed [repeated 105x across cluster]
(ClientAppActor pid=61943)           entirely in future versions of
Flower. [repeated 105x across cluster]
(ClientAppActor pid=61943) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 104x across cluster]
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 34.07s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :

```

2024-09-20 10:43:02,846 INFO worker.py:1585 -- Calling ray.init() again after it has already been called.

INFO : Starting Flower simulation, config: num\_rounds=10, no round\_timeout

(ClientAppActor pid=61944) WARNING : DEPRECATED FEATURE: `client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 73x

across cluster]

(ClientAppActor pid=61944) [repeated 146x across

cluster]

(ClientAppActor pid=61944) This is a deprecated feature. It will be removed [repeated 73x across cluster]

(ClientAppActor pid=61944) entirely in future versions of Flower. [repeated 73x across cluster]

(ClientAppActor pid=61944) WARNING : Deprecation Warning: The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 74x across cluster]

Execution time without Ray for 40 clients: 53.49 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

self.pid = \_posixsubprocess.fork\_exec(

2024-09-20 10:43:08,375 INFO worker.py:1752 -- Started a local Ray instance.

INFO : Flower VCE: Ray initialized with resources:

{'node:172.28.0.12': 1.0, 'node:\_\_internal\_head\_\_': 1.0, 'CPU': 2.0, 'memory': 7964700672.0, 'object\_store\_memory': 3982350336.0}

INFO : Optimize your simulation with Flower VCE:

<https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 40 clients (out of 40)

(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)

```

```

(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:

```



The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=62521) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=62521) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=62521) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521)           entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)

```

```

(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) This is a deprecated feature. It
will be removed
(ClientAppActor pid=62521) entirely in future versions of
Flower.
(ClientAppActor pid=62521)
(ClientAppActor pid=62521) WARNING : Deprecation Warning:

```



The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=62521) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=62521) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=62521) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=62521)
```

```
(ClientAppActor pid=62521) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
INFO : aggregate_fit: received 40 results and 0 failures
```

```
WARNING : No fit_metrics_aggregation_fn provided
```

```
INFO : configure_evaluate: strategy sampled 40 clients (out of 40)
```

```
(ClientAppActor pid=62520) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 3x

```
across cluster]
```

```
(ClientAppActor pid=62520) [repeated 6x across
```

```
cluster]
```

```
(ClientAppActor pid=62520) This is a deprecated feature. It  
will be removed [repeated 3x across cluster]
```

```
(ClientAppActor pid=62520) entirely in future versions of  
Flower. [repeated 3x across cluster]
```

```
(ClientAppActor pid=62520) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 3x across cluster]

INFO : aggregate\_evaluate: received 40 results and 0 failures

WARNING : No evaluate\_metrics\_aggregation\_fn provided

INFO :

INFO : [ROUND 2]

INFO : configure\_fit: strategy sampled 40 clients (out of 40)

INFO : aggregate\_fit: received 40 results and 0 failures

INFO : configure\_evaluate: strategy sampled 40 clients (out of 40)

(ClientAppActor pid=62520) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context`` [repeated 92x across cluster]

across cluster]

(ClientAppActor pid=62520) [repeated 184x across

cluster]

(ClientAppActor pid=62520) This is a deprecated feature. It will be removed [repeated 92x across cluster]

(ClientAppActor pid=62520) entirely in future versions of Flower. [repeated 92x across cluster]

(ClientAppActor pid=62520) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 92x across cluster]

INFO : aggregate\_evaluate: received 40 results and 0 failures

INFO :

INFO : [ROUND 3]

INFO : configure\_fit: strategy sampled 40 clients (out of 40)

INFO : aggregate\_fit: received 40 results and 0 failures

INFO : configure\_evaluate: strategy sampled 40 clients (out of 40)

INFO : aggregate\_evaluate: received 40 results and 0 failures

INFO :

INFO : [ROUND 4]

INFO : configure\_fit: strategy sampled 40 clients (out of 40)

INFO : aggregate\_fit: received 40 results and 0 failures

INFO : configure\_evaluate: strategy sampled 40 clients (out of 40)

(ClientAppActor pid=62520) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context`` [repeated 149x across cluster]

across cluster]

(ClientAppActor pid=62520) [repeated 298x across

cluster]

(ClientAppActor pid=62520) This is a deprecated feature. It

```

will be removed [repeated 149x across cluster]
(ClientAppActor pid=62520) entirely in future versions of
Flower. [repeated 149x across cluster]
(ClientAppActor pid=62520) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 149x across cluster]
INFO : aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 40 clients (out of 40)
INFO : aggregate_fit: received 40 results and 0 failures
INFO : configure_evaluate: strategy sampled 40 clients (out of 40)
INFO : aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 40 clients (out of 40)
INFO : aggregate_fit: received 40 results and 0 failures
INFO : configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=62520) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=62520) [repeated 332x across
cluster]
(ClientAppActor pid=62520) This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=62520) entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=62520) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO : aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 40 clients (out of 40)
INFO : aggregate_fit: received 40 results and 0 failures
INFO : configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=62520) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 106x
across cluster]

```

```

(ClientAppActor pid=62520)           [repeated 212x across
cluster]
(ClientAppActor pid=62520)           This is a deprecated feature. It
will be removed [repeated 106x across cluster]
(ClientAppActor pid=62520)           entirely in future versions of
Flower. [repeated 106x across cluster]
(ClientAppActor pid=62520) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 106x across cluster]
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
(ClientAppActor pid=62520) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x
across cluster]
(ClientAppActor pid=62520)           [repeated 270x across
cluster]
(ClientAppActor pid=62520)           This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=62520)           entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=62520) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 135x across cluster]
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 40 clients (out of 40)
INFO :      aggregate_fit: received 40 results and 0 failures
INFO :      configure_evaluate: strategy sampled 40 clients (out of 40)
INFO :      aggregate_evaluate: received 40 results and 0 failures
INFO :
INFO :      [SUMMARY]

```

```

INFO :      Run finished 10 round(s) in 33.89s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=62521) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 109x
across cluster]
(ClientAppActor pid=62521)          [repeated 218x across
cluster]
(ClientAppActor pid=62521)          This is a deprecated feature. It
will be removed [repeated 109x across cluster]
(ClientAppActor pid=62521)          entirely in future versions of
Flower. [repeated 109x across cluster]
(ClientAppActor pid=62521) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 109x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 40 clients: 56.47 seconds

Running Federated Learning for 41 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:44:03,986 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'memory':
7962909083.0, 'object_store_memory': 3981454540.0, 'node:172.28.0.12': 1.0,
'node:__internal_head__': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.

```

```

INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of

```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=63127) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=63127) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=63127) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)

```

```

(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of

```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=63127) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=63127) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) This is a deprecated feature. It
```

will be removed

```
(ClientAppActor pid=63127) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=63127)
```

```
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.



```

(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63127)
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127)           entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=63127)
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63127) entirely in future versions of
Flower.
(ClientAppActor pid=63127)
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 41 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 60x
across cluster]
(ClientAppActor pid=63127) [repeated 120x across
cluster]
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed [repeated 60x across cluster]
(ClientAppActor pid=63127) entirely in future versions of
Flower. [repeated 60x across cluster]
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 60x across cluster]
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=63127) [repeated 330x across
cluster]
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=63127) entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63127) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 113x
across cluster]
(ClientAppActor pid=63127) [repeated 226x across
cluster]
(ClientAppActor pid=63127) This is a deprecated feature. It
will be removed [repeated 113x across cluster]
(ClientAppActor pid=63127) entirely in future versions of
Flower. [repeated 113x across cluster]
(ClientAppActor pid=63127) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 113x across cluster]
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :

```

```

INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 140x
across cluster]
(ClientAppActor pid=63127)           [repeated 280x across
cluster]
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed [repeated 140x across cluster]
(ClientAppActor pid=63127)           entirely in future versions of
Flower. [repeated 140x across cluster]
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 140x across cluster]
INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=63127)           [repeated 334x across
cluster]
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=63127)           entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO :      aggregate_fit: received 41 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63127) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 123x
across cluster]
(ClientAppActor pid=63127)           [repeated 246x across
cluster]
(ClientAppActor pid=63127)           This is a deprecated feature. It
will be removed [repeated 123x across cluster]
(ClientAppActor pid=63127)           entirely in future versions of
Flower. [repeated 123x across cluster]
(ClientAppActor pid=63127) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 123x across cluster]
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 36.15s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:44:53,737 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=63126) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```



```

the `Context` like this: `from flwr.common import Context` [repeated 12x
across cluster]
(ClientAppActor pid=63126) [repeated 24x across
cluster]
(ClientAppActor pid=63126) This is a deprecated feature. It
will be removed [repeated 12x across cluster]
(ClientAppActor pid=63126) entirely in future versions of
Flower. [repeated 12x across cluster]
(ClientAppActor pid=63126) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 12x across cluster]

Execution time without Ray for 41 clients: 54.29 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:44:59,421 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3980891750.0, 'memory': 7961783502.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of

```

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) This is a deprecated feature. It will be removed

(ClientAppActor pid=63725) entirely in future versions of

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) This is a deprecated feature. It will be removed

(ClientAppActor pid=63725) entirely in future versions of

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) This is a deprecated feature. It will be removed

(ClientAppActor pid=63725) entirely in future versions of

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)

```

```

(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of

```

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) This is a deprecated feature. It will be removed

(ClientAppActor pid=63725) entirely in future versions of

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) This is a deprecated feature. It will be removed

(ClientAppActor pid=63725) entirely in future versions of

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) This is a deprecated feature. It will be removed

(ClientAppActor pid=63725) entirely in future versions of

Flower.

(ClientAppActor pid=63725)

(ClientAppActor pid=63725) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725)           entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed
(ClientAppActor pid=63725) entirely in future versions of
Flower.
(ClientAppActor pid=63725)
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 41 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63724) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]

```

```

(ClientAppActor pid=63724)           [repeated 4x across
cluster]
(ClientAppActor pid=63724)           This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=63724)           entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=63724) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 41 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 111x
across cluster]
(ClientAppActor pid=63725)           [repeated 222x across
cluster]
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed [repeated 111x across cluster]
(ClientAppActor pid=63725)           entirely in future versions of
Flower. [repeated 111x across cluster]
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 111x across cluster]
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```



```

the `Context` like this: `from flwr.common import Context` [repeated 121x
across cluster]
(ClientAppActor pid=63725) [repeated 242x across
cluster]
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed [repeated 121x across cluster]
(ClientAppActor pid=63725) entirely in future versions of
Flower. [repeated 121x across cluster]
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 121x across cluster]
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=63725) [repeated 334x across
cluster]
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=63725) entirely in future versions of
Flower. [repeated 167x across cluster]
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 41 clients (out of 41)

```

```

INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63724) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x
across cluster]
(ClientAppActor pid=63724)           [repeated 270x across
cluster]
(ClientAppActor pid=63724)           This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=63724)           entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=63724) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 136x across cluster]
INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
INFO :      aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 41 clients (out of 41)
(ClientAppActor pid=63725) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 117x
across cluster]
(ClientAppActor pid=63725)           [repeated 234x across
cluster]
(ClientAppActor pid=63725)           This is a deprecated feature. It
will be removed [repeated 117x across cluster]
(ClientAppActor pid=63725)           entirely in future versions of
Flower. [repeated 117x across cluster]
(ClientAppActor pid=63725) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 117x across cluster]
INFO :      aggregate_fit: received 41 results and 0 failures
INFO :      configure_evaluate: strategy sampled 41 clients (out of 41)
INFO :      aggregate_evaluate: received 41 results and 0 failures

```

```

INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 41 clients (out of 41)
INFO : aggregate_fit: received 41 results and 0 failures
INFO : configure_evaluate: strategy sampled 41 clients (out of 41)
INFO : aggregate_evaluate: received 41 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 34.13s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :
(ClientAppActor pid=63725) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 127x
across cluster]
(ClientAppActor pid=63725) [repeated 254x across
cluster]
(ClientAppActor pid=63725) This is a deprecated feature. It
will be removed [repeated 127x across cluster]
(ClientAppActor pid=63725) entirely in future versions of
Flower. [repeated 127x across cluster]
(ClientAppActor pid=63725) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 127x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 41 clients: 56.59 seconds

Running Federated Learning for 42 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
    self.pid = _posixsubprocess.fork_exec(

```

```

2024-09-20 10:45:54,252 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7958229812.0, 'object_store_memory': 3979114905.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.

```

```

(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)

```

```

(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of

```

Flower.

(ClientAppActor pid=64328)

(ClientAppActor pid=64328) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=64328)

(ClientAppActor pid=64328) This is a deprecated feature. It will be removed

(ClientAppActor pid=64328) entirely in future versions of

Flower.

(ClientAppActor pid=64328)

(ClientAppActor pid=64328) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=64328)

(ClientAppActor pid=64328) This is a deprecated feature. It will be removed

(ClientAppActor pid=64328) entirely in future versions of

Flower.

(ClientAppActor pid=64328)

(ClientAppActor pid=64328) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=64328)

(ClientAppActor pid=64328) This is a deprecated feature. It will be removed

(ClientAppActor pid=64328) entirely in future versions of

Flower.

(ClientAppActor pid=64328)

(ClientAppActor pid=64328) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328)           entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)

```

```

(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328)
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64327) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64327) [repeated 2x across
cluster]
(ClientAppActor pid=64327) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64327) entirely in future versions of
Flower.
(ClientAppActor pid=64327) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 42 results and 0 failures

```

```

WARNING : No fit_metrics_aggregation_fn provided
INFO :     configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64328) entirely in future versions of
Flower.
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :     aggregate_evaluate: received 42 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :     configure_fit: strategy sampled 42 clients (out of 42)
INFO :     aggregate_fit: received 42 results and 0 failures
INFO :     configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :     aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO :     configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328) [repeated 258x across
cluster]
(ClientAppActor pid=64328) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x
across cluster]
(ClientAppActor pid=64328) This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=64328) entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=64328) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO :     aggregate_fit: received 42 results and 0 failures
INFO :     configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :     aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO :     configure_fit: strategy sampled 42 clients (out of 42)

```

```

INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328)      [repeated 318x across
cluster]
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 152x
across cluster]
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed [repeated 152x across cluster]
(ClientAppActor pid=64328)           entirely in future versions of
Flower. [repeated 152x across cluster]
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 152x across cluster]
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328)      [repeated 200x across
cluster]
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 92x
across cluster]
(ClientAppActor pid=64328)           This is a deprecated feature. It
will be removed [repeated 92x across cluster]
(ClientAppActor pid=64328)           entirely in future versions of
Flower. [repeated 92x across cluster]
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 92x across cluster]
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :      aggregate_evaluate: received 42 results and 0 failures

```

```

INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328)      [repeated 286x across
cluster]
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 155x
across cluster]
(ClientAppActor pid=64328)      This is a deprecated feature. It
will be removed [repeated 155x across cluster]
(ClientAppActor pid=64328)      entirely in future versions of
Flower. [repeated 155x across cluster]
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 155x across cluster]
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328)      [repeated 332x across
cluster]
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64328) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=64328)      This is a deprecated feature. It
will be removed [repeated 165x across cluster]

```

```

(ClientAppActor pid=64328)           entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=64328) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 36.71s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:46:46,081 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=64327)           [repeated 202x across
cluster]
(ClientAppActor pid=64327) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 69x
across cluster]
(ClientAppActor pid=64327)           This is a deprecated feature. It
will be removed [repeated 69x across cluster]
(ClientAppActor pid=64327)           entirely in future versions of
Flower. [repeated 69x across cluster]
(ClientAppActor pid=64327) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 69x across cluster]

Execution time without Ray for 42 clients: 55.62 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.

```

os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:46:51,993 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'memory': 7963771700.0,
'object_store_memory': 3981885849.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
```



The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=64921)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=64921)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=64921)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)          entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)          entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)          entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)          entirely in future versions of
Flower.

```

```

(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)

```

```

(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:

```



The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=64921) entirely in future versions of
Flower.
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=64921) entirely in future versions of
Flower.
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=64921) entirely in future versions of
Flower.
```

```
(ClientAppActor pid=64921)
```

```
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed
(ClientAppActor pid=64921) entirely in future versions of
Flower.
(ClientAppActor pid=64921)
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 42 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64920) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=64920) [repeated 6x across
cluster]
(ClientAppActor pid=64920) This is a deprecated feature. It

```

```

will be removed [repeated 3x across cluster]
(ClientAppActor pid=64920) entirely in future versions of
Flower. [repeated 3x across cluster]
(ClientAppActor pid=64920) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 3x across cluster]
INFO : aggregate_evaluate: received 42 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 42 clients (out of 42)
INFO : aggregate_fit: received 42 results and 0 failures
INFO : configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64921) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 109x
across cluster]
(ClientAppActor pid=64921) [repeated 218x across
cluster]
(ClientAppActor pid=64921) This is a deprecated feature. It
will be removed [repeated 109x across cluster]
(ClientAppActor pid=64921) entirely in future versions of
Flower. [repeated 109x across cluster]
(ClientAppActor pid=64921) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 109x across cluster]
INFO : aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 42 clients (out of 42)
INFO : aggregate_fit: received 42 results and 0 failures
INFO : configure_evaluate: strategy sampled 42 clients (out of 42)
INFO : aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 42 clients (out of 42)
INFO : aggregate_fit: received 42 results and 0 failures
INFO : configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64920) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 140x
across cluster]

```

```

(ClientAppActor pid=64920)           [repeated 280x across
cluster]
(ClientAppActor pid=64920)           This is a deprecated feature. It
will be removed [repeated 140x across cluster]
(ClientAppActor pid=64920)           entirely in future versions of
Flower. [repeated 140x across cluster]
(ClientAppActor pid=64920) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 140x across cluster]
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64920) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 142x
across cluster]
(ClientAppActor pid=64920)           [repeated 284x across
cluster]
(ClientAppActor pid=64920)           This is a deprecated feature. It
will be removed [repeated 142x across cluster]
(ClientAppActor pid=64920)           entirely in future versions of
Flower. [repeated 142x across cluster]
(ClientAppActor pid=64920) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 142x across cluster]
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 42 clients (out of 42)
INFO :      aggregate_fit: received 42 results and 0 failures
INFO :      configure_evaluate: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64920) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```



```

the `Context` like this: `from flwr.common import Context` [repeated 119x
across cluster]
(ClientAppActor pid=64920) [repeated 238x across
cluster]
(ClientAppActor pid=64920) This is a deprecated feature. It
will be removed [repeated 119x across cluster]
(ClientAppActor pid=64920) entirely in future versions of
Flower. [repeated 119x across cluster]
(ClientAppActor pid=64920) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 119x across cluster]
INFO : aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 42 clients (out of 42)
INFO : aggregate_fit: received 42 results and 0 failures
INFO : configure_evaluate: strategy sampled 42 clients (out of 42)
INFO : aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 42 clients (out of 42)
(ClientAppActor pid=64920) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x
across cluster]
(ClientAppActor pid=64920) [repeated 270x across
cluster]
(ClientAppActor pid=64920) This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=64920) entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=64920) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 135x across cluster]
INFO : aggregate_fit: received 42 results and 0 failures
INFO : configure_evaluate: strategy sampled 42 clients (out of 42)
INFO : aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 42 clients (out of 42)
INFO : aggregate_fit: received 42 results and 0 failures
INFO : configure_evaluate: strategy sampled 42 clients (out of 42)

```

```

INFO :      aggregate_evaluate: received 42 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 35.15s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=64921) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 151x

across cluster]
(ClientAppActor pid=64921)          [repeated 302x across
cluster]
(ClientAppActor pid=64921)          This is a deprecated feature. It
will be removed [repeated 151x across cluster]
(ClientAppActor pid=64921)          entirely in future versions of
Flower. [repeated 151x across cluster]
(ClientAppActor pid=64921) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 151x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 42 clients: 58.45 seconds

Running Federated Learning for 43 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:47:49,695 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'object_store_memory':
3980709888.0, 'memory': 7961419776.0}
INFO :      Optimize your simulation with Flower VCE:

```

```

https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)

```

```

(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=65527)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=65527)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=65527)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)

```

```

(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=65527) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=65527) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=65527) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=65527)
```

```
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed
(ClientAppActor pid=65527) entirely in future versions of
Flower.
(ClientAppActor pid=65527)
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=65526) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65526) [repeated 2x across
cluster]

```

```

(ClientAppActor pid=65526)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=65526)          entirely in future versions of
Flower.
(ClientAppActor pid=65526) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 43 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65526) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=65526)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=65526)          entirely in future versions of
Flower.
(ClientAppActor pid=65526) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 43 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527)          [repeated 284x across
cluster]
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=65527)          This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=65527)          entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=65527) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 166x across cluster]

```
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527)      [repeated 230x across
```

cluster]

```
(ClientAppActor pid=65526) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 103x
```

across cluster]

```
(ClientAppActor pid=65526)      This is a deprecated feature. It
will be removed [repeated 103x across cluster]
(ClientAppActor pid=65526)      entirely in future versions of
Flower. [repeated 103x across cluster]
```

```
(ClientAppActor pid=65526) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 103x across cluster]
```

```
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527)      [repeated 258x across
```

cluster]

```
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 139x
```

across cluster]

```
(ClientAppActor pid=65527)      This is a deprecated feature. It
will be removed [repeated 139x across cluster]
```

```

(ClientAppActor pid=65527)           entirely in future versions of
Flower. [repeated 139x across cluster]
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 139x across cluster]
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527)           [repeated 326x across
cluster]
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 162x
across cluster]
(ClientAppActor pid=65527)           This is a deprecated feature. It
will be removed [repeated 162x across cluster]
(ClientAppActor pid=65527)           entirely in future versions of
Flower. [repeated 162x across cluster]
(ClientAppActor pid=65527) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 162x across cluster]
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527)           [repeated 260x across
cluster]
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 119x
across cluster]
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed [repeated 119x across cluster]
(ClientAppActor pid=65527) entirely in future versions of
Flower. [repeated 119x across cluster]
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 119x across cluster]
INFO : aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 43 clients (out of 43)
INFO : aggregate_fit: received 43 results and 0 failures
INFO : configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=65527) [repeated 220x across
cluster]
(ClientAppActor pid=65527) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 124x
across cluster]
(ClientAppActor pid=65527) This is a deprecated feature. It
will be removed [repeated 124x across cluster]
(ClientAppActor pid=65527) entirely in future versions of
Flower. [repeated 124x across cluster]
(ClientAppActor pid=65527) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 124x across cluster]
INFO : aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 36.44s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0

```

```

INFO :
2024-09-20 10:48:40,212 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=65526)          [repeated 56x across
cluster]
(ClientAppActor pid=65526) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=65526)          This is a deprecated feature. It
will be removed [repeated 3x across cluster]
(ClientAppActor pid=65526)          entirely in future versions of
Flower. [repeated 3x across cluster]
(ClientAppActor pid=65526) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 3x across cluster]

Execution time without Ray for 43 clients: 55.57 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:48:45,723 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3980551372.0, 'memory': 7961102747.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)

```

```

(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)

```

```

(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of

```

Flower.

```
(ClientAppActor pid=66125)
```

```
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=66125)
```

```
(ClientAppActor pid=66125) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=66125) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=66125)
```

```
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=66125)
```

```
(ClientAppActor pid=66125) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=66125) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=66125)
```

```
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
```

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=66125)
```

```
(ClientAppActor pid=66125) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=66125) entirely in future versions of
```

Flower.

```
(ClientAppActor pid=66125)
```

```
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
```

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)           entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)

```

```

(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125) entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)          entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66125)
(ClientAppActor pid=66125)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=66125)          entirely in future versions of
Flower.
(ClientAppActor pid=66125)
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66124) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66124) [repeated 2x across
cluster]
(ClientAppActor pid=66124)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=66124)          entirely in future versions of
Flower.
(ClientAppActor pid=66124) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 43 results and 0 failures
WARNING :    No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66124) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=66124)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=66124)          entirely in future versions of
Flower.
(ClientAppActor pid=66124) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 43 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125)          [repeated 170x across
cluster]
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 125x
across cluster]
(ClientAppActor pid=66125)          This is a deprecated feature. It
will be removed [repeated 125x across cluster]
(ClientAppActor pid=66125)          entirely in future versions of
Flower. [repeated 125x across cluster]
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 125x across cluster]
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125)          [repeated 336x across
cluster]
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 169x
across cluster]
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed [repeated 169x across cluster]
(ClientAppActor pid=66125) entirely in future versions of
Flower. [repeated 169x across cluster]
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 169x across cluster]
INFO : aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 43 clients (out of 43)
INFO : aggregate_fit: received 43 results and 0 failures
INFO : configure_evaluate: strategy sampled 43 clients (out of 43)
INFO : aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO : [ROUND 6]
INFO : configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125) [repeated 304x across
cluster]
INFO : aggregate_fit: received 43 results and 0 failures
(ClientAppActor pid=66125) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 134x
across cluster]
(ClientAppActor pid=66125) This is a deprecated feature. It
will be removed [repeated 134x across cluster]
(ClientAppActor pid=66125) entirely in future versions of
Flower. [repeated 134x across cluster]
(ClientAppActor pid=66125) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 134x across cluster]
INFO : configure_evaluate: strategy sampled 43 clients (out of 43)
INFO : aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO : [ROUND 7]
INFO : configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125) [repeated 184x across
cluster]
INFO : aggregate_fit: received 43 results and 0 failures

```



```

INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 104x
across cluster]
(ClientAppActor pid=66125)      This is a deprecated feature. It
will be removed [repeated 104x across cluster]
(ClientAppActor pid=66125)      entirely in future versions of
Flower. [repeated 104x across cluster]
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 104x across cluster]
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125)      [repeated 320x across
cluster]
INFO :      aggregate_fit: received 43 results and 0 failures
INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
(ClientAppActor pid=66125) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=66125)      This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=66125)      entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=66125) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 43 clients (out of 43)
INFO :      aggregate_fit: received 43 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 43 clients (out of 43)
INFO :      aggregate_evaluate: received 43 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 35.37s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=66124)          [repeated 320x across
cluster]
(ClientAppActor pid=66124) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 119x
across cluster]
(ClientAppActor pid=66124)          This is a deprecated feature. It
will be removed [repeated 119x across cluster]
(ClientAppActor pid=66124)          entirely in future versions of
Flower. [repeated 119x across cluster]
(ClientAppActor pid=66124) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 119x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 43 clients: 58.06 seconds

Running Federated Learning for 44 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:49:42,845 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'object_store_memory':
3980580864.0, 'memory': 7961161728.0}

```

```

INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)

```

```

(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of

```

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) This is a deprecated feature. It will be removed

(ClientAppActor pid=66731) entirely in future versions of

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) This is a deprecated feature. It will be removed

(ClientAppActor pid=66731) entirely in future versions of

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) This is a deprecated feature. It will be removed

(ClientAppActor pid=66731) entirely in future versions of

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)

```

```

(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731) entirely in future versions of

```

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) This is a deprecated feature. It will be removed

(ClientAppActor pid=66731) entirely in future versions of

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) This is a deprecated feature. It will be removed

(ClientAppActor pid=66731) entirely in future versions of

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=66731) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) This is a deprecated feature. It will be removed

(ClientAppActor pid=66731) entirely in future versions of

Flower.

(ClientAppActor pid=66731)

(ClientAppActor pid=66731) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=66731)           entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66731)
(ClientAppActor pid=66731)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=66731) entirely in future versions of
Flower.
(ClientAppActor pid=66731)
(ClientAppActor pid=66731) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66730) [repeated 2x across
cluster]
(ClientAppActor pid=66730) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66730) entirely in future versions of
Flower.
(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 44 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66730) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66730) entirely in future versions of
Flower.
(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=66730) This is a deprecated feature. It
will be removed
(ClientAppActor pid=66730) entirely in future versions of
Flower.
(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 44 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730)      [repeated 248x across
cluster]
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x
across cluster]
(ClientAppActor pid=66730)      This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=66730)      entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 135x across cluster]
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66731)      [repeated 194x across
cluster]
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 109x
across cluster]
(ClientAppActor pid=66730)      This is a deprecated feature. It
will be removed [repeated 109x across cluster]
(ClientAppActor pid=66730)      entirely in future versions of
Flower. [repeated 109x across cluster]

```

```

(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 109x across cluster]
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730)      [repeated 328x across
cluster]
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=66730)      This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=66730)      entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730)      [repeated 322x across
cluster]
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 149x
across cluster]
(ClientAppActor pid=66730) This is a deprecated feature. It
will be removed [repeated 149x across cluster]
(ClientAppActor pid=66730) entirely in future versions of
Flower. [repeated 149x across cluster]
(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 149x across cluster]
INFO : aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO : [ROUND 8]
INFO : configure_fit: strategy sampled 44 clients (out of 44)
INFO : aggregate_fit: received 44 results and 0 failures
INFO : configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730) [repeated 184x across
cluster]
INFO : aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO : [ROUND 9]
INFO : configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 100x
across cluster]
(ClientAppActor pid=66730) This is a deprecated feature. It
will be removed [repeated 100x across cluster]
(ClientAppActor pid=66730) entirely in future versions of
Flower. [repeated 100x across cluster]
(ClientAppActor pid=66730) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 100x across cluster]
INFO : aggregate_fit: received 44 results and 0 failures
INFO : configure_evaluate: strategy sampled 44 clients (out of 44)
INFO : aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 44 clients (out of 44)
INFO : aggregate_fit: received 44 results and 0 failures
INFO : configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=66730) [repeated 318x across
cluster]

```

```

(ClientAppActor pid=66730) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 161x
across cluster]
(ClientAppActor pid=66730)           This is a deprecated feature. It
will be removed [repeated 161x across cluster]
(ClientAppActor pid=66730)           entirely in future versions of
Flower. [repeated 161x across cluster]
(ClientAppActor pid=66730) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 161x across cluster]
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 36.64s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:50:33,964 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=66731)           [repeated 78x across
cluster]
(ClientAppActor pid=66731) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 15x
across cluster]
(ClientAppActor pid=66731)           This is a deprecated feature. It
will be removed [repeated 15x across cluster]
(ClientAppActor pid=66731)           entirely in future versions of
Flower. [repeated 15x across cluster]
(ClientAppActor pid=66731) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

`NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 15x across cluster]

Execution time without Ray for 44 clients: 55.56 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

```
self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:50:40,088 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'CPU': 2.0,
'object_store_memory': 3981962035.0, 'memory': 7963924071.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
```



```

will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)

```

```

(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of

```

Flower.

(ClientAppActor pid=67340)

(ClientAppActor pid=67340) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=67340)

(ClientAppActor pid=67340) This is a deprecated feature. It

will be removed

(ClientAppActor pid=67340) entirely in future versions of

Flower.

(ClientAppActor pid=67340)

(ClientAppActor pid=67340) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=67340)

(ClientAppActor pid=67340) This is a deprecated feature. It

will be removed

(ClientAppActor pid=67340) entirely in future versions of

Flower.

(ClientAppActor pid=67340)

(ClientAppActor pid=67340) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=67340)

(ClientAppActor pid=67340) This is a deprecated feature. It

will be removed

(ClientAppActor pid=67340) entirely in future versions of

Flower.

(ClientAppActor pid=67340)

(ClientAppActor pid=67340) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It

```



```

will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340)           entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)

```

```

(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of

```

```

Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67340) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67340) entirely in future versions of
Flower.
(ClientAppActor pid=67340)
(ClientAppActor pid=67340) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 44 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 44 clients (out of 44)
INFO : aggregate_evaluate: received 44 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=67339) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 56x

across cluster]
(ClientAppActor pid=67339) [repeated 112x across

cluster]
(ClientAppActor pid=67339) This is a deprecated feature. It
will be removed [repeated 56x across cluster]
(ClientAppActor pid=67339) entirely in future versions of
Flower. [repeated 56x across cluster]
(ClientAppActor pid=67339) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 56x across cluster]
INFO : aggregate_fit: received 44 results and 0 failures
INFO : configure_evaluate: strategy sampled 44 clients (out of 44)
INFO : aggregate_evaluate: received 44 results and 0 failures

```

```

INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=67339) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=67339)          [repeated 332x across
cluster]
(ClientAppActor pid=67339)          This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=67339)          entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=67339) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=67339) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 131x
across cluster]
(ClientAppActor pid=67339)          [repeated 262x across
cluster]
(ClientAppActor pid=67339)          This is a deprecated feature. It
will be removed [repeated 131x across cluster]
(ClientAppActor pid=67339)          entirely in future versions of
Flower. [repeated 131x across cluster]
(ClientAppActor pid=67339) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```



```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 131x across cluster]
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=67339) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 117x
across cluster]
(ClientAppActor pid=67339)           [repeated 234x across
cluster]
(ClientAppActor pid=67339)           This is a deprecated feature. It
will be removed [repeated 117x across cluster]
(ClientAppActor pid=67339)           entirely in future versions of
Flower. [repeated 117x across cluster]
(ClientAppActor pid=67339) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 117x across cluster]
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=67339) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 167x
across cluster]
(ClientAppActor pid=67339)           [repeated 334x across
cluster]
(ClientAppActor pid=67339)           This is a deprecated feature. It
will be removed [repeated 167x across cluster]
(ClientAppActor pid=67339)           entirely in future versions of

```

```

Flower. [repeated 167x across cluster]
(ClientAppActor pid=67339) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 167x across cluster]
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 44 clients (out of 44)
(ClientAppActor pid=67339) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 145x
across cluster]
(ClientAppActor pid=67339) [repeated 290x across
cluster]
(ClientAppActor pid=67339) This is a deprecated feature. It
will be removed [repeated 145x across cluster]
(ClientAppActor pid=67339) entirely in future versions of
Flower. [repeated 145x across cluster]
(ClientAppActor pid=67339) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 145x across cluster]
INFO :      aggregate_fit: received 44 results and 0 failures
INFO :      configure_evaluate: strategy sampled 44 clients (out of 44)
INFO :      aggregate_evaluate: received 44 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 38.55s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0

```

```

INFO :                round 10: 0.0
INFO :
(ClientAppActor pid=67340) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 55x
across cluster]
(ClientAppActor pid=67340)                [repeated 110x across
cluster]
(ClientAppActor pid=67340)                This is a deprecated feature. It
will be removed [repeated 55x across cluster]
(ClientAppActor pid=67340)                entirely in future versions of
Flower. [repeated 55x across cluster]
(ClientAppActor pid=67340) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 55x across cluster]
INFO :                Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 44 clients: 60.34 seconds

Running Federated Learning for 45 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:51:38,483 INFO worker.py:1752 -- Started a local Ray instance.
INFO :                Flower VCE: Ray initialized with resources: {'memory':
7962830439.0, 'object_store_memory': 3981415219.0, 'CPU': 2.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO :                Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :                No `client_resources` specified. Using minimal resources
for clients.
INFO :                Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :                Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :                [INIT]
INFO :                Requesting initial parameters from one random client
INFO :                Received initial parameters from one random client
INFO :                Starting evaluation of initial global parameters
INFO :                Evaluation returned no results (`None`)
INFO :
INFO :                [ROUND 1]

```

```

INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)

```

```

(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=67940) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=67940) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=67940) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.

```



```

(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)

```

```

(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=67940)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=67940)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=67940)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=67940)
```

```
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)          entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)          entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)          entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940)          entirely in future versions of
Flower.

```



```

(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed
(ClientAppActor pid=67940) entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=67940) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=67940)           entirely in future versions of
Flower.
(ClientAppActor pid=67940)
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 45 results and 0 failures
WARNING :   No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67938) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x

across cluster]
(ClientAppActor pid=67938)           [repeated 4x across
cluster]
(ClientAppActor pid=67938)           This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=67938)           entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=67938) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 45 results and 0 failures
WARNING :   No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67938) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 107x

across cluster]
(ClientAppActor pid=67938)           [repeated 214x across
cluster]
(ClientAppActor pid=67938)           This is a deprecated feature. It
will be removed [repeated 107x across cluster]
(ClientAppActor pid=67938)           entirely in future versions of
Flower. [repeated 107x across cluster]
(ClientAppActor pid=67938) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 107x across cluster]
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67938) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 120x
across cluster]
(ClientAppActor pid=67938)           [repeated 240x across
cluster]
(ClientAppActor pid=67938)           This is a deprecated feature. It
will be removed [repeated 120x across cluster]
(ClientAppActor pid=67938)           entirely in future versions of
Flower. [repeated 120x across cluster]
(ClientAppActor pid=67938) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 120x across cluster]
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67938) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=67938)           [repeated 332x across
cluster]
(ClientAppActor pid=67938)           This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=67938)           entirely in future versions of

```

```

Flower. [repeated 166x across cluster]
(ClientAppActor pid=67938) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67938) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 140x
across cluster]
(ClientAppActor pid=67938) [repeated 280x across
cluster]
(ClientAppActor pid=67938) This is a deprecated feature. It
will be removed [repeated 140x across cluster]
(ClientAppActor pid=67938) entirely in future versions of
Flower. [repeated 140x across cluster]
(ClientAppActor pid=67938) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 140x across cluster]
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67938) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 99x
across cluster]
(ClientAppActor pid=67938) [repeated 198x across
cluster]

```

```

(ClientAppActor pid=67938)          This is a deprecated feature. It
will be removed [repeated 99x across cluster]
(ClientAppActor pid=67938)          entirely in future versions of
Flower. [repeated 99x across cluster]
(ClientAppActor pid=67938) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 98x across cluster]
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=67938) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=67938)          [repeated 330x across
cluster]
(ClientAppActor pid=67938)          This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=67938)          entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=67938) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 37.48s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0

```

```

INFO :                round 7: 0.0
INFO :                round 8: 0.0
INFO :                round 9: 0.0
INFO :                round 10: 0.0
INFO :
2024-09-20 10:52:30,875 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=67940) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 57x
across cluster]
(ClientAppActor pid=67940)                [repeated 114x across
cluster]
(ClientAppActor pid=67940)                This is a deprecated feature. It
will be removed [repeated 57x across cluster]
(ClientAppActor pid=67940)                entirely in future versions of
Flower. [repeated 57x across cluster]
(ClientAppActor pid=67940) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 57x across cluster]

Execution time without Ray for 45 clients: 56.45 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:52:37,497 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'object_store_memory': 3980552601.0, 'memory': 7961105204.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0, 'CPU': 2.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters

```



```

INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)          entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)          entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)          entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)          entirely in future versions of

```

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) This is a deprecated feature. It

will be removed

(ClientAppActor pid=68552) entirely in future versions of

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) This is a deprecated feature. It

will be removed

(ClientAppActor pid=68552) entirely in future versions of

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) This is a deprecated feature. It

will be removed

(ClientAppActor pid=68552) entirely in future versions of

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)

```



```

(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of

```

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) This is a deprecated feature. It will be removed

(ClientAppActor pid=68552) entirely in future versions of

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) This is a deprecated feature. It will be removed

(ClientAppActor pid=68552) entirely in future versions of

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) This is a deprecated feature. It will be removed

(ClientAppActor pid=68552) entirely in future versions of

Flower.

(ClientAppActor pid=68552)

(ClientAppActor pid=68552) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68552)
(ClientAppActor pid=68552)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552)           entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=68552)
(ClientAppActor pid=68552) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68552) entirely in future versions of
Flower.
(ClientAppActor pid=68552)
(ClientAppActor pid=68552) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=68551) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68551) [repeated 2x across

cluster]
(ClientAppActor pid=68551) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68551) entirely in future versions of
Flower.
(ClientAppActor pid=68551) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 45 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68551) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=68551) This is a deprecated feature. It
will be removed
(ClientAppActor pid=68551) entirely in future versions of
Flower.
(ClientAppActor pid=68551) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 45 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 45 clients (out of 45)
INFO : aggregate_fit: received 45 results and 0 failures
INFO : configure_evaluate: strategy sampled 45 clients (out of 45)
INFO : aggregate_evaluate: received 45 results and 0 failures

```



```

INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68551)      [repeated 274x across
cluster]
(ClientAppActor pid=68551) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x
across cluster]
(ClientAppActor pid=68551)      This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=68551)      entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=68551) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 164x across cluster]
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68551)      [repeated 212x across
cluster]
(ClientAppActor pid=68551) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 95x
across cluster]
(ClientAppActor pid=68551)      This is a deprecated feature. It
will be removed [repeated 95x across cluster]
(ClientAppActor pid=68551)      entirely in future versions of
Flower. [repeated 95x across cluster]
(ClientAppActor pid=68551) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 95x across cluster]
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)

```

```

INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68552)      [repeated 250x across
cluster]
(ClientAppActor pid=68551) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 138x
across cluster]
(ClientAppActor pid=68551)      This is a deprecated feature. It
will be removed [repeated 138x across cluster]
(ClientAppActor pid=68551)      entirely in future versions of
Flower. [repeated 138x across cluster]
(ClientAppActor pid=68551) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 138x across cluster]
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68551)      [repeated 334x across
cluster]
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68551) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 168x
across cluster]
(ClientAppActor pid=68551)      This is a deprecated feature. It
will be removed [repeated 168x across cluster]
(ClientAppActor pid=68551)      entirely in future versions of
Flower. [repeated 168x across cluster]
(ClientAppActor pid=68551) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 168x across cluster]
INFO :      aggregate_evaluate: received 45 results and 0 failures

```

```

INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68552)      [repeated 268x across
cluster]
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68551) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 117x
across cluster]
(ClientAppActor pid=68551)      This is a deprecated feature. It
will be removed [repeated 117x across cluster]
(ClientAppActor pid=68551)      entirely in future versions of
Flower. [repeated 117x across cluster]
(ClientAppActor pid=68551) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 117x across cluster]
INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 45 clients (out of 45)
(ClientAppActor pid=68551)      [repeated 214x across
cluster]
(ClientAppActor pid=68551) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 122x
across cluster]
(ClientAppActor pid=68551)      This is a deprecated feature. It
will be removed [repeated 122x across cluster]
(ClientAppActor pid=68551)      entirely in future versions of
Flower. [repeated 122x across cluster]
(ClientAppActor pid=68551) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 122x across cluster]

```

```

INFO :      aggregate_fit: received 45 results and 0 failures
INFO :      configure_evaluate: strategy sampled 45 clients (out of 45)
INFO :      aggregate_evaluate: received 45 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 37.94s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=68552)          [repeated 158x across
cluster]
(ClientAppActor pid=68552) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 50x
across cluster]
(ClientAppActor pid=68552)          This is a deprecated feature. It
will be removed [repeated 50x across cluster]
(ClientAppActor pid=68552)          entirely in future versions of
Flower. [repeated 50x across cluster]
(ClientAppActor pid=68552) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 50x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 45 clients: 59.94 seconds

Running Federated Learning for 46 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:53:35,125 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources:
{'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'CPU': 2.0,

```

```

'object_store_memory': 3980480102.0, 'memory': 7960960206.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)

```

```

(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=69160)
```

```
(ClientAppActor pid=69160) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=69160) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=69160)
```

```
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=69160)
```

```
(ClientAppActor pid=69160) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=69160) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=69160)
```

```
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=69160)
```

```
(ClientAppActor pid=69160) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=69160) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=69160)
```

```
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)          entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)          entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)          entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)          This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)          entirely in future versions of
Flower.

```

```

(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:

```



```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160)           entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)

```

```

(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69160) entirely in future versions of
Flower.
(ClientAppActor pid=69160)
(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69158) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69158) [repeated 2x across
cluster]
(ClientAppActor pid=69158) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69158) entirely in future versions of
Flower.

```

```

(ClientAppActor pid=69158) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 46 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69158)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=69158)      entirely in future versions of
Flower.
(ClientAppActor pid=69158) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 46 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158)      [repeated 202x across
cluster]
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 138x
across cluster]
(ClientAppActor pid=69158)      This is a deprecated feature. It
will be removed [repeated 138x across cluster]
(ClientAppActor pid=69158)      entirely in future versions of
Flower. [repeated 138x across cluster]
(ClientAppActor pid=69158) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 138x across cluster]
INFO :      aggregate_fit: received 46 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158)      entirely
(ClientAppActor pid=69158) in future versions of Flower.
(ClientAppActor pid=69158)      [repeated 320x across
cluster]
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 159x
across cluster]
(ClientAppActor pid=69158)      This is a deprecated feature. It
will be removed [repeated 159x across cluster]
(ClientAppActor pid=69158)      entirely in future versions of
Flower. [repeated 158x across cluster]
(ClientAppActor pid=69158) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 159x across cluster]
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158)      [repeated 264x across
cluster]
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69160) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 117x
across cluster]
(ClientAppActor pid=69160)      This is a deprecated feature. It
will be removed [repeated 117x across cluster]
(ClientAppActor pid=69160)      entirely in future versions of
Flower. [repeated 117x across cluster]

```

```

(ClientAppActor pid=69160) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 117x across cluster]
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158)      [repeated 220x across
cluster]
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 125x
across cluster]
(ClientAppActor pid=69158)      This is a deprecated feature. It
will be removed [repeated 125x across cluster]
(ClientAppActor pid=69158)      entirely in future versions of
Flower. [repeated 125x across cluster]
(ClientAppActor pid=69158) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 125x across cluster]
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158)      [repeated 328x across
cluster]
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 163x
across cluster]
(ClientAppActor pid=69158)      This is a deprecated feature. It

```



```

will be removed [repeated 163x across cluster]
(ClientAppActor pid=69158) entirely in future versions of
Flower. [repeated 163x across cluster]
(ClientAppActor pid=69158) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 163x across cluster]
INFO : aggregate_fit: received 46 results and 0 failures
INFO : configure_evaluate: strategy sampled 46 clients (out of 46)
INFO : aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO : [ROUND 10]
INFO : configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158) [repeated 298x across
cluster]
INFO : aggregate_fit: received 46 results and 0 failures
INFO : configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69158) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 134x
across cluster]
(ClientAppActor pid=69158) This is a deprecated feature. It
will be removed [repeated 134x across cluster]
(ClientAppActor pid=69158) entirely in future versions of
Flower. [repeated 134x across cluster]
(ClientAppActor pid=69158) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 134x across cluster]
INFO : aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO : [SUMMARY]
INFO : Run finished 10 round(s) in 39.35s
INFO : History (loss, distributed):
INFO : round 1: 0.0
INFO : round 2: 0.0
INFO : round 3: 0.0
INFO : round 4: 0.0
INFO : round 5: 0.0
INFO : round 6: 0.0
INFO : round 7: 0.0
INFO : round 8: 0.0
INFO : round 9: 0.0
INFO : round 10: 0.0
INFO :

```

2024-09-20 10:54:29,484 INFO worker.py:1585 -- Calling ray.init() again after it has already been called.

INFO : Starting Flower simulation, config: num\_rounds=10, no round\_timeout

(ClientAppActor pid=69160) [repeated 116x across cluster]

(ClientAppActor pid=69160) WARNING : DEPRECATED FEATURE: `client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 37x across cluster]

(ClientAppActor pid=69160) This is a deprecated feature. It will be removed [repeated 37x across cluster]

(ClientAppActor pid=69160) entirely in future versions of Flower. [repeated 37x across cluster]

(ClientAppActor pid=69160) WARNING : Deprecation Warning: The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 37x across cluster]

Execution time without Ray for 46 clients: 58.53 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

self.pid = \_posixsubprocess.fork\_exec(

2024-09-20 10:54:35,403 INFO worker.py:1752 -- Started a local Ray instance.

INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0, 'object\_store\_memory': 3980971622.0, 'memory': 7961943246.0, 'node:172.28.0.12': 1.0, 'node:\_\_internal\_head\_\_': 1.0}

INFO : Optimize your simulation with Flower VCE: <https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 46 clients (out of 46)

(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)

```

```

(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=69764)
```

```
(ClientAppActor pid=69764) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=69764) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=69764)
```

```
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=69764)
```

```
(ClientAppActor pid=69764) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=69764) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=69764)
```

```
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=69764)
```

```
(ClientAppActor pid=69764) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=69764) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=69764)
```

```
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)

```

```

(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:  
``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=69764)

(ClientAppActor pid=69764) This is a deprecated feature. It  
will be removed

(ClientAppActor pid=69764) entirely in future versions of  
Flower.

(ClientAppActor pid=69764)

(ClientAppActor pid=69764) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=69764)

(ClientAppActor pid=69764) This is a deprecated feature. It  
will be removed

(ClientAppActor pid=69764) entirely in future versions of  
Flower.

(ClientAppActor pid=69764)

(ClientAppActor pid=69764) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=69764)

(ClientAppActor pid=69764) This is a deprecated feature. It  
will be removed

(ClientAppActor pid=69764) entirely in future versions of  
Flower.

(ClientAppActor pid=69764)

(ClientAppActor pid=69764) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import



```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed
(ClientAppActor pid=69764) entirely in future versions of
Flower.
(ClientAppActor pid=69764)
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 46 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 3x
across cluster]
(ClientAppActor pid=69764) [repeated 6x across
cluster]
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed [repeated 3x across cluster]
(ClientAppActor pid=69764) entirely in future versions of
Flower. [repeated 3x across cluster]
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 3x across cluster]
INFO : aggregate_evaluate: received 46 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 46 clients (out of 46)
INFO : aggregate_fit: received 46 results and 0 failures
INFO : configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 114x
across cluster]
(ClientAppActor pid=69764) [repeated 228x across
cluster]
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed [repeated 114x across cluster]
(ClientAppActor pid=69764) entirely in future versions of
Flower. [repeated 114x across cluster]
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 114x across cluster]
INFO : aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO : [ROUND 3]
INFO : configure_fit: strategy sampled 46 clients (out of 46)
INFO : aggregate_fit: received 46 results and 0 failures
INFO : configure_evaluate: strategy sampled 46 clients (out of 46)
INFO : aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO : [ROUND 4]
INFO : configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69764) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 132x
across cluster]
(ClientAppActor pid=69764) [repeated 264x across
cluster]
(ClientAppActor pid=69764) This is a deprecated feature. It
will be removed [repeated 132x across cluster]
(ClientAppActor pid=69764) entirely in future versions of
Flower. [repeated 132x across cluster]
(ClientAppActor pid=69764) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 132x across cluster]
INFO : aggregate_fit: received 46 results and 0 failures
INFO : configure_evaluate: strategy sampled 46 clients (out of 46)
INFO : aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO : [ROUND 5]
INFO : configure_fit: strategy sampled 46 clients (out of 46)
INFO : aggregate_fit: received 46 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x
across cluster]
(ClientAppActor pid=69764)           [repeated 330x across
cluster]
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=69764)           entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 118x
across cluster]
(ClientAppActor pid=69764)           [repeated 236x across
cluster]
(ClientAppActor pid=69764)           This is a deprecated feature. It
will be removed [repeated 118x across cluster]
(ClientAppActor pid=69764)           entirely in future versions of
Flower. [repeated 118x across cluster]
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 118x across cluster]
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :

```

```

INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 133x

across cluster]
(ClientAppActor pid=69764)          [repeated 266x across

cluster]
(ClientAppActor pid=69764)          This is a deprecated feature. It
will be removed [repeated 133x across cluster]
(ClientAppActor pid=69764)          entirely in future versions of
Flower. [repeated 133x across cluster]
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 133x across cluster]
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 46 clients (out of 46)
INFO :      aggregate_fit: received 46 results and 0 failures
INFO :      configure_evaluate: strategy sampled 46 clients (out of 46)
(ClientAppActor pid=69764) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 165x

across cluster]
(ClientAppActor pid=69764)          [repeated 330x across

cluster]
(ClientAppActor pid=69764)          This is a deprecated feature. It
will be removed [repeated 165x across cluster]
(ClientAppActor pid=69764)          entirely in future versions of
Flower. [repeated 165x across cluster]
(ClientAppActor pid=69764) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 165x across cluster]
INFO :      aggregate_evaluate: received 46 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 37.29s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=69762) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 44x
across cluster]
(ClientAppActor pid=69762)           [repeated 88x across
cluster]
(ClientAppActor pid=69762)           This is a deprecated feature. It
will be removed [repeated 44x across cluster]
(ClientAppActor pid=69762)           entirely in future versions of
Flower. [repeated 44x across cluster]
(ClientAppActor pid=69762) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 44x across cluster]
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 46 clients: 59.90 seconds

Running Federated Learning for 47 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:55:34,544 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'memory': 7961933415.0,
'object_store_memory': 3980966707.0}

```

```

INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)

```

```

(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of

```

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) This is a deprecated feature. It will be removed

(ClientAppActor pid=70388) entirely in future versions of

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) This is a deprecated feature. It will be removed

(ClientAppActor pid=70388) entirely in future versions of

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) This is a deprecated feature. It will be removed

(ClientAppActor pid=70388) entirely in future versions of

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```



```

(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)

```

```

(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of

```

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) This is a deprecated feature. It will be removed

(ClientAppActor pid=70388) entirely in future versions of

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) This is a deprecated feature. It will be removed

(ClientAppActor pid=70388) entirely in future versions of

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) This is a deprecated feature. It will be removed

(ClientAppActor pid=70388) entirely in future versions of

Flower.

(ClientAppActor pid=70388)

(ClientAppActor pid=70388) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388)           entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=70388) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) This is a deprecated feature. It
will be removed
(ClientAppActor pid=70388) entirely in future versions of
Flower.
(ClientAppActor pid=70388)
(ClientAppActor pid=70388) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 47 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70386) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 2x
across cluster]
(ClientAppActor pid=70386) [repeated 4x across
cluster]
(ClientAppActor pid=70386) This is a deprecated feature. It
will be removed [repeated 2x across cluster]
(ClientAppActor pid=70386) entirely in future versions of
Flower. [repeated 2x across cluster]
(ClientAppActor pid=70386) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 2x across cluster]
INFO :      aggregate_evaluate: received 47 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70386) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 133x
across cluster]
(ClientAppActor pid=70386) [repeated 266x across
cluster]
(ClientAppActor pid=70386) This is a deprecated feature. It
will be removed [repeated 133x across cluster]
(ClientAppActor pid=70386) entirely in future versions of
Flower. [repeated 133x across cluster]
(ClientAppActor pid=70386) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 133x across cluster]
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO : [ROUND 3]

```



```

INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70386) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 105x
across cluster]
(ClientAppActor pid=70386)           [repeated 210x across
cluster]
(ClientAppActor pid=70386)           This is a deprecated feature. It
will be removed [repeated 105x across cluster]
(ClientAppActor pid=70386)           entirely in future versions of
Flower. [repeated 105x across cluster]
(ClientAppActor pid=70386) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 105x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70386) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 161x
across cluster]
(ClientAppActor pid=70386)           [repeated 322x across
cluster]
(ClientAppActor pid=70386)           This is a deprecated feature. It
will be removed [repeated 161x across cluster]
(ClientAppActor pid=70386)           entirely in future versions of
Flower. [repeated 161x across cluster]
(ClientAppActor pid=70386) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 161x across cluster]

```

```

INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70386) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 151x

across cluster]
(ClientAppActor pid=70386)           [repeated 302x across

cluster]
(ClientAppActor pid=70386)           This is a deprecated feature. It
will be removed [repeated 151x across cluster]
(ClientAppActor pid=70386)           entirely in future versions of
Flower. [repeated 151x across cluster]
(ClientAppActor pid=70386) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 151x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70386) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 98x

across cluster]
(ClientAppActor pid=70386)           [repeated 196x across

cluster]
(ClientAppActor pid=70386)           This is a deprecated feature. It
will be removed [repeated 98x across cluster]
(ClientAppActor pid=70386)           entirely in future versions of
Flower. [repeated 98x across cluster]
(ClientAppActor pid=70386) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 98x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=70386) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 166x
across cluster]
(ClientAppActor pid=70386)           [repeated 332x across
cluster]
(ClientAppActor pid=70386)           This is a deprecated feature. It
will be removed [repeated 166x across cluster]
(ClientAppActor pid=70386)           entirely in future versions of
Flower. [repeated 166x across cluster]
(ClientAppActor pid=70386) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumPyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 166x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 38.25s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :

```

```

2024-09-20 10:56:27,729 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=70388) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 78x
across cluster]
(ClientAppActor pid=70388)          [repeated 156x across
cluster]
(ClientAppActor pid=70388)          This is a deprecated feature. It
will be removed [repeated 78x across cluster]
(ClientAppActor pid=70388)          entirely in future versions of
Flower. [repeated 78x across cluster]
(ClientAppActor pid=70388) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 78x across cluster]

Execution time without Ray for 47 clients: 58.21 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:56:34,630 INFO worker.py:1752 -- Started a local Ray instance.
INFO :      Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'memory': 7961360795.0, 'object_store_memory': 3980680396.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO :      Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :      No `client_resources` specified. Using minimal resources
for clients.
INFO :      Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :      Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :      [INIT]
INFO :      Requesting initial parameters from one random client
INFO :      Received initial parameters from one random client
INFO :      Starting evaluation of initial global parameters
INFO :      Evaluation returned no results (`None`)
INFO :
INFO :      [ROUND 1]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)

```



```

(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=71001) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=71001) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=71001) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)

```



```

(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:

```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=71001) entirely in future versions of
Flower.
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=71001) entirely in future versions of
Flower.
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
```

```
(ClientAppActor pid=71001) entirely in future versions of
Flower.
```

```
(ClientAppActor pid=71001)
```

```
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71001) entirely in future versions of
Flower.
(ClientAppActor pid=71001)
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71000) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71000) [repeated 2x across
cluster]
(ClientAppActor pid=71000) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71000) entirely in future versions of
Flower.
(ClientAppActor pid=71000) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.

```

```

INFO :      aggregate_fit: received 47 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71000) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71000)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=71000)      entirely in future versions of
Flower.
(ClientAppActor pid=71000) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 47 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71001)      [repeated 278x across
cluster]
(ClientAppActor pid=71001) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 163x
across cluster]
(ClientAppActor pid=71001)      This is a deprecated feature. It
will be removed [repeated 163x across cluster]
(ClientAppActor pid=71001)      entirely in future versions of
Flower. [repeated 163x across cluster]
(ClientAppActor pid=71001) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 163x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 4]

```

```

INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71001)      [repeated 210x across
cluster]
(ClientAppActor pid=71000) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 93x
across cluster]
(ClientAppActor pid=71000)      This is a deprecated feature. It
will be removed [repeated 93x across cluster]
(ClientAppActor pid=71000)      entirely in future versions of
Flower. [repeated 93x across cluster]
(ClientAppActor pid=71000) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 93x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71001)      [repeated 270x across
cluster]
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 146x
across cluster]
(ClientAppActor pid=71001)      This is a deprecated feature. It
will be removed [repeated 146x across cluster]
(ClientAppActor pid=71001)      entirely in future versions of
Flower. [repeated 146x across cluster]
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 146x across cluster]
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)

```

```

INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71000)      [repeated 282x across
cluster]
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 141x
across cluster]
(ClientAppActor pid=71001)      This is a deprecated feature. It
will be removed [repeated 141x across cluster]
(ClientAppActor pid=71001)      entirely in future versions of
Flower. [repeated 141x across cluster]
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 141x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71000)      [repeated 236x across
cluster]
(ClientAppActor pid=71000) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 107x
across cluster]
(ClientAppActor pid=71000)      This is a deprecated feature. It
will be removed [repeated 107x across cluster]
(ClientAppActor pid=71000)      entirely in future versions of
Flower. [repeated 107x across cluster]
(ClientAppActor pid=71000) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 107x across cluster]
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 9]

```



```

INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
(ClientAppActor pid=71001)      [repeated 256x across
cluster]
(ClientAppActor pid=71001) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 136x
across cluster]
(ClientAppActor pid=71001)      This is a deprecated feature. It
will be removed [repeated 136x across cluster]
(ClientAppActor pid=71001)      entirely in future versions of
Flower. [repeated 136x across cluster]
(ClientAppActor pid=71001) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 136x across cluster]
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 47 clients (out of 47)
INFO :      aggregate_fit: received 47 results and 0 failures
INFO :      configure_evaluate: strategy sampled 47 clients (out of 47)
INFO :      aggregate_evaluate: received 47 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 39.52s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=71000)      [repeated 252x across
cluster]
(ClientAppActor pid=71000) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

```

the `Context` like this: `from flwr.common import Context` [repeated 105x
across cluster]
(ClientAppActor pid=71000) This is a deprecated feature. It
will be removed [repeated 105x across cluster]
(ClientAppActor pid=71000) entirely in future versions of
Flower. [repeated 105x across cluster]
(ClientAppActor pid=71000) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 105x across cluster]
INFO : Starting Flower simulation, config: num_rounds=10, no
round_timeout

```

Execution time with Ray for 47 clients: 62.24 seconds

Running Federated Learning for 48 clients...

```

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.

```

```

self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:57:34,766 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3979270963.0, 'memory': 7958541927.0, 'node:172.28.0.12':
1.0, 'node:__internal_head__': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)

```

```

(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)

```

```

(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)

```

```

(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=71613)
```

```
(ClientAppActor pid=71613)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=71613)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=71613)
```

```
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=71613)
```

```
(ClientAppActor pid=71613)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=71613)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=71613)
```

```
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=71613)
```

```
(ClientAppActor pid=71613)           This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=71613)           entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=71613)
```

```
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
```

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.

```



```

(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)

```

```

(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:  
``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=71613)

(ClientAppActor pid=71613) This is a deprecated feature. It will be removed

(ClientAppActor pid=71613) entirely in future versions of Flower.

(ClientAppActor pid=71613)

(ClientAppActor pid=71613) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=71613)

(ClientAppActor pid=71613) This is a deprecated feature. It will be removed

(ClientAppActor pid=71613) entirely in future versions of Flower.

(ClientAppActor pid=71613)

(ClientAppActor pid=71613) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import the ``Context`` like this: ``from flwr.common import Context``

(ClientAppActor pid=71613)

(ClientAppActor pid=71613) This is a deprecated feature. It will be removed

(ClientAppActor pid=71613) entirely in future versions of Flower.

(ClientAppActor pid=71613)

(ClientAppActor pid=71613) WARNING : Deprecation Warning:

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:

``client_fn`` now expects a signature ``def client_fn(context: Context)``. The provided ``client_fn`` has signature: `{'cid': <Parameter "cid">}`. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613)           entirely in future versions of
Flower.

```



```

(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=71613) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed
(ClientAppActor pid=71613) entirely in future versions of
Flower.
(ClientAppActor pid=71613)
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 48 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 48 clients (out of 48)
INFO : aggregate_evaluate: received 48 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]

```

```

INFO :      configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=71612) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 82x
across cluster]
(ClientAppActor pid=71612)           [repeated 164x across
cluster]
(ClientAppActor pid=71612)           This is a deprecated feature. It
will be removed [repeated 82x across cluster]
(ClientAppActor pid=71612)           entirely in future versions of
Flower. [repeated 82x across cluster]
(ClientAppActor pid=71612) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 82x across cluster]
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=71612) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 154x
across cluster]
(ClientAppActor pid=71612)           [repeated 308x across
cluster]
(ClientAppActor pid=71612)           This is a deprecated feature. It
will be removed [repeated 154x across cluster]
(ClientAppActor pid=71612)           entirely in future versions of
Flower. [repeated 154x across cluster]
(ClientAppActor pid=71612) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 154x across cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)

```

```

(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 87x
across cluster]
(ClientAppActor pid=71613)           [repeated 174x across
cluster]
(ClientAppActor pid=71613)           This is a deprecated feature. It
will be removed [repeated 87x across cluster]
(ClientAppActor pid=71613)           entirely in future versions of
Flower. [repeated 87x across cluster]
(ClientAppActor pid=71613) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 87x across cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
(ClientAppActor pid=71612) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 156x
across cluster]
(ClientAppActor pid=71612)           [repeated 312x across
cluster]
(ClientAppActor pid=71612)           This is a deprecated feature. It
will be removed [repeated 156x across cluster]
(ClientAppActor pid=71612)           entirely in future versions of
Flower. [repeated 156x across cluster]
(ClientAppActor pid=71612) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 156x across cluster]
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 7]

```

```

INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=71612) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 163x
across cluster]
(ClientAppActor pid=71612)           [repeated 326x across
cluster]
(ClientAppActor pid=71612)           This is a deprecated feature. It
will be removed [repeated 163x across cluster]
(ClientAppActor pid=71612)           entirely in future versions of
Flower. [repeated 163x across cluster]
(ClientAppActor pid=71612) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 163x across cluster]
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=71612) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 96x
across cluster]
(ClientAppActor pid=71612)           [repeated 192x across
cluster]
(ClientAppActor pid=71612)           This is a deprecated feature. It
will be removed [repeated 96x across cluster]
(ClientAppActor pid=71612)           entirely in future versions of
Flower. [repeated 96x across cluster]
(ClientAppActor pid=71612) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 96x across cluster]
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)

```

```

INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=71612) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 140x
across cluster]
(ClientAppActor pid=71612)           [repeated 280x across
cluster]
(ClientAppActor pid=71612)           This is a deprecated feature. It
will be removed [repeated 140x across cluster]
(ClientAppActor pid=71612)           entirely in future versions of
Flower. [repeated 140x across cluster]
(ClientAppActor pid=71612) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 140x across cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 41.50s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 10:58:31,261 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=71613) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 35x
across cluster]

```

```

(ClientAppActor pid=71613) [repeated 70x across
cluster]
(ClientAppActor pid=71613) This is a deprecated feature. It
will be removed [repeated 35x across cluster]
(ClientAppActor pid=71613) entirely in future versions of
Flower. [repeated 35x across cluster]
(ClientAppActor pid=71613) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 35x across cluster]

Execution time without Ray for 48 clients: 61.15 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:58:36,984 INFO worker.py:1752 -- Started a local Ray instance.
INFO : Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'object_store_memory': 3980258918.0, 'memory': 7960517838.0,
'node:__internal_head__': 1.0, 'node:172.28.0.12': 1.0}
INFO : Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO : No `client_resources` specified. Using minimal resources
for clients.
INFO : Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO : [INIT]
INFO : Requesting initial parameters from one random client
INFO : Received initial parameters from one random client
INFO : Starting evaluation of initial global parameters
INFO : Evaluation returned no results (`None`)
INFO :
INFO : [ROUND 1]
INFO : configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:

```



The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=72233) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=72233) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import the ``Context`` like this: ``from flwr.common import Context``

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=72233) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
```

``client_fn`` now expects a signature ``def client_fn(context: Context)``.The provided ``client_fn`` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)

```

```

(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:

```



The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:  
`client_fn` now expects a signature `def client_fn(context: Context)`.The  
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import  
the `Context` like this: `from flwr.common import Context`
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=72233) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=72233) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) This is a deprecated feature. It  
will be removed
```

```
(ClientAppActor pid=72233) entirely in future versions of  
Flower.
```

```
(ClientAppActor pid=72233)
```

```
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
```

The `client_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to_client()` method to convert it to `Client`.

```
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
```

`client_fn` now expects a signature `def client_fn(context: Context)`.The provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import

```

the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.

```

```

(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:

```

```

`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed

```

```

(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233)           entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)

```

```

(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72233) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72233) entirely in future versions of
Flower.
(ClientAppActor pid=72233)
(ClientAppActor pid=72233) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72232) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72232) [repeated 2x across
cluster]
(ClientAppActor pid=72232) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72232) entirely in future versions of
Flower.

```



```

(ClientAppActor pid=72232) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_fit: received 48 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72232)      This is a deprecated feature. It
will be removed
(ClientAppActor pid=72232)      entirely in future versions of
Flower.
(ClientAppActor pid=72232) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO :      aggregate_evaluate: received 48 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO :      [ROUND 2]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232)      [repeated 218x across
cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 146x
across cluster]
(ClientAppActor pid=72232)      This is a deprecated feature. It
will be removed [repeated 146x across cluster]
(ClientAppActor pid=72232)      entirely in future versions of
Flower. [repeated 146x across cluster]
(ClientAppActor pid=72232) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 146x across cluster]
INFO :      aggregate_fit: received 48 results and 0 failures

```

```

INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232)      [repeated 316x across
cluster]
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 158x
across cluster]
(ClientAppActor pid=72232)      This is a deprecated feature. It
will be removed [repeated 158x across cluster]
(ClientAppActor pid=72232)      entirely in future versions of
Flower. [repeated 158x across cluster]
(ClientAppActor pid=72232) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 158x across cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232)      [repeated 236x across
cluster]
(ClientAppActor pid=72232) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 99x
across cluster]
(ClientAppActor pid=72232)      This is a deprecated feature. It
will be removed [repeated 99x across cluster]
(ClientAppActor pid=72232)      entirely in future versions of
Flower. [repeated 99x across cluster]
(ClientAppActor pid=72232) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 99x across cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :

```

```

INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232)      [repeated 258x across
cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 142x
across cluster]
(ClientAppActor pid=72232)      This is a deprecated feature. It
will be removed [repeated 142x across cluster]
(ClientAppActor pid=72232)      entirely in future versions of
Flower. [repeated 142x across cluster]
(ClientAppActor pid=72232) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 142x across cluster]
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232)      [repeated 322x across
cluster]
(ClientAppActor pid=72232) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 164x
across cluster]
(ClientAppActor pid=72232)      This is a deprecated feature. It
will be removed [repeated 164x across cluster]
(ClientAppActor pid=72232)      entirely in future versions of
Flower. [repeated 164x across cluster]
(ClientAppActor pid=72232) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 164x across cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232)      [repeated 254x across
cluster]
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 48 clients (out of 48)
(ClientAppActor pid=72232) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 110x
across cluster]
(ClientAppActor pid=72232)      This is a deprecated feature. It
will be removed [repeated 110x across cluster]
(ClientAppActor pid=72232)      entirely in future versions of
Flower. [repeated 110x across cluster]
(ClientAppActor pid=72232) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 110x across cluster]
INFO :      aggregate_fit: received 48 results and 0 failures
INFO :      configure_evaluate: strategy sampled 48 clients (out of 48)
INFO :      aggregate_evaluate: received 48 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 42.08s
INFO :      History (loss, distributed):
INFO :      round 1: 0.0
INFO :      round 2: 0.0
INFO :      round 3: 0.0
INFO :      round 4: 0.0
INFO :      round 5: 0.0
INFO :      round 6: 0.0
INFO :      round 7: 0.0
INFO :      round 8: 0.0
INFO :      round 9: 0.0
INFO :      round 10: 0.0
INFO :
(ClientAppActor pid=72233)      [repeated 216x across
cluster]

```

```

(ClientAppActor pid=72233) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 90x
across cluster]
(ClientAppActor pid=72233)           This is a deprecated feature. It
will be removed [repeated 90x across cluster]
(ClientAppActor pid=72233)           entirely in future versions of
Flower. [repeated 90x across cluster]
(ClientAppActor pid=72233) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 90x across cluster]
INFO :           Starting Flower simulation, config: num_rounds=10, no
round_timeout

Execution time with Ray for 48 clients: 64.82 seconds

Running Federated Learning for 49 clients...

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called.
os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so
this will likely lead to a deadlock.
  self.pid = _posixsubprocess.fork_exec(
2024-09-20 10:59:40,367 INFO worker.py:1752 -- Started a local Ray instance.
INFO :           Flower VCE: Ray initialized with resources: {'CPU': 2.0,
'node:172.28.0.12': 1.0, 'node:__internal_head__': 1.0, 'memory': 7958079899.0,
'object_store_memory': 3979039948.0}
INFO :           Optimize your simulation with Flower VCE:
https://flower.ai/docs/framework/how-to-run-simulations.html
INFO :           No `client_resources` specified. Using minimal resources
for clients.
INFO :           Flower VCE: Resources for each Virtual Client: {'num_cpus':
1, 'num_gpus': 0.0}
INFO :           Flower VCE: Creating VirtualClientEngineActorPool with 2
actors
INFO :           [INIT]
INFO :           Requesting initial parameters from one random client
INFO :           Received initial parameters from one random client
INFO :           Starting evaluation of initial global parameters
INFO :           Evaluation returned no results (`None`)
INFO :
INFO :           [ROUND 1]
INFO :           configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)

```

```

(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of

```

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) This is a deprecated feature. It will be removed

(ClientAppActor pid=72856) entirely in future versions of

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) This is a deprecated feature. It will be removed

(ClientAppActor pid=72856) entirely in future versions of

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) This is a deprecated feature. It will be removed

(ClientAppActor pid=72856) entirely in future versions of

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)

```

```

(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```



```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of

```

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) This is a deprecated feature. It will be removed

(ClientAppActor pid=72856) entirely in future versions of

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) This is a deprecated feature. It will be removed

(ClientAppActor pid=72856) entirely in future versions of

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) This is a deprecated feature. It will be removed

(ClientAppActor pid=72856) entirely in future versions of

Flower.

(ClientAppActor pid=72856)

(ClientAppActor pid=72856) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

```

(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72856)
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856)           entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=72856)
(ClientAppActor pid=72856) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72856) entirely in future versions of
Flower.
(ClientAppActor pid=72856)
(ClientAppActor pid=72856) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=72855) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72855) [repeated 2x across
cluster]
(ClientAppActor pid=72855) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72855) entirely in future versions of
Flower.
(ClientAppActor pid=72855) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 49 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72855) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=72855) This is a deprecated feature. It
will be removed
(ClientAppActor pid=72855) entirely in future versions of
Flower.
(ClientAppActor pid=72855) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 49 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) [repeated 132x across
cluster]

```

```

INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 99x

across cluster]
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed [repeated 99x across cluster]
(ClientAppActor pid=72856)           entirely in future versions of
Flower. [repeated 99x across cluster]
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 99x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856)           [repeated 306x across

cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 156x

across cluster]
(ClientAppActor pid=72856)           This is a deprecated feature. It
will be removed [repeated 156x across cluster]
(ClientAppActor pid=72856)           entirely in future versions of
Flower. [repeated 156x across cluster]
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumpyClient.to_client()` method to
convert it to `Client`. [repeated 156x across cluster]
(ClientAppActor pid=72856) import the `Context` like this: `from
flwr.common import Context`
INFO :      aggregate_fit: received 49 results and 0 failures

```



```

INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856)      [repeated 318x across
cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 147x
across cluster]
(ClientAppActor pid=72856)      This is a deprecated feature. It
will be removed [repeated 148x across cluster]
(ClientAppActor pid=72856)      entirely in future versions of
Flower. [repeated 148x across cluster]
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 148x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856)      [repeated 188x across
cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 94x
across cluster]
(ClientAppActor pid=72856)      This is a deprecated feature. It
will be removed [repeated 94x across cluster]
(ClientAppActor pid=72856)      entirely in future versions of
Flower. [repeated 94x across cluster]
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 94x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :

```

```

INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856)      [repeated 294x across
cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 158x
across cluster]
(ClientAppActor pid=72856)      This is a deprecated feature. It
will be removed [repeated 158x across cluster]
(ClientAppActor pid=72856)      entirely in future versions of
Flower. [repeated 158x across cluster]
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 158x across cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856)      [repeated 316x across
cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 153x
across cluster]
(ClientAppActor pid=72856)      This is a deprecated feature. It
will be removed [repeated 153x across cluster]
(ClientAppActor pid=72856)      entirely in future versions of
Flower. [repeated 153x across cluster]
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to

```

```

convert it to `Client`. [repeated 153x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856)      [repeated 200x across
cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=72856) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 88x
across cluster]
(ClientAppActor pid=72856)      This is a deprecated feature. It
will be removed [repeated 88x across cluster]
(ClientAppActor pid=72856)      entirely in future versions of
Flower. [repeated 88x across cluster]
(ClientAppActor pid=72856) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 88x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 42.84s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
2024-09-20 11:00:38,843 INFO worker.py:1585 -- Calling ray.init() again after it
has already been called.
INFO :      Starting Flower simulation, config: num_rounds=10, no
round_timeout
(ClientAppActor pid=72855)      [repeated 108x across
cluster]
(ClientAppActor pid=72855) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context` [repeated 34x

across cluster]

(ClientAppActor pid=72855) This is a deprecated feature. It will be removed [repeated 34x across cluster]

(ClientAppActor pid=72855) entirely in future versions of Flower. [repeated 34x across cluster]

(ClientAppActor pid=72855) WARNING : Deprecation Warning:  
The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`. [repeated 34x across cluster]

Execution time without Ray for 49 clients: 62.64 seconds

/usr/lib/python3.10/subprocess.py:1796: RuntimeWarning: os.fork() was called. os.fork() is incompatible with multithreaded code, and JAX is multithreaded, so this will likely lead to a deadlock.

self.pid = \_posixsubprocess.fork\_exec(  
2024-09-20 11:00:44,672 INFO worker.py:1752 -- Started a local Ray instance.  
INFO : Flower VCE: Ray initialized with resources:  
{'node:172.28.0.12': 1.0, 'node:\_\_internal\_head\_\_': 1.0, 'CPU': 2.0, 'memory': 7957057536.0, 'object\_store\_memory': 3978528768.0}

INFO : Optimize your simulation with Flower VCE:  
<https://flower.ai/docs/framework/how-to-run-simulations.html>

INFO : No `client\_resources` specified. Using minimal resources for clients.

INFO : Flower VCE: Resources for each Virtual Client: {'num\_cpus': 1, 'num\_gpus': 0.0}

INFO : Flower VCE: Creating VirtualClientEngineActorPool with 2 actors

INFO : [INIT]

INFO : Requesting initial parameters from one random client

INFO : Received initial parameters from one random client

INFO : Starting evaluation of initial global parameters

INFO : Evaluation returned no results (`None`)

INFO :

INFO : [ROUND 1]

INFO : configure\_fit: strategy sampled 49 clients (out of 49)

(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:  
`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) This is a deprecated feature. It will be removed

(ClientAppActor pid=73494) entirely in future versions of Flower.

(ClientAppActor pid=73494)

```

(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of

```

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) This is a deprecated feature. It

will be removed

(ClientAppActor pid=73494) entirely in future versions of

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) This is a deprecated feature. It

will be removed

(ClientAppActor pid=73494) entirely in future versions of

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) This is a deprecated feature. It

will be removed

(ClientAppActor pid=73494) entirely in future versions of

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)

```

```

(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The

```

```

provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of

```

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) This is a deprecated feature. It will be removed

(ClientAppActor pid=73494) entirely in future versions of

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) This is a deprecated feature. It will be removed

(ClientAppActor pid=73494) entirely in future versions of

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.

(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:

`client\_fn` now expects a signature `def client\_fn(context: Context)`. The provided `client\_fn` has signature: {'cid': <Parameter "cid">}. You can import the `Context` like this: `from flwr.common import Context`

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) This is a deprecated feature. It will be removed

(ClientAppActor pid=73494) entirely in future versions of

Flower.

(ClientAppActor pid=73494)

(ClientAppActor pid=73494) WARNING : Deprecation Warning:

The `client\_fn` function must return an instance of `Client`, but an instance of `NumpyClient` was returned. Please use `NumPyClient.to\_client()` method to convert it to `Client`.



```

(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It

```

```

will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of

```

```

`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494)           entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`

```

```

(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73494) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73494)
(ClientAppActor pid=73494) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73494) entirely in future versions of
Flower.
(ClientAppActor pid=73494)

```

```

(ClientAppActor pid=73494) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73493) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73493) [repeated 2x across
cluster]
(ClientAppActor pid=73493) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73493) entirely in future versions of
Flower.
(ClientAppActor pid=73493) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_fit: received 49 results and 0 failures
WARNING : No fit_metrics_aggregation_fn provided
INFO : configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493) WARNING : DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context`
(ClientAppActor pid=73493) This is a deprecated feature. It
will be removed
(ClientAppActor pid=73493) entirely in future versions of
Flower.
(ClientAppActor pid=73493) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
(ClientAppActor pid=73493) WARNING : Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`.
INFO : aggregate_evaluate: received 49 results and 0 failures
WARNING : No evaluate_metrics_aggregation_fn provided
INFO :
INFO : [ROUND 2]
INFO : configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493) [repeated 152x across
cluster]
INFO : aggregate_fit: received 49 results and 0 failures
INFO : configure_evaluate: strategy sampled 49 clients (out of 49)

```

```

(ClientAppActor pid=73493) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 115x
across cluster]
(ClientAppActor pid=73493)           This is a deprecated feature. It
will be removed [repeated 115x across cluster]
(ClientAppActor pid=73493)           entirely in future versions of
Flower. [repeated 115x across cluster]
(ClientAppActor pid=73493) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 114x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 3]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493)           [repeated 332x across
cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 4]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 161x
across cluster]
(ClientAppActor pid=73493)           This is a deprecated feature. It
will be removed [repeated 161x across cluster]
(ClientAppActor pid=73493)           entirely in future versions of
Flower. [repeated 161x across cluster]
(ClientAppActor pid=73493) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 161x across cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 5]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)

```

```

(ClientAppActor pid=73493)           [repeated 296x across
cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 135x
across cluster]
(ClientAppActor pid=73493)           This is a deprecated feature. It
will be removed [repeated 135x across cluster]
(ClientAppActor pid=73493)           entirely in future versions of
Flower. [repeated 135x across cluster]
(ClientAppActor pid=73493) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 135x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 6]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493)           [repeated 188x across
cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 114x
across cluster]
(ClientAppActor pid=73494)           This is a deprecated feature. It
will be removed [repeated 114x across cluster]
(ClientAppActor pid=73494)           entirely in future versions of
Flower. [repeated 114x across cluster]
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 114x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 7]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
INFO :      aggregate_evaluate: received 49 results and 0 failures

```



```

INFO :
INFO :      [ROUND 8]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493)      [repeated 324x across
cluster]
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 161x
across cluster]
(ClientAppActor pid=73494)      This is a deprecated feature. It
will be removed [repeated 161x across cluster]
(ClientAppActor pid=73494)      entirely in future versions of
Flower. [repeated 161x across cluster]
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 161x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 9]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)
INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73494)      [repeated 318x across
cluster]
(ClientAppActor pid=73493) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`.The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 142x
across cluster]
(ClientAppActor pid=73493)      This is a deprecated feature. It
will be removed [repeated 142x across cluster]
(ClientAppActor pid=73493)      entirely in future versions of
Flower. [repeated 142x across cluster]
(ClientAppActor pid=73493) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 142x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [ROUND 10]
INFO :      configure_fit: strategy sampled 49 clients (out of 49)

```

```

INFO :      aggregate_fit: received 49 results and 0 failures
INFO :      configure_evaluate: strategy sampled 49 clients (out of 49)
(ClientAppActor pid=73493)      [repeated 176x across
cluster]
(ClientAppActor pid=73493) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 96x
across cluster]
(ClientAppActor pid=73493)      This is a deprecated feature. It
will be removed [repeated 96x across cluster]
(ClientAppActor pid=73493)      entirely in future versions of
Flower. [repeated 96x across cluster]
(ClientAppActor pid=73493) WARNING :   Deprecation Warning:
The `client_fn` function must return an instance of `Client`, but an instance of
`NumpyClient` was returned. Please use `NumPyClient.to_client()` method to
convert it to `Client`. [repeated 96x across cluster]
INFO :      aggregate_evaluate: received 49 results and 0 failures
INFO :
INFO :      [SUMMARY]
INFO :      Run finished 10 round(s) in 42.40s
INFO :      History (loss, distributed):
INFO :          round 1: 0.0
INFO :          round 2: 0.0
INFO :          round 3: 0.0
INFO :          round 4: 0.0
INFO :          round 5: 0.0
INFO :          round 6: 0.0
INFO :          round 7: 0.0
INFO :          round 8: 0.0
INFO :          round 9: 0.0
INFO :          round 10: 0.0
INFO :
(ClientAppActor pid=73494)      [repeated 76x across
cluster]
(ClientAppActor pid=73494) WARNING :   DEPRECATED FEATURE:
`client_fn` now expects a signature `def client_fn(context: Context)`. The
provided `client_fn` has signature: {'cid': <Parameter "cid">}. You can import
the `Context` like this: `from flwr.common import Context` [repeated 6x
across cluster]
(ClientAppActor pid=73494)      This is a deprecated feature. It
will be removed [repeated 6x across cluster]
(ClientAppActor pid=73494)      entirely in future versions of
Flower. [repeated 6x across cluster]
(ClientAppActor pid=73494) WARNING :   Deprecation Warning:

```

The ``client_fn`` function must return an instance of ``Client``, but an instance of ``NumpyClient`` was returned. Please use ``NumPyClient.to_client()`` method to convert it to ``Client``. [repeated 6x across cluster]

Execution time with Ray for 49 clients: 65.25 seconds

