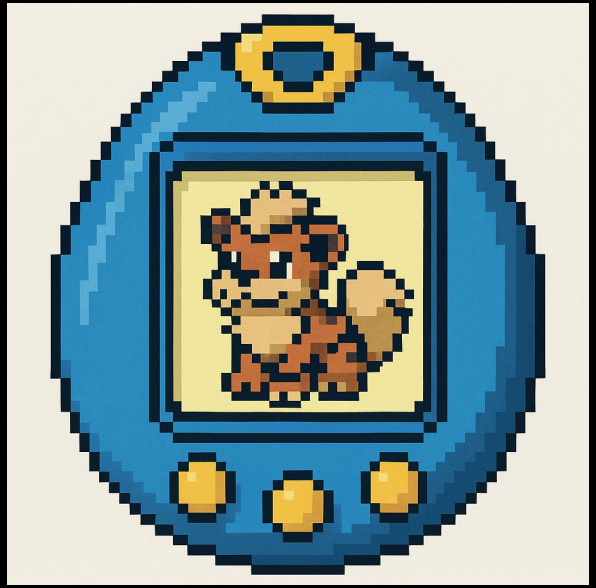
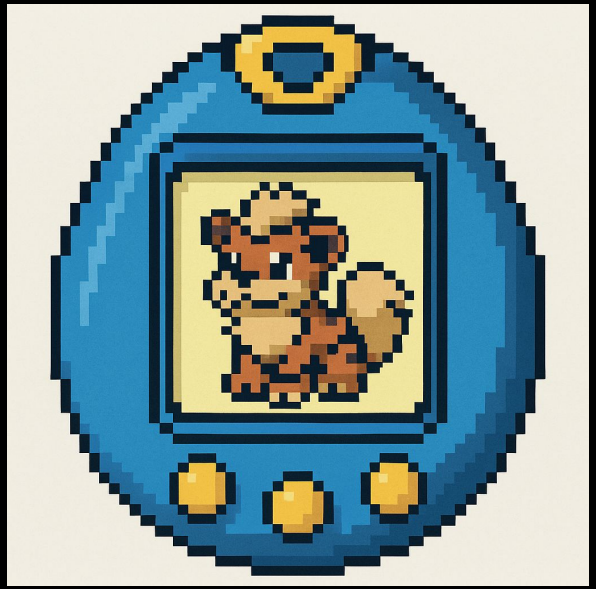
PETAGOCHI



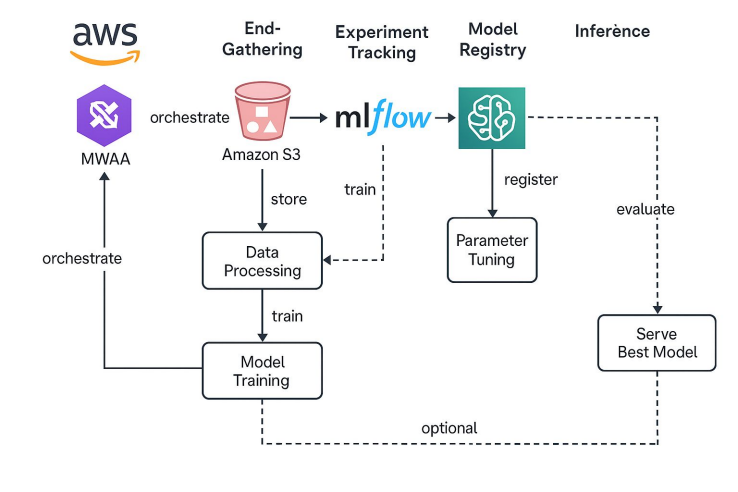
HUPALO ANDRII

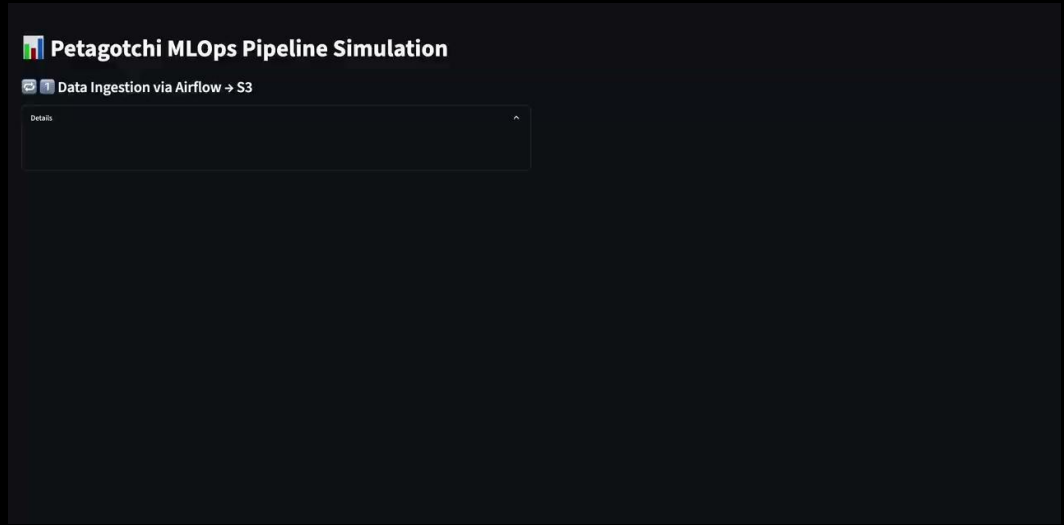
PETAGOCHI



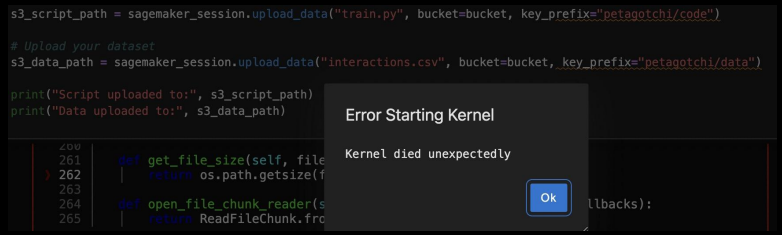
Imagine a digital pet, like a Tamagotchi or Pokémon, that **learns how to respond to your actions**

PETAGOCHI

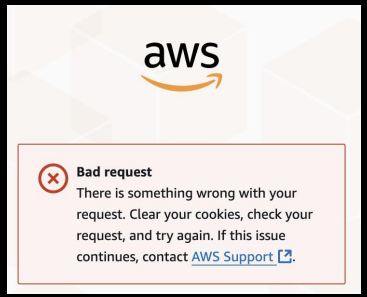

aws
End-Gathering
Experiment Tracking
Model Registry
Inferènce
MWAA
orchestrate
Amazon S3
mlflow
store
train
register
evaluate
orchestrate
Data Processing
Parameter Tuning
train
Model Training
Serve Best Model
optional


Petagotchi MLOps Pipeline Simulation
Data Ingestion via Airflow → S3
Details

PETAGOCHI


s3_script_path = sagemaker_session.upload_data("train.py", bucket=bucket, key_prefix="petagotchi/code")
# Upload your dataset
s3_data_path = sagemaker_session.upload_data("interactions.csv", bucket=bucket, key_prefix="petagotchi/data")
print("Script uploaded to:", s3_script_path)
print("Data uploaded to:", s3_data_path)
Error Starting Kernel
Kernel died unexpectedly
Ok
def get_file_size(self, file
return os.path.getsize(f
def open_file_chunk_reader(s
return ReadFileChunk.fro
llbacks):

PETAGOCHI

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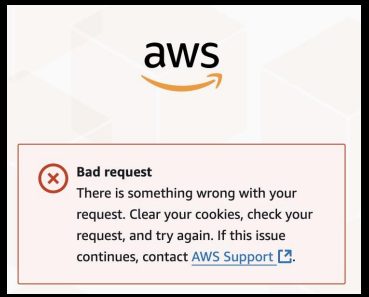
print("Data uploaded to:", s3_data_path)
```

Error Starting Kernel

Kernel died unexpectedly

Ok

PETAGOCHI

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```
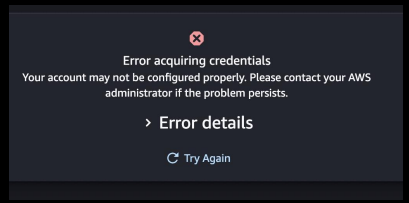

```
261    def get_file_size(self, file
262        return os.path.getsize(f
263
264    def open_file_chunk_reader(s                    llbacks):
265        return ReadFileChunk.fro
```

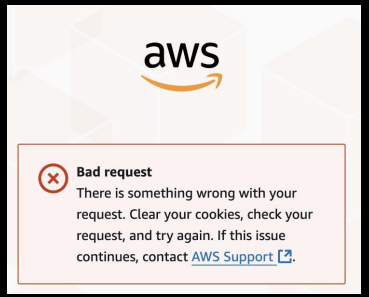
Error Starting Kernel

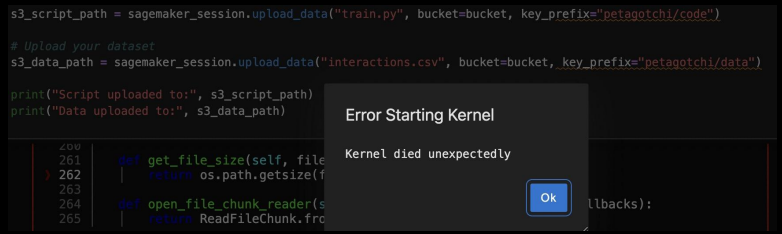
Kernel died unexpectedly

Ok



PETAGOCHI


aws
Bad request
There is something wrong with your request. Clear your cookies, check your request, and try again. If this issue continues, contact AWS Support.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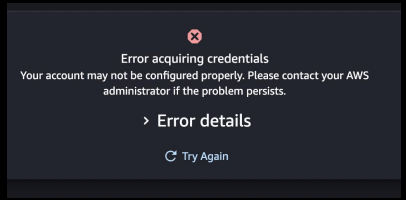
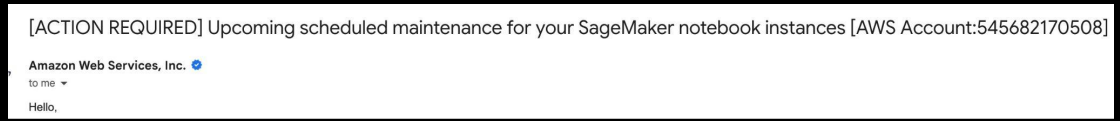
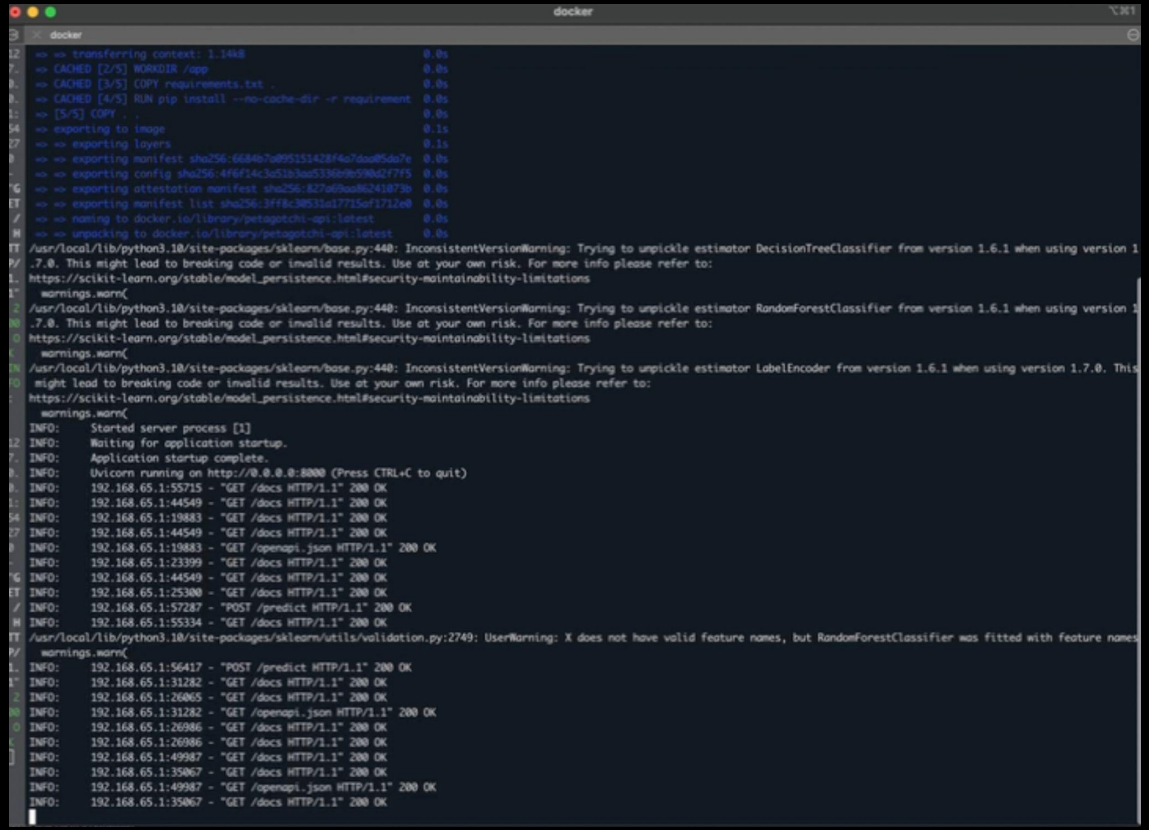
Kernel died unexpectedly
Ok

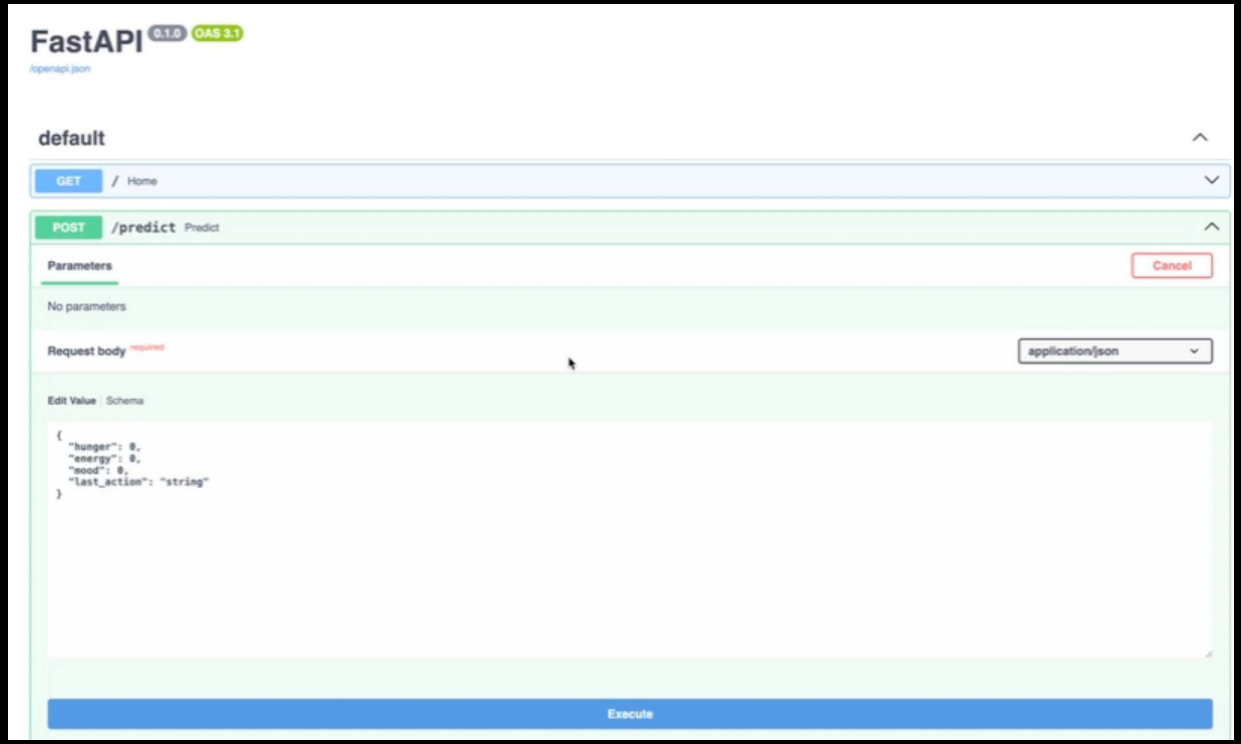

Error acquiring credentials
Your account may not be configured properly. Please contact your AWS administrator if the problem persists.
Error details
Try Again


[ACTION REQUIRED] Upcoming scheduled maintenance for your SageMaker notebook instances [AWS Account:545682170508]
Amazon Web Services, Inc.
to me
Hello,

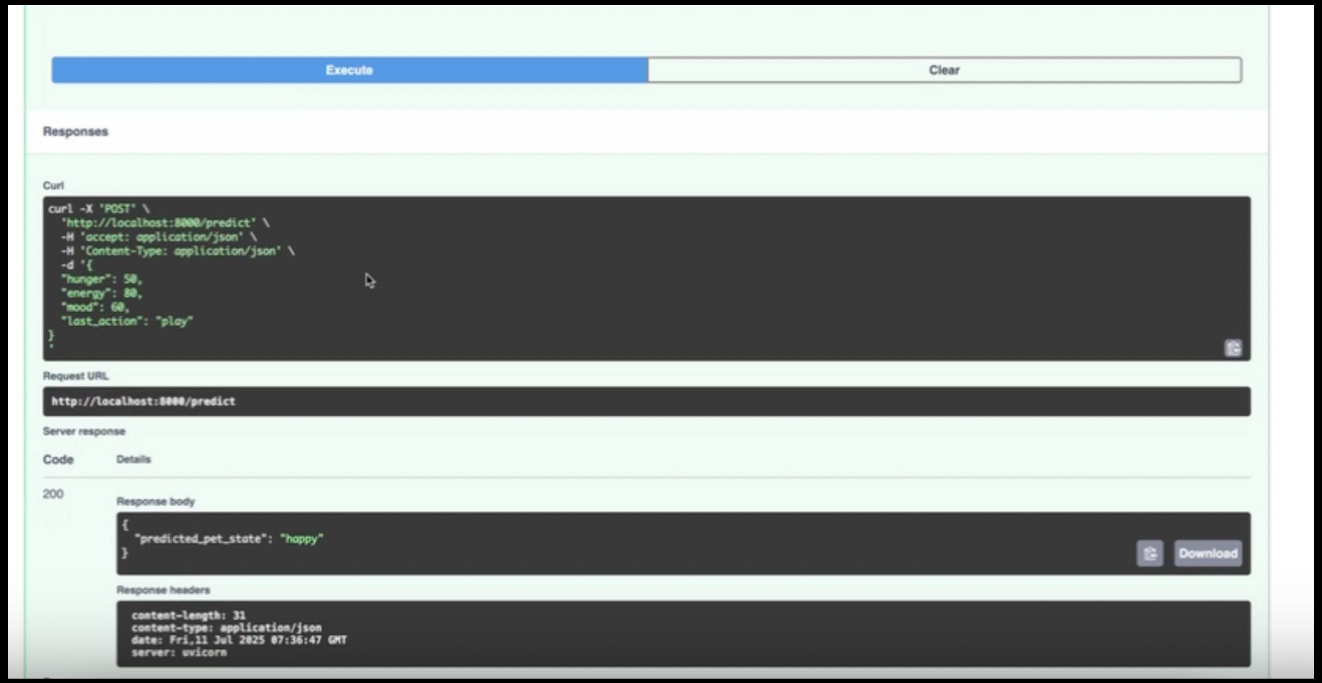
PETAGOCHI


docker
docker
=> => transferring context: 1.14kB 0.0s
=> CACHED [2/5] WORKDIR /app 0.0s
=> CACHED [3/5] COPY requirements.txt . 0.0s
=> CACHED [4/5] RUN pip install --no-cache-dir -r requirement 0.0s
=> [5/5] COPY . . 0.0s
=> exporting to image 0.1s
=> => exporting layers 0.1s
=> => exporting manifest sha256:66840a7a095151428f4a7daa05da7e 0.0s
=> => exporting config sha256:4f6f14c3a51b3aa5336b9b590d2f7f5 0.0s
=> => exporting attestation manifest sha256:827a69aa86241073b 0.0s
=> => exporting manifest list sha256:3ff8c30531a17715af1712e0 0.0s
=> => naming to docker.io/library/petagotchi-api:latest 0.0s
=> => unpacking to docker.io/library/petagotchi-api:latest 0.0s
/usr/local/lib/python3.10/site-packages/sklearn/base.py:440: InconsistentVersionWarning: Trying to unpickle estimator DecisionTreeClassifier from version 1.6.1 when using version 1
.7.0. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
warnings.warn(
/usr/local/lib/python3.10/site-packages/sklearn/base.py:440: InconsistentVersionWarning: Trying to unpickle estimator RandomForestClassifier from version 1.6.1 when using version 1
.7.0. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
warnings.warn(
/usr/local/lib/python3.10/site-packages/sklearn/base.py:440: InconsistentVersionWarning: Trying to unpickle estimator LabelEncoder from version 1.6.1 when using version 1.7.0. This
might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
warnings.warn(
INFO: Started server process [1]
INFO: Waiting for application startup.
INFO: Application startup complete.
INFO: Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)
INFO: 192.168.65.1:55715 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:44549 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:19883 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:44549 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:19883 - "GET /openapi.json HTTP/1.1" 200 OK
INFO: 192.168.65.1:23399 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:44549 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:25300 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:57287 - "POST /predict HTTP/1.1" 200 OK
INFO: 192.168.65.1:55334 - "GET /docs HTTP/1.1" 200 OK
/usr/local/lib/python3.10/site-packages/sklearn/utils/validation.py:2749: UserWarning: X does not have valid feature names, but RandomForestClassifier was fitted with feature names
warnings.warn(
INFO: 192.168.65.1:56417 - "POST /predict HTTP/1.1" 200 OK
INFO: 192.168.65.1:31282 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:26065 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:31282 - "GET /openapi.json HTTP/1.1" 200 OK
INFO: 192.168.65.1:26986 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:26986 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:49987 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:35067 - "GET /docs HTTP/1.1" 200 OK
INFO: 192.168.65.1:49987 - "GET /openapi.json HTTP/1.1" 200 OK
INFO: 192.168.65.1:35067 - "GET /docs HTTP/1.1" 200 OK

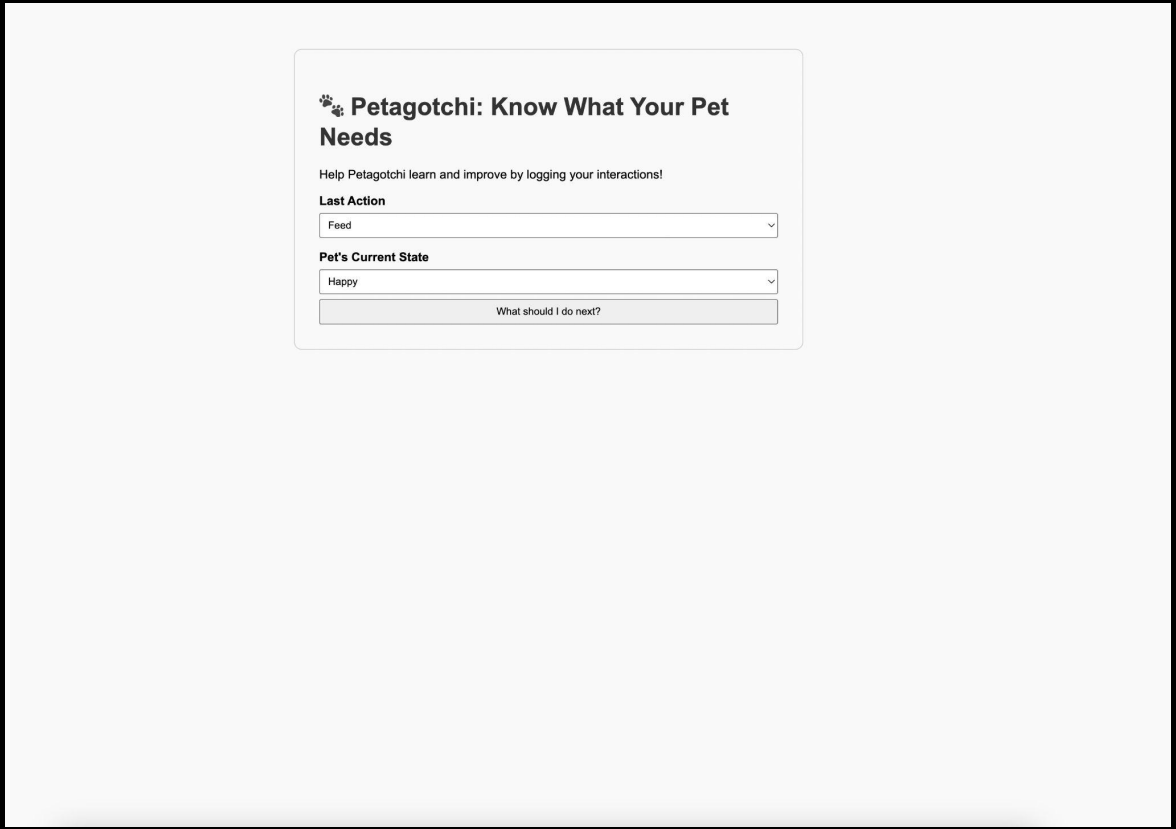
PETAGOCHI


FastAPI
0.1.0
OAS 3.1
/openapi.json
default
GET / Home
POST /predict Predict
Parameters
Cancel
No parameters
Request body required
application/json
Edit Value | Schema
{
"hunger": 0,
"energy": 0,
"mood": 0,
"last_action": "string"
}
Execute

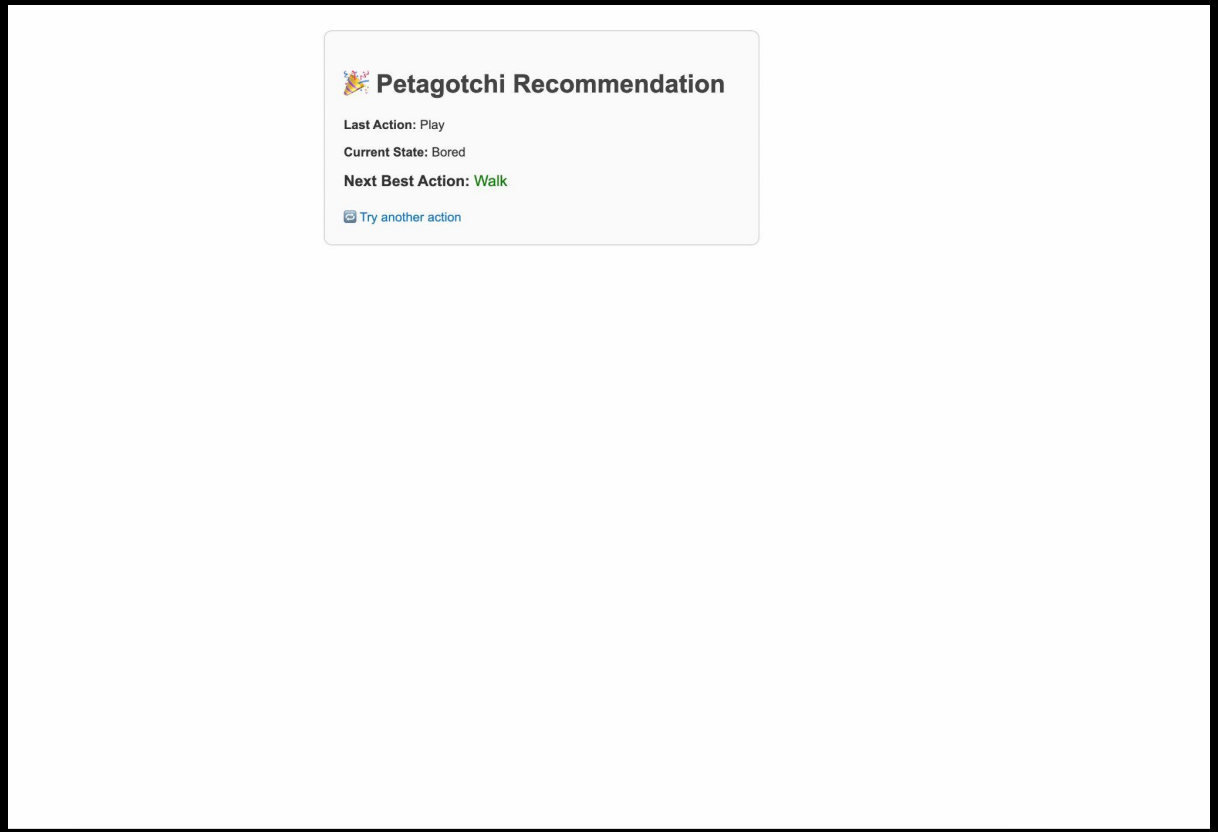
PETAGOCHI


Execute
Clear
Responses
Curl
curl -X 'POST' \
'http://localhost:8000/predict' \
-H 'accept: application/json' \
-H 'Content-Type: application/json' \
-d '{
"hunger": 50,
"energy": 80,
"mood": 60,
"last_action": "play"
}'
Request URL
http://localhost:8000/predict
Server response
Code
Details
200
Response body
{
"predicted_pet_state": "happy"
}
Download
Response headers
content-length: 31
content-type: application/json
date: Fri,11 Jul 2025 07:36:47 GMT
server: uvicorn

PETAGOCHI


🐾 Petagotchi: Know What Your Pet Needs
Help Petagotchi learn and improve by logging your interactions!
Last Action
Feed
Pet's Current State
Happy
What should I do next?

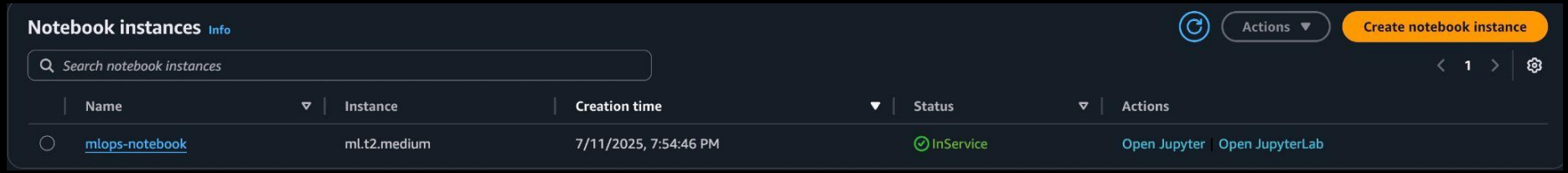
PETAGOCHI


🎉 Petagotchi Recommendation
Last Action: Play
Current State: Bored
Next Best Action: Walk
Try another action

```
from airflow import DAG
from airflow.providers.amazon.aws.operators.s3 import S3KeySensor
from airflow.providers.amazon.aws.operators.sagemaker import SageMakerTrainingOperator
from airflow.providers.amazon.aws.operators.sagemaker import SageMakerModelOperator
from airflow.providers.amazon.aws.operators.sagemaker import SageMakerEndpointOperator
from datetime import datetime

with DAG(
    dag_id="petagotchi_retrain",
    start_date=datetime(2025, 7, 12),
    schedule_interval="@daily",
    catchup=False
) as dag:

    wait_for_new_data = S3KeySensor(
        task_id="wait_for_data",
        bucket_name="petagotchi-bucket",
        bucket_key="data/raw/{{ ds }}/*.csv",
        aws_conn_id="aws_default"
    )

    train = SageMakerTrainingOperator(
        task_id="train_model",
        config={…},  # refer to your SKLearn estimator spec
        aws_conn_id="aws_default"
    )

    register = SageMakerModelOperator(
        task_id="create_model",
        config={…},  # config to store model in AWS
        aws_conn_id="aws_default"
    )

    update_endpoint = SageMakerEndpointOperator(
        task_id="deploy_model",
        config={…},  # endpoint config to update
        aws_conn_id="aws_default"
    )

    wait_for_new_data >> train >> register >> update_endpoint
```

Airflow → SageMaker → Endpoint

PETAGOCHI



wait_for_new_interactions_data | Status: Success | S3 Key Found
train_sklearn_model | Job Started: petagotchi-retrain-20250712
Uploaded training script: train.py
Training complete | Accuracy: 0.91 | Model saved to model.tar.gz
register_model | Model registered: petagotchi-model-20250712
update_endpoint | Endpoint petagotchi-endpoint updated
DAG Completed at 11:58:07 UTC

PETAGOCHI

```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gui
  X["last_action"] = action_encoder.fit_transform(X["last_action"].astype(str))
✅ Training complete. Model saved.
2025-07-11 23:38:00,337 sagemaker-containers INFO     Reporting training SUCCESS

2025-07-11 23:38:17 Training - Training image download completed. Training in progress.
2025-07-11 23:38:17 Uploading - Uploading generated training model
2025-07-11 23:38:17 Completed - Training job completed
Training seconds: 89
Billable seconds: 89
```

PETAGOCHI

```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gui
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2025-07-11 23:38:17 Uploading - Uploading generated training model
2025-07-11 23:38:17 Completed - Training job completed
Training seconds: 89
Billable seconds: 89
```

```
INFO:sagemaker:Creating model with name: sagemaker-scikit-learn-2025-07-12-05-36-36-223
INFO:sagemaker:Creating endpoint-config with name petagotchi-endpoint
INFO:sagemaker:Creating endpoint with name petagotchi-endpoint
--------!
```

PETAGOCHI

```
  X["last_action"] = action_encoder.fit_transform(X["last_action"].astype(str))
✅ Training complete. Model saved.
2025-07-11 23:38:00,337 sagemaker-containers INFO     Reporting training SUCCESS

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Training seconds: 89
Billable seconds: 89
```

```
INFO:sagemaker:Creating model with name: sagemaker-scikit-learn-2025-07-12-05-36-36-223
INFO:sagemaker:Creating endpoint-config with name petagotchi-endpoint
INFO:sagemaker:Creating endpoint with name petagotchi-endpoint
--------!
```

[9]:
```python
sample_input = {
    "hunger": 80,
    "energy": 60,
    "mood": 40,
    "last_action": "feed"
}
```

[10]:
```python
from sagemaker.predictor import Predictor
from sagemaker.serializers import JSONSerializer
from sagemaker.deserializers import JSONDeserializer

predictor = Predictor(
    endpoint_name="petagotchi-endpoint",
    serializer=JSONSerializer(),
    deserializer=JSONDeserializer()
)

# Send the sample data
result = predictor.predict(sample_input)
print("📦 Inference result:", result)
```

PETAGOCHI

```
  X["last_action"] = action_encoder.fit_transform(X["last_action"].astype(str))
✅ Training complete. Model saved.
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Billable seconds: 89
```

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INFO:sagemaker:Creating endpoint with name petagotchi-endpoint
---------!
```

[9]:
```python
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    "energy": 60,
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predictor = Predictor(
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    serializer=JSONSerializer(),
    deserializer=JSONDeserializer()
)

# Send the sample data
result = predictor.predict(sample_input)
print("📦 Inference result:", result)
```

```python
s3.list_objects_v2(Bucket=bucket, Prefix="petagotchi-training")
```

[8]:
```
{'ResponseMetadata': {'RequestId': 'CGVNBZSJDMP9GXZN',
  'HostId': 'bjB5bWDPrTSo7/CAohQ1A5F4XTK62J6UVpbtZ5IRHBujQZ/Nc5EVG/rY3+CZbstoS/g1tapNNwezXgIPkDI08fphZxIeznxF',
  'HTTPStatusCode': 200,
  'HTTPHeaders': {'x-amz-id-2': 'bjB5bWDPrTSo7/CAohQ1A5F4XTK62J6UVpbtZ5IRHBujQZ/Nc5EVG/rY3+CZbstoS/g1tapNNwezXgIPkDI08fphZxIeznxF',
   'x-amz-request-id': 'CGVNBZSJDMP9GXZN',
   'date': 'Sat, 12 Jul 2025 05:43:59 GMT',
   'x-amz-bucket-region': 'eu-west-3',
   'content-type': 'application/xml',
   'transfer-encoding': 'chunked',
   'server': 'AmazonS3'},
  'RetryAttempts': 0},
 'IsTruncated': False,
 'Contents': [{'Key': 'petagotchi-training-2025-07-11-19-12-50-293/source/sourcedir.tar.gz',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 12, 52, tzinfo=tzlocal()),
   'ETag': '"b70ba04bcfd71daa5e71a287a4320fdc"',
   'ChecksumAlgorithm': ['CRC32'],
   'ChecksumType': 'FULL_OBJECT',
   'Size': 754789,
   'StorageClass': 'STANDARD'},
  {'Key': 'petagotchi-training-2025-07-11-19-13-36-914/source/sourcedir.tar.gz',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 13, 39, tzinfo=tzlocal()),
   'ETag': '"80d9e32941c2573ad0f3737c8e4e542b"',
   'ChecksumAlgorithm': ['CRC32'],
   'ChecksumType': 'FULL_OBJECT',
   'Size': 761858,
   'StorageClass': 'STANDARD'},
  {'Key': 'petagotchi-training-2025-07-11-19-14-27-067/debug-output/training_job_end.ts',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 16, 34, tzinfo=tzlocal()),
   'ETag': '"40f0b7c7cc5d7b1b79bc16fc60bf0f85"',
   'ChecksumAlgorithm': ['CRC32C'],
   'ChecksumType': 'FULL_OBJECT',
   'Size': 0,
   'StorageClass': 'STANDARD'},
  {'Key': 'petagotchi-training-2025-07-11-19-14-27-067/profiler-output/framework/training_job_end.ts',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 16, 34, tzinfo=tzlocal()),
   'ETag': '"80f2980f14ac0fb853e55c074d16438d"',
   'ChecksumAlgorithm': ['CRC32C'],
   'ChecksumType': 'FULL_OBJECT',
   'Size': 0,
   'StorageClass': 'STANDARD'},
  {'Key': 'petagotchi-training-2025-07-11-19-14-27-067/profiler-output/system/incremental/2025071119/1752261300.algo-1.json',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 16, 32, tzinfo=tzlocal()),
   'ETag': '"0014b451dbfd348fafiaca235f3904ca"',
   'ChecksumAlgorithm': ['CRC32C'],
   'ChecksumType': 'FULL_OBJECT',
```

PETAGOCHI

```
  X["last_action"] = action_encoder.fit_transform(X["last_action"].astype(str))
✅ Training complete. Model saved.
2025-07-11 23:38:00,337 sagemaker-containers INFO     Reporting training SUCCESS

2025-07-11 23:38:17 Training - Training image download completed. Training in progress.
2025-07-11 23:38:17 Uploading - Uploading generated training model
2025-07-11 23:38:17 Completed - Training job completed
Training seconds: 89
Billable seconds: 89
```

```
INFO:sagemaker:Creating model with name: sagemaker-scikit-learn-2025-07-12-05-36-36-223
INFO:sagemaker:Creating endpoint-config with name petagotchi-endpoint
INFO:sagemaker:Creating endpoint with name petagotchi-endpoint
---------!
```

[9]:
```python
sample_input = {
    "hunger": 80,
    "energy": 60,
    "mood": 40,
    "last_action": "feed"
}
```

[10]:
```python
from sagemaker.predictor import Predictor
from sagemaker.serializers import JSONSerializer
from sagemaker.deserializers import JSONDeserializer

predictor = Predictor(
    endpoint_name="petagotchi-endpoint",
    serializer=JSONSerializer(),
    deserializer=JSONDeserializer()
)

# Send the sample data
result = predictor.predict(sample_input)
print("📦 Inference result:", result)
```

```
s3.list_objects_v2(Bucket=bucket, Prefix="petagotchi-training")
```

[8]:
```
{'ResponseMetadata': {'RequestId': 'CGVNBZSJDMP9GXZN',
  'HostId': 'bjB5bWDPrTSo7/CAohQ1A5F4XTK62J6UVpbtZ5IRHBujQZ/Nc5EVG/rY3+CZbstoS/g1tapNNwezXgIPkDI08fphZxIeznxF',
  'HTTPStatusCode': 200,
  'HTTPHeaders': {'x-amz-id-2': 'bjB5bWDPrTSo7/CAohQ1A5F4XTK62J6UVpbtZ5IRHBujQZ/Nc5EVG/rY3+CZbstoS/g1tapNNwezXgIPkDI08fphZxIeznxF',
   'x-amz-request-id': 'CGVNBZSJDMP9GXZN',
   'date': 'Sat, 12 Jul 2025 05:43:59 GMT',
   'x-amz-bucket-region': 'eu-west-3',
   'content-type': 'application/xml',
   'transfer-encoding': 'chunked',
   'server': 'AmazonS3'},
  'RetryAttempts': 0},
 'IsTruncated': False,
 'Contents': [{'Key': 'petagotchi-training-2025-07-11-19-12-50-293/source/sourcedir.tar.gz',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 12, 52, tzinfo=tzlocal()),
   'ETag': '"b70ba04bcfd71daa5e71a287a4320fdc"',
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   'Size': 754789,
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  {'Key': 'petagotchi-training-2025-07-11-19-13-36-914/source/sourcedir.tar.gz',
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   'Size': 761858,
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  {'Key': 'petagotchi-training-2025-07-11-19-14-27-067/debug-output/training_job_end.ts',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 16, 34, tzinfo=tzlocal()),
   'ETag': '"40f0b7c7cc5d7b1b79bc16fc60bf0f85"',
   'ChecksumAlgorithm': ['CRC32C'],
   'ChecksumType': 'FULL_OBJECT',
   'Size': 0,
   'StorageClass': 'STANDARD'},
  {'Key': 'petagotchi-training-2025-07-11-19-14-27-067/profiler-output/framework/training_job_end.ts',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 16, 34, tzinfo=tzlocal()),
   'ETag': '"80f2980f14ac0fb853e55c074d16438d"',
   'ChecksumAlgorithm': ['CRC32C'],
   'ChecksumType': 'FULL_OBJECT',
   'Size': 0,
   'StorageClass': 'STANDARD'},
  {'Key': 'petagotchi-training-2025-07-11-19-14-27-067/profiler-output/system/incremental/2025071119/1752261300.algo-1.json',
   'LastModified': datetime.datetime(2025, 7, 11, 19, 16, 32, tzinfo=tzlocal()),
   'ETag': '"0014b451dbfd348fafiaca235f3904ca"',
   'ChecksumAlgorithm': ['CRC32C'],
   'ChecksumType': 'FULL_OBJECT',
```
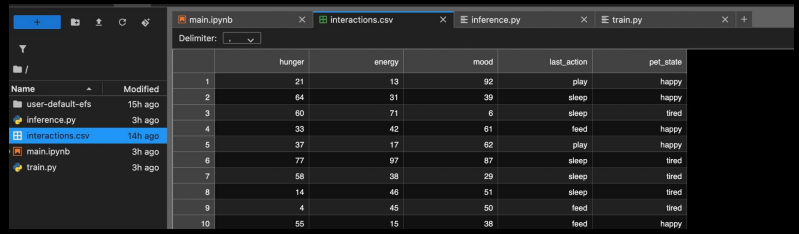
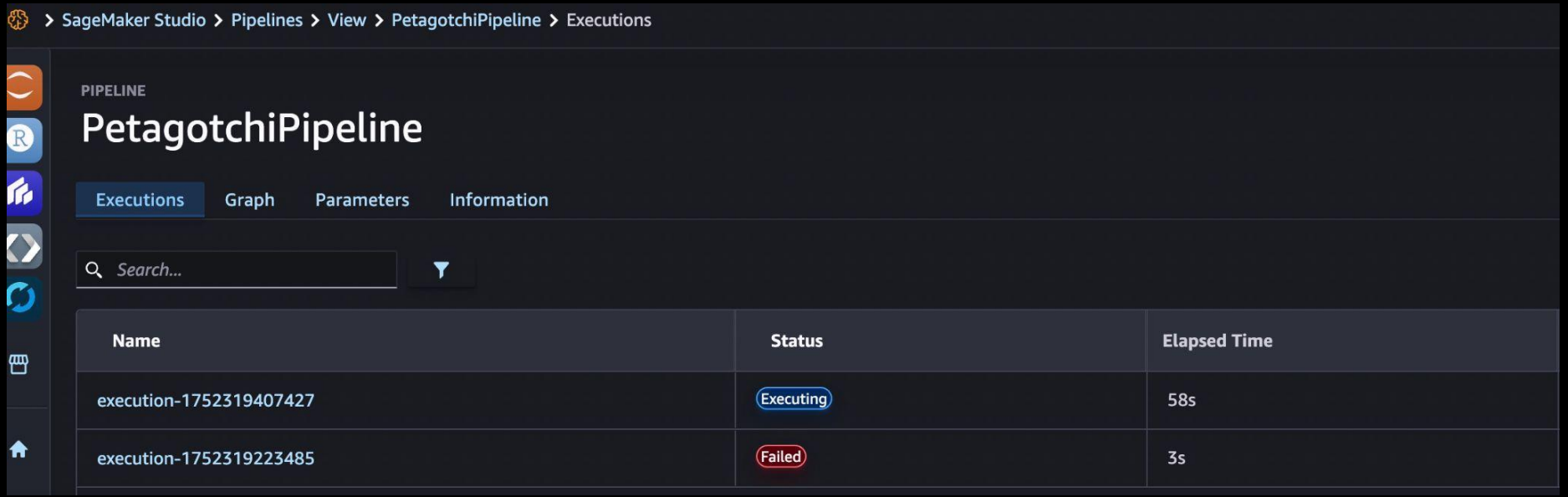



	hunger	energy	mood	last_action	pet_state
1	21	13	92	play	happy
2	64	31	39	sleep	happy
3	60	71	6	sleep	tired
4	33	42	61	feed	happy
5	37	17	62	play	happy
6	77	97	87	sleep	tired
7	58	38	29	sleep	tired
8	14	46	51	sleep	tired
9	4	45	50	feed	tired
10	55	15	38	feed	happy


SageMaker Studio > Pipelines > View > PetagotchiPipeline > Executions
PIPELINE
PetagotchiPipeline
Executions
Graph
Parameters
Information
Search...
Name
Status
Elapsed Time
execution-1752319407427
Executing
58s
execution-1752319223485
Failed
3s