In [15]:
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

In [21]:
```
import os

# Check the current working directory
print("Current Working Directory:", os.getcwd())

# List files in the current directory
print("Files in Current Directory:", os.listdir('.'))
```

```
Current Working Directory: /home/jovyan
Files in Current Directory: ['.npm', '.jupyter', '.ipython', 'getting-starte
d-guide_-_UW-JupyterHub-for-teaching.ipynb', 'Untitled.ipynb', 'Labs', '.con
fig', '.wget-hsts', 'Problem Sets', 'lost+found', '.cache', '.local', '.bash
_profile', 'Lavi Class Code', '.ipynb_checkpoints', 'project', 'info430']
```

1. Descriptive statistics

In [22]:
```
data = pd.read_csv('/home/jovyan/project/historical_data.csv')
```

In [23]:
```
data_info = data.info()
missing_values = data.isna().sum()

features_of_interest = [
    'total_items', 'subtotal', 'num_distinct_items', 'min_item_price', 'max_
    'total_onshift_dashers', 'total_busy_dashers', 'total_outstanding_orders
    'estimated_order_place_duration', 'estimated_store_to_consumer_driving_d
]
descriptive_stats = data[features_of_interest].describe()

(data_info, missing_values, descriptive_stats)
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 197428 entries, 0 to 197427
Data columns (total 16 columns):
 #   Column                                        Non-Null Count   Dtype  
---  ------                                        --------------   -----  
 0   market_id                                     196441 non-null  float64
 1   created_at                                    197428 non-null  object 
 2   actual_delivery_time                          197421 non-null  object 
 3   store_id                                      197428 non-null  int64  
 4   store_primary_category                        192668 non-null  object 
 5   order_protocol                                196433 non-null  float64
 6   total_items                                   197428 non-null  int64  
 7   subtotal                                      197428 non-null  int64  
 8   num_distinct_items                            197428 non-null  int64  
 9   min_item_price                                197428 non-null  int64  
 10  max_item_price                                197428 non-null  int64  
 11  total_onshift_dashers                         181166 non-null  float64
 12  total_busy_dashers                            181166 non-null  float64
 13  total_outstanding_orders                      181166 non-null  float64
 14  estimated_order_place_duration                197428 non-null  int64  
 15  estimated_store_to_consumer_driving_duration  196902 non-null  float64
dtypes: float64(6), int64(7), object(3)
memory usage: 24.1+ MB
```

Out[23]: (None,

```
market_id                                        987
created_at                                         0
actual_delivery_time                               7
store_id                                           0
store_primary_category                          4760
order_protocol                                   995
total_items                                        0
subtotal                                           0
num_distinct_items                                 0
min_item_price                                     0
max_item_price                                     0
total_onshift_dashers                          16262
total_busy_dashers                             16262
total_outstanding_orders                       16262
estimated_order_place_duration                     0
estimated_store_to_consumer_driving_duration     526
dtype: int64,
         total_items       subtotal  num_distinct_items  min_item_price  \
count  197428.000000  197428.000000       197428.000000   197428.000000   
mean        3.196391    2682.331402            2.670791      686.218470   
std         2.666546    1823.093688            1.630255      522.038648   
min         1.000000       0.000000            1.000000      -86.000000   
25%         2.000000    1400.000000            1.000000      299.000000   
50%         3.000000    2200.000000            2.000000      595.000000   
75%         4.000000    3395.000000            3.000000      949.000000   
max       411.000000   27100.000000           20.000000    14700.000000   
```

```
       max_item_price  total_onshift_dashers  total_busy_dashers  \
count   197428.000000          181166.000000       181166.000000
mean      1159.588630              44.808093           41.739747
std        558.411377              34.526783           32.145733
min          0.000000              -4.000000           -5.000000
25%        800.000000              17.000000           15.000000
50%       1095.000000              37.000000           34.000000
75%       1395.000000              65.000000           62.000000
max      14700.000000             171.000000          154.000000

       total_outstanding_orders  estimated_order_place_duration  \
count             181166.000000                   197428.000000
mean                  58.050065                      308.560179
std                   52.661830                       90.139653
min                   -6.000000                        0.000000
25%                   17.000000                      251.000000
50%                   41.000000                      251.000000
75%                   85.000000                      446.000000
max                  285.000000                     2715.000000

       estimated_store_to_consumer_driving_duration
count                                 196902.000000
mean                                     545.358935
std                                      219.352902
min                                        0.000000
25%                                      382.000000
50%                                      544.000000
75%                                      702.000000
max                                     2088.000000  )
```

Missing Values:

- Significant missing values are found in:
- market_id: 987 missing
- store_primary_category: 4760 missing
- order_protocol: 995 missing
- total_onshift_dashers, total_busy_dashers, and total_outstanding_orders: 16,262 missing each
- estimated_store_to_consumer_driving_duration: 526 missing

Descriptive Statistics:

Order-Specific Variables:

- total_items: Ranges from 1 to 411, with an average of ~3.2 items.
- subtotal: Ranges from 0 to 27100, with a mean of ~2682.

- min_item_price and max_item_price: Show outliers, including negative values for min_item_price.

Market-Specific Variables:

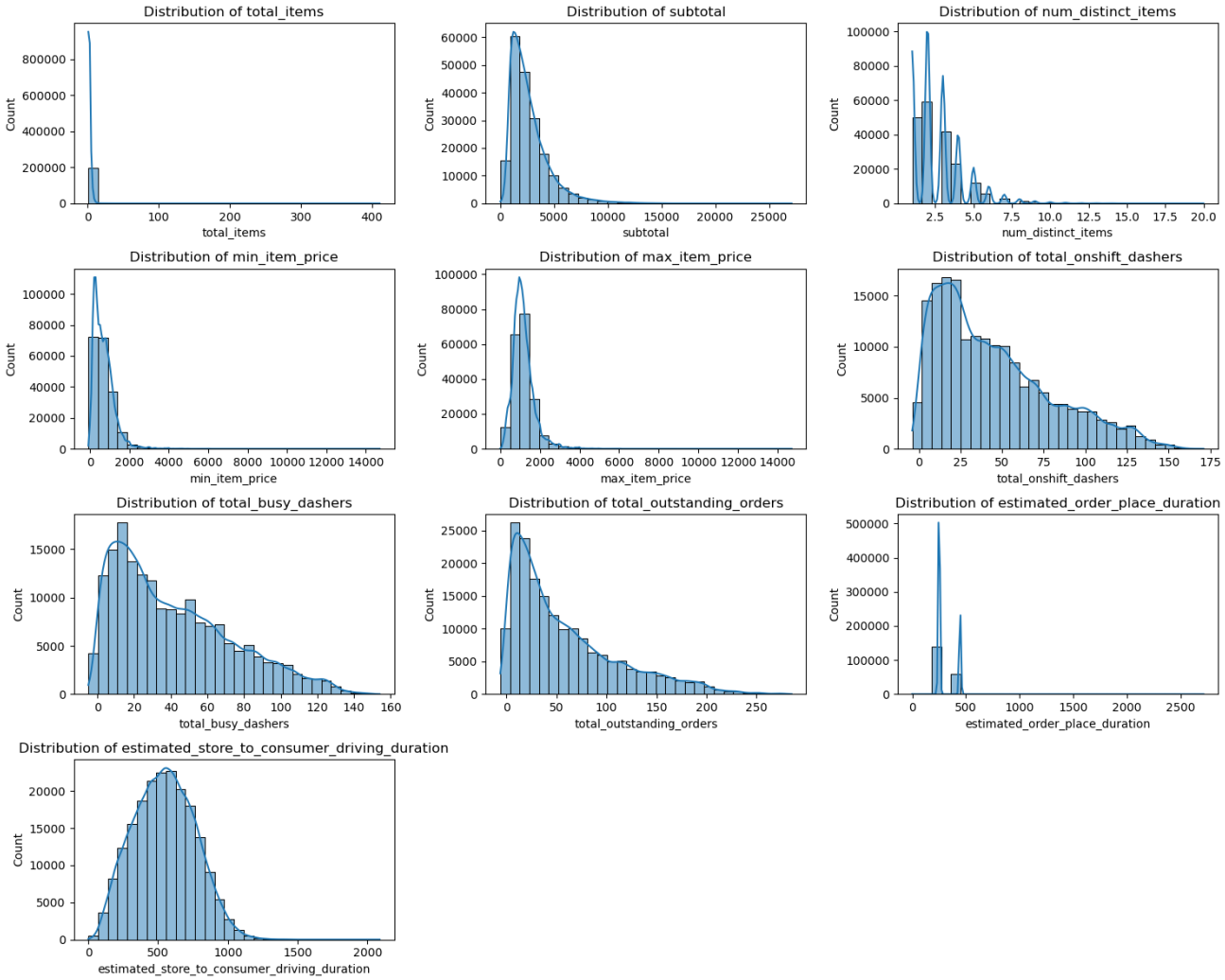
- total_onshift_dashers: Average of ~44.8 dashers, with some negative values.
- total_busy_dashers: Average of ~41.7 busy dashers, also includes negative values.
- total_outstanding_orders: Average of ~58 outstanding orders, with some negative values.

Time-Based Variables:

- estimated_order_place_duration: Average of ~308.6 seconds.
- estimated_store_to_consumer_driving_duration: Average of ~545.4 seconds.

1.1. Distribution Plots and Analysis

In [25]:
```
plt.figure(figsize=(15, 12))
for i, feature in enumerate(features_of_interest, 1):
    plt.subplot(4, 3, i)
    sns.histplot(data[feature], bins=30, kde=True)
    plt.title(f'Distribution of {feature}')
plt.tight_layout()
plt.show()
```



Order-Specific Features:

- total_items: The distribution is right-skewed, indicating that most orders contain a small number of items, with a few larger orders skewing the distribution.
- subtotal: This feature is also right-skewed, showing that most orders have relatively low subtotals, while a few high-value orders result in a long tail.
- min_item_price and max_item_price: Both show wide ranges with potential outliers. Notably, min_item_price has negative values, which are likely data entry errors and should be addressed in data cleaning.

Market-Specific Features:

- total_onshift_dashers and total_busy_dashers: Both features have a broad distribution, reflecting variation in dasher availability and workload at different times. Negative values suggest data inaccuracies, possibly from temporary tracking errors.
- total_outstanding_orders: This feature has a right-skewed distribution, indicating that in most cases, there are relatively few outstanding orders nearby, but there are

instances with high local demand.

Time-Based Features:

- estimated_order_place_duration: The distribution is right-skewed, with most orders placed quickly but a few taking much longer. This may indicate specific restaurants or times when order preparation is slower.
- estimated_store_to_consumer_driving_duration: Right-skewed as well, suggesting that most deliveries have shorter driving times, but a few outliers reflect longer travel distances, possibly due to location or traffic condition

2. Models

2.1: Ridge Regression Model

In [27]:
```
from sklearn.linear_model import RidgeCV
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error
```

In [29]:
```
# Selecting relevant features
predictor_features = [
    'total_items', 'subtotal', 'num_distinct_items', 'min_item_price', 'max_
    'total_onshift_dashers', 'total_busy_dashers', 'total_outstanding_orders
    'estimated_order_place_duration', 'estimated_store_to_consumer_driving_d
]
```

In [31]:
```
# Convert 'created_at' and 'actual_delivery_time' to datetime and calculate
data['created_at'] = pd.to_datetime(data['created_at'])
data['actual_delivery_time'] = pd.to_datetime(data['actual_delivery_time'])
data['delivery_duration'] = (data['actual_delivery_time'] - data['created_at

data = data.dropna(subset=['delivery_duration'])
```

In [32]:
```
data.delivery_duration
```

Out[32]:
```
0         3779.0
1         4024.0
2         1781.0
3         3075.0
4         2390.0
           ...
197423    3907.0
197424    3383.0
197425    3008.0
197426    3907.0
197427    2228.0
Name: delivery_duration, Length: 197421, dtype: float64
```

Without imputing the missing values, we run into errors indicating that there are missing values (NaNs) in the predictor variables, which Ridge Regreission cannot handle directly. Dropping rows with missing values might remove a signifcant portion of the data so instead we decided to impute the data.

In [36]:
```
from sklearn.impute import SimpleImputer

# Impute missing values in predictor features with the median
X = data[predictor_features]
y = data['delivery_duration']

imputer = SimpleImputer(strategy='median')
X_imputed = imputer.fit_transform(X)

X_train, X_test, y_train, y_test = train_test_split(X_imputed, y, test_size=
```

In [37]:
```
ridge = RidgeCV(alphas=[0.1, 1.0, 10.0, 100.0], scoring='neg_mean_squared_er
ridge.fit(X_train, y_train)

y_train_pred = ridge.predict(X_train)
y_test_pred = ridge.predict(X_test)
```

In [38]:
```
train_mse = mean_squared_error(y_train, y_train_pred)
test_mse = mean_squared_error(y_test, y_test_pred)

ridge_alpha = ridge.alpha_  # Optimal alpha selected by cross-validation

(train_mse, test_mse, ridge_alpha)
```

Out[38]:
```
(460746486.9224764, 4629944.095231325, 100.0)
```

Results:

- Training Mean Squared Error: 460,746,486.92

- Test Mean Squared Error: 4,629,944.11
- Optimal Alpha (Regularization Parameter): 100.0

The test MSE is much lower than the Training MSE suggesting that the model generalizes better on unseen data, because of the regularization of Ridge Regression but the large differences between training and test MSE might indicate that the model is underfitting, meaning it is overly constrained and not fully capturing the relationships in the data.

Wiht the alpha value being 100.0, it means that the model is heavily reguarlized.

These results indicate that the model is fitting reasonably well on the test set, but there could be room for improvement and should be tested with other models such as polynomial regression or neural networks.

In [ ]:

In [ ]:
```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split, RandomizedSearchCV
from sklearn.pipeline import Pipeline
from sklearn.preprocessing import StandardScaler
from sklearn.neighbors import KNeighborsRegressor
from sklearn.metrics import mean_squared_error
from sklearn.ensemble import RandomForestRegressor
```

Data Cleaning

In [2]:
```
df = pd.read_csv('historical_data.csv')
```

In [3]:
```
df.shape
```

Out[3]: (197428, 16)

In [4]:
```
df.head()
```

Out[4]:

	market_id	created_at	actual_delivery_time	store_id	store_primary_category	ord
0	1.0	2015-02-06 22:24:17	2015-02-06 23:27:16	1845	american	
1	2.0	2015-02-10 21:49:25	2015-02-10 22:56:29	5477	mexican	
2	3.0	2015-01-22 20:39:28	2015-01-22 21:09:09	5477	NaN	
3	3.0	2015-02-03 21:21:45	2015-02-03 22:13:00	5477	NaN	
4	3.0	2015-02-15 02:40:36	2015-02-15 03:20:26	5477	NaN	

In [5]:
```
df.columns
```

Out[5]:
```
Index(['market_id', 'created_at', 'actual_delivery_time', 'store_id',
       'store_primary_category', 'order_protocol', 'total_items', 'subtota
l',
       'num_distinct_items', 'min_item_price', 'max_item_price',
       'total_onshift_dashers', 'total_busy_dashers',
       'total_outstanding_orders', 'estimated_order_place_duration',
       'estimated_store_to_consumer_driving_duration'],
      dtype='object')
```

In [6]:
```
features = ["store_id", "subtotal", "total_items", "num_distinct_items", "mi
            "max_item_price", "total_onshift_dashers", "total_busy_dashers",
            "estimated_order_place_duration", "estimated_store_to_consumer_d
```

In [7]:
```
# check null values
print(df.isnull().sum())
```

```
market_id                                       987
created_at                                        0
actual_delivery_time                              7
store_id                                          0
store_primary_category                         4760
order_protocol                                  995
total_items                                       0
subtotal                                          0
num_distinct_items                                0
min_item_price                                    0
max_item_price                                    0
total_onshift_dashers                         16262
total_busy_dashers                            16262
total_outstanding_orders                      16262
estimated_order_place_duration                    0
estimated_store_to_consumer_driving_duration    526
dtype: int64
```

In [8]:
```
# clean nan rows
df = df.dropna(subset=['created_at', 'actual_delivery_time', 'total_onshift_
```

In [9]:
```
# still reasonable size
df.shape
```

Out[9]:
```
(180677, 16)
```

In [10]:
```
# calculate dependent variable
df['created_at'] = pd.to_datetime(df['created_at'])
df['actual_delivery_time'] = pd.to_datetime(df['actual_delivery_time'])
df['delivery_duration'] = (df['actual_delivery_time'] - df['created_at']).dt
```

Baseline Model

In [11]:
```
X = df[features]
y = df['delivery_duration']

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, rar
```

In [12]:
```
scaler = StandardScaler()
X_train = scaler.fit_transform(X_train)
X_test = scaler.transform(X_test)
```

In [ ]:
```
# 5 neighbor baseline model before filtering features
knn = KNeighborsRegressor(n_neighbors=5)
knn.fit(X_train, y_train)
```

Out[ ]:
```
KNeighborsRegressor
KNeighborsRegressor()
```

In [14]:
```
y_pred = knn.predict(X_test)
```

In [15]:
```
mse = mean_squared_error(y_test, y_pred)
rmse = np.sqrt(mse)
print(f"Mean Squared Error: {mse}")
print(f"Root Mean Squared Error: {rmse}")
```

```
Mean Squared Error: 8140982.783305292
Root Mean Squared Error: 2853.2407510242265
```

Filter to Important Features

In [16]:
```
# checking importance of features for faster hyperparameter tuning.
# fit a random tree based model
rf = RandomForestRegressor(n_estimators=100, random_state=42)
rf.fit(X_train, y_train)

# extract feature importances
importances = rf.feature_importances_
sorted_idx = np.argsort(-importances)
for i in sorted_idx:
    print(f"Feature {X.columns[i]}: {importances[i]:.4f}")
```

```
Feature estimated_store_to_consumer_driving_duration: 0.1608
Feature total_outstanding_orders: 0.1488
Feature subtotal: 0.1473
Feature total_onshift_dashers: 0.1207
Feature store_id: 0.1108
Feature max_item_price: 0.0898
Feature min_item_price: 0.0855
Feature total_busy_dashers: 0.0724
Feature num_distinct_items: 0.0242
Feature total_items: 0.0236
Feature estimated_order_place_duration: 0.0162
```

In [17]:
```
y_pred = knn.predict(X_test)
```

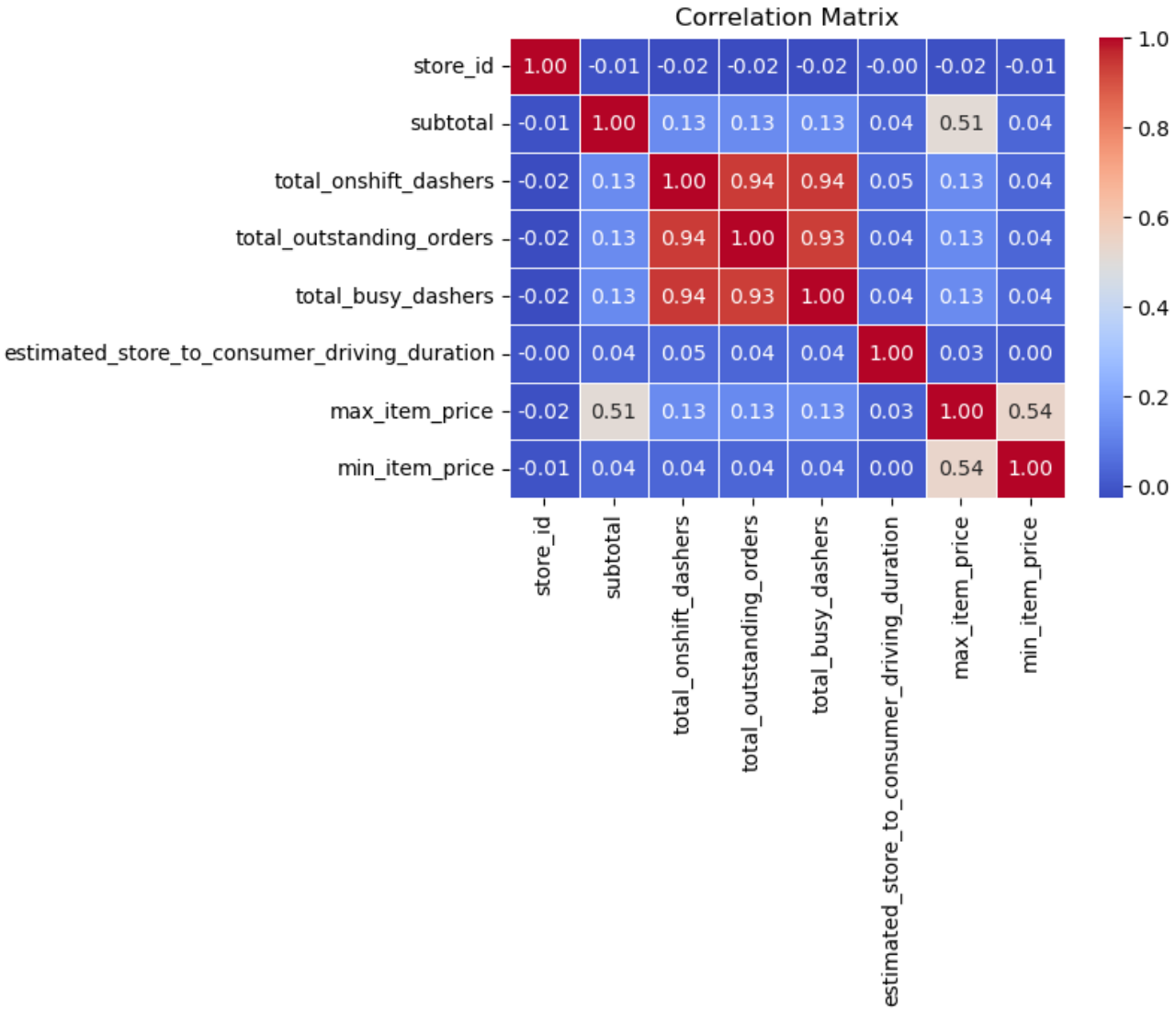
In [18]:
```
r_mse = mean_squared_error(y_test, y_pred)
r_rmse = np.sqrt(mse)
print(f"Random Mean Squared Error: {r_mse}")
print(f"Random Root Mean Squared Error: {r_rmse}")
```

```
Random Mean Squared Error: 8140982.783305292
Random Root Mean Squared Error: 2853.2407510242265
```

In [35]:
```
# new features based on importance.
new_features = ["store_id", "subtotal", "total_onshift_dashers", "total_outs
            "estimated_store_to_consumer_driving_duration", "max_item_price"
```

In [36]:
```
X = df[new_features]
y = df['delivery_duration']

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, rar
```

In [ ]:
```
# correlation matrix
correlation_matrix = X_train.corr()

plt.figure(figsize=(6, 4))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm', fmt=".2f", line
plt.title('Correlation Matrix')
plt.show()
```



In [38]:
```
# removed high multicollinearity variable.
new_features = ["store_id", "subtotal","total_outstanding_orders",
                "estimated_store_to_consumer_driving_duration", "max_item_pr
```

In [39]:
```
X = df[new_features]
y = df['delivery_duration']

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, rar
```

In [ ]:
```
scaler = StandardScaler()
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)
```

In [ ]:
```
# 5 neighbor initial model after filtering features
knn = KNeighborsRegressor(n_neighbors=5)
knn.fit(X_train_scaled, y_train)
```

Out[ ]:
```
KNeighborsRegressor
KNeighborsRegressor()
```

In [42]:
```
y_pred = knn.predict(X_test)
```

In [43]:
```
new_mse = mean_squared_error(y_test, y_pred)
new_rmse = np.sqrt(mse)
print(f"Baseline Mean Squared Error: {mse}")
print(f"Baseline Root Mean Squared Error: {rmse}")
print(f"Filtered Mean Squared Error: {new_mse}")
print(f"Filtered Root Mean Squared Error: {new_rmse}")
```

```
Baseline Mean Squared Error: 8140982.783305292
Baseline Root Mean Squared Error: 2853.2407510242265
Filtered Mean Squared Error: 8224760.039044719
Filtered Root Mean Squared Error: 2853.2407510242265
```

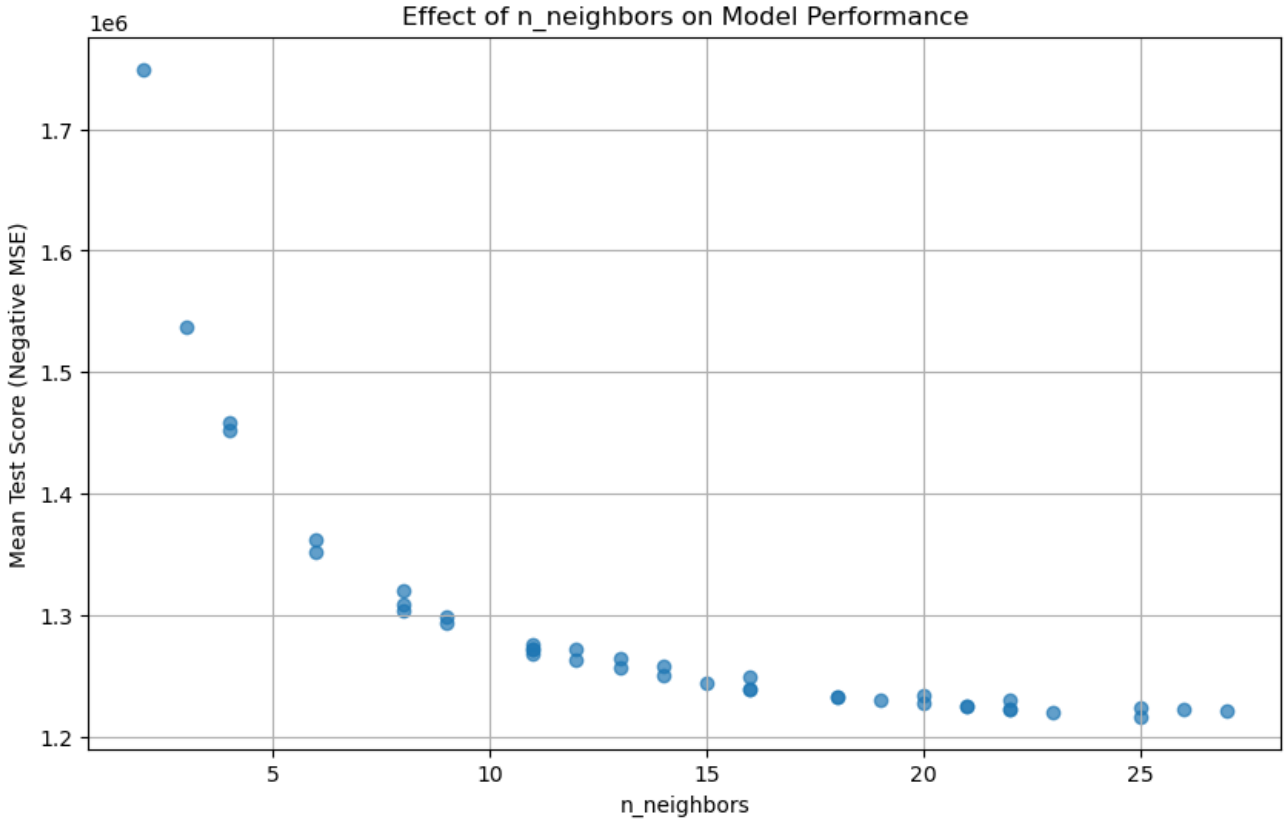
Hyperparameter Tuning

In [75]:
```
# pipeline
pipeline = Pipeline([
    ('scaler', StandardScaler()),
    ('knn', KNeighborsRegressor())
])

# parameter grid
param_grid = {
    'knn__n_neighbors': range(1, 51),
    'knn__weights': ['uniform', 'distance'],
    'knn__metric': ['euclidean', 'manhattan'],
    'knn__leaf_size': [10, 20, 30, 40, 50]
}

# RandomizedSearchCV
random_search = RandomizedSearchCV(
    pipeline,
    param_distributions=param_grid,
    n_iter=40, # Number of random samples
    cv=5,
    scoring='neg_mean_squared_error',
    random_state=24,
    verbose=1
)

random_search.fit(X_train, y_train)
```

```
# best parameters and score
print(f"Best Parameters: {random_search.best_params_}")
print(f"Best Score: {-random_search.best_score_:.4f}")
```

```
Fitting 5 folds for each of 40 candidates, totalling 200 fits
Best Parameters: {'knn__weights': 'uniform', 'knn__n_neighbors': 49, 'knn__m
etric': 'manhattan', 'knn__leaf_size': 30}
Best Score: 1198305.1328
```

In [ ]:
```
# extract results into a DataFrame
results = pd.DataFrame(random_search.cv_results_)

# plot n_neighbors vs Mean Test Score
plt.figure(figsize=(10, 6))
plt.scatter(results['param_knn__n_neighbors'], -results['mean_test_score'],
plt.xlabel('n_neighbors')
plt.ylabel('Mean Test Score (Negative MSE)')
plt.title('Effect of n_neighbors on Model Performance')
plt.grid()
plt.show()
```



In [ ]:
```
# optimized KNN Regressor
final_model = random_search.best_estimator_

final_model.fit(X_train, y_train)
```

```
y_pred = final_model.predict(X_test)
```

In [74]:
```
optimized_mse = mean_squared_error(y_test, y_pred)
optimized_rmse = np.sqrt(mse)
print(f"Filtered Mean Squared Error: {new_mse}")
print(f"Filtered Root Mean Squared Error: {new_rmse}")
print(f"Tuned Mean Squared Error: {optimized_mse}")
print(f"Tuned Root Mean Squared Error: {optimized_rmse}")
```

```
Filtered Mean Squared Error: 8224760.039044719
Filtered Root Mean Squared Error: 2853.2407510242265
Tuned Mean Squared Error: 8047394.471633444
Tuned Root Mean Squared Error: 2853.2407510242265
```

In [34]:
```
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.neural_network import MLPRegressor
from sklearn.metrics import mean_squared_error
from sklearn.inspection import permutation_importance
from keras.layers import Dense, Activation
from keras.models import Sequential
import tensorflow as tf
from sklearn.model_selection import RandomizedSearchCV
from scikeras.wrappers import KerasRegressor
from keras.callbacks import EarlyStopping
import random
```

Setting up Data

In [40]:
```
dash_data = pd.read_csv("/Users/paulgarces/Desktop/INFO371/historical_data.c
dash_data = dash_data.dropna()
dash_data.head(5)
```

Out[40]: 175777

In [3]:
```
dash_data["created_at"] = pd.to_datetime(dash_data["created_at"])
dash_data["actual_delivery_time"] = pd.to_datetime(dash_data["actual_deliver
dash_data["delivery_duration"] = (dash_data["actual_delivery_time"] - dash_d
dash_data.head(5)
```

Out[3]:

	market_id	created_at	actual_delivery_time	store_id	store_primary_category	orc
0	1.0	2015-02-06 22:24:17	2015-02-06 23:27:16	1845	american	
1	2.0	2015-02-10 21:49:25	2015-02-10 22:56:29	5477	mexican	
8	2.0	2015-02-16 00:11:35	2015-02-16 00:38:01	5477	indian	
14	1.0	2015-02-12 03:36:46	2015-02-12 04:14:39	2841	italian	
15	1.0	2015-01-27 02:12:36	2015-01-27 03:02:24	2841	italian	

In [4]:
```
features = ["total_items", "num_distinct_items", "min_item_price", "max_item
            "total_onshift_dashers", "total_busy_dashers", "total_outstandir
            "estimated_store_to_consumer_driving_duration"]
```

In [5]:
```
X = dash_data[features]
y = dash_data["delivery_duration"]
```

In [6]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, rar
```

In [7]:
```
scaler = StandardScaler()
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)
```

Neural Network with MLP Regressor

I'll probably switch to just using Keras for predictions

Neural Networks with Keras and One Hidden Layer but with Different Hidden Neuron Numbers Based on Different Techniques

I got all the information needed to use Neural Networks from these websites

https://stackoverflow.com/questions/49008074/how-to-create-a-neural-network-for-regression

https://medium.com/geekculture/introduction-to-neural-network-2f8b8221fbd3#:~:text=Number%20of%20Neurons%20In%20Input,as%20a%20regressor%

https://stackoverflow.com/questions/35050753/how-big-should-batch-size-and-number-of-epochs-be-when-fitting-a-model

https://stats.stackexchange.com/questions/181/how-to-choose-the-number-of-hidden-layers-and-nodes-in-a-feedforward-neural-netw

https://medium.com/@sanjay_dutta/number-of-neurons-per-hidden-layer-in-neural-networks-a-guide-106fea04fbfe#:~:text=The%20%E2%80%9CStretch%20Pants%E2%80%9D%20Approach,

http://karpathy.github.io/2019/04/25/recipe/

https://www.linkedin.com/pulse/choosing-number-hidden-layers-neurons-neural-networks-sachdev/

Use this formula to keep neurons less than the value to prevent overfitting `Nh = Ns/(α∗ (Ni + No))`

Ni = # input neurons/features (11)

No = # of output neurons (1)

Ns = # of samples in training set (140621)

α∗ = arbitrary scaling factor usually 2-10 (2)

Setting Seed for Reproducibility

Using 2/3 of Input Layer Plus the Size of the Output Layer

"The number of hidden neurons should be 2/3 the size of the input layer, plus the size of the output layer."

In [41]:
```
model_one = Sequential()
model_one.add(Dense(7, activation = "relu", input_dim = 9))
model_one.add(Dense(units = 1))
model_one.compile(optimizer = "adam",loss = "mean_squared_error")
model_one.fit(X_train_scaled, y_train, batch_size = 32, epochs = 75)
```

```
test_predictions = model_one.predict(X_test_scaled)
test_mse = mean_squared_error(y_test, test_predictions)
test_rmse = np.sqrt(test_mse)
print(f"Test MSE: {test_mse}")
print(f"Test RMSE: {test_rmse}")
```

```
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:87: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 655us/step - loss: 13009403.0000
Epoch 2/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 625us/step - loss: 8158336.5000
Epoch 3/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 603us/step - loss: 5378672.0000
Epoch 4/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 610us/step - loss: 4128125.0000
Epoch 5/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 596us/step - loss: 6682765.5000
Epoch 6/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 604us/step - loss: 4098742.7500
Epoch 7/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 628us/step - loss: 3716700.7500
Epoch 8/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 4s 844us/step - loss: 2998083.2500
Epoch 9/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 598us/step - loss: 2592318.7500
Epoch 10/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 620us/step - loss: 3504883.2500
Epoch 11/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 626us/step - loss: 1690799.1250
Epoch 12/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 678us/step - loss: 1786250.1250
Epoch 13/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 654us/step - loss: 2415238.5000
Epoch 14/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 632us/step - loss: 1492449.6250
Epoch 15/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 641us/step - loss: 1924434.2500
Epoch 16/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 4s 891us/step - loss: 4034803.2500
Epoch 17/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 715us/step - loss: 2132760.7500
Epoch 18/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 698us/step - loss: 1628570.0000
Epoch 19/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 639us/step - loss: 1504086.3750
Epoch 20/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 566us/step - loss: 2883308.7500
Epoch 21/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 576us/step - loss: 2242942.5000
Epoch 22/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 590us/step - loss: 1600527.8750
Epoch 23/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 590us/step - loss: 3213450.0000
Epoch 24/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 610us/step - loss: 5155803.5000
Epoch 25/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 580us/step - loss: 2793077.0000
Epoch 26/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 583us/step - loss: 1520359.1250
Epoch 27/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 574us/step - loss: 3340240.2500
Epoch 28/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 597us/step - loss: 1506446.1250
Epoch 29/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 607us/step - loss: 2045877.3750
Epoch 30/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 580us/step - loss: 3501916.7500
Epoch 31/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 583us/step - loss: 2304366.7500
Epoch 32/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 554us/step - loss: 3043738.7500
Epoch 33/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 554us/step - loss: 2358941.2500
Epoch 34/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 552us/step - loss: 3349043.0000
Epoch 35/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 562us/step - loss: 1551337.6250
Epoch 36/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 547us/step - loss: 2863824.0000
Epoch 37/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 553us/step - loss: 1534814.1250
Epoch 38/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 552us/step - loss: 2467105.2500
Epoch 39/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 549us/step - loss: 3040300.0000
Epoch 40/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 554us/step - loss: 3337569.2500
Epoch 41/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 550us/step - loss: 2623516.5000
Epoch 42/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 558us/step - loss: 1438151.0000
Epoch 43/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 557us/step - loss: 2487219.2500
Epoch 44/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 544us/step - loss: 2439945.0000
Epoch 45/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 546us/step - loss: 2748136.0000
Epoch 46/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 542us/step - loss: 1801601.6250
Epoch 47/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 548us/step - loss: 2483149.2500
Epoch 48/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 554us/step - loss: 3380413.5000
Epoch 49/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 564us/step - loss: 2253982.7500
Epoch 50/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 612us/step - loss: 3409635.2500
Epoch 51/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 741us/step - loss: 2182884.2500
Epoch 52/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 613us/step - loss: 1670647.8750
Epoch 53/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 613us/step - loss: 2066607.7500
Epoch 54/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 609us/step - loss: 2475038.2500
Epoch 55/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 617us/step - loss: 4558482.5000
Epoch 56/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 648us/step - loss: 3380272.2500
Epoch 57/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 612us/step - loss: 2894005.7500
Epoch 58/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 602us/step - loss: 1958811.5000
Epoch 59/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 680us/step - loss: 1426822.8750
Epoch 60/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 779us/step - loss: 2664439.7500
Epoch 61/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 660us/step - loss: 1994805.6250
Epoch 62/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 699us/step - loss: 3749369.0000
Epoch 63/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 633us/step - loss: 1226984.3750
Epoch 64/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 598us/step - loss: 3997181.7500
Epoch 65/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 688us/step - loss: 3029436.7500
Epoch 66/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 689us/step - loss: 1713875.7500
Epoch 67/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 596us/step - loss: 3813270.2500
Epoch 68/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 602us/step - loss: 2889740.2500
Epoch 69/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 596us/step - loss: 2483521.5000
Epoch 70/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 715us/step - loss: 2051815.2500
Epoch 71/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 615us/step - loss: 1890067.1250
Epoch 72/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 624us/step - loss: 3663944.0000
Epoch 73/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 596us/step - loss: 2342884.5000
Epoch 74/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 594us/step - loss: 2068141.3750
Epoch 75/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 605us/step - loss: 1045809.1250
1099/1099 ━━━━━━━━━━━━━━━━━━━━ 1s 582us/step
Test MSE: 1067306.1112056961
Test RMSE: 1033.1050823636945
```

Using the Mean of the Input and Output Layer as Number of Neurons

"Most of the problems can be solved by using a single hidden layer with the number of neurons equal to the mean of the input and output layer."

In [42]:
```
model_v2 = Sequential()
model_v2.add(Dense(5, activation = "relu", input_dim = 9))
model_v2.add(Dense(units = 1))
model_v2.compile(optimizer = "adam", loss = "mean_squared_error")
model_v2.fit(X_train_scaled, y_train, batch_size = 32, epochs = 75)
v2_pred = model_v2.predict(X_test_scaled)
v2_test_mse = mean_squared_error(y_test, v2_pred)
v2_test_rmse = np.sqrt(v2_test_mse)
print(f"Test MSE: {v2_test_mse}")
print(f"Test RMSE: {v2_test_rmse}")
```

```
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:87: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 604us/step - loss: 10278400.0000
Epoch 2/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 605us/step - loss: 8338345.5000
Epoch 3/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 569us/step - loss: 5871122.5000
Epoch 4/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 605us/step - loss: 6928893.0000
Epoch 5/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 590us/step - loss: 2944301.7500
Epoch 6/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 594us/step - loss: 2703391.0000
Epoch 7/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 602us/step - loss: 1797775.1250
Epoch 8/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 585us/step - loss: 2762543.0000
Epoch 9/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 572us/step - loss: 3004436.0000
Epoch 10/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 603us/step - loss: 2782365.0000
Epoch 11/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 578us/step - loss: 2502843.7500
Epoch 12/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 615us/step - loss: 2721266.2500
Epoch 13/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 617us/step - loss: 3210873.0000
Epoch 14/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 622us/step - loss: 3193452.7500
Epoch 15/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 591us/step - loss: 2981026.5000
Epoch 16/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 631us/step - loss: 1626692.3750
Epoch 17/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 723us/step - loss: 3417169.7500
Epoch 18/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 679us/step - loss: 4346777.5000
Epoch 19/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 590us/step - loss: 2507838.0000
Epoch 20/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 619us/step - loss: 3077518.0000
Epoch 21/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 597us/step - loss: 2809564.5000
Epoch 22/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 697us/step - loss: 1888700.0000
Epoch 23/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 622us/step - loss: 2607355.2500
Epoch 24/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 594us/step - loss: 2595038.2500
Epoch 25/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 625us/step - loss: 2942881.7500
Epoch 26/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 581us/step - loss: 1219539.6250
Epoch 27/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 595us/step - loss: 1908312.5000
Epoch 28/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 632us/step - loss: 2618046.0000
Epoch 29/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 587us/step - loss: 3708344.2500
Epoch 30/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 629us/step - loss: 1924009.8750
Epoch 31/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 630us/step - loss: 1938751.3750
Epoch 32/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 607us/step - loss: 2173796.2500
Epoch 33/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 621us/step - loss: 1773329.3750
Epoch 34/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 689us/step - loss: 2141259.7500
Epoch 35/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 644us/step - loss: 3091262.2500
Epoch 36/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 587us/step - loss: 5514769.5000
Epoch 37/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 634us/step - loss: 5460966.0000
Epoch 38/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 589us/step - loss: 2165075.5000
Epoch 39/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 600us/step - loss: 2253504.2500
Epoch 40/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 596us/step - loss: 4082992.0000
Epoch 41/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 611us/step - loss: 2604139.5000
Epoch 42/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 556us/step - loss: 6800908.5000
Epoch 43/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 555us/step - loss: 2392483.2500
Epoch 44/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 611us/step - loss: 3021450.0000
Epoch 45/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 598us/step - loss: 3049805.0000
Epoch 46/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 624us/step - loss: 2686599.2500
Epoch 47/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 576us/step - loss: 4048489.7500
Epoch 48/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 592us/step - loss: 6396558.5000
Epoch 49/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 4s 879us/step - loss: 2685960.5000
Epoch 50/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 644us/step - loss: 2734221.7500
Epoch 51/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 624us/step - loss: 3056695.7500
Epoch 52/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 635us/step - loss: 1432735.7500
Epoch 53/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 712us/step - loss: 3200408.7500
Epoch 54/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 621us/step - loss: 3916997.0000
Epoch 55/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 601us/step - loss: 4407239.0000
Epoch 56/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 588us/step - loss: 2751301.2500
Epoch 57/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 601us/step - loss: 1889091.3750
Epoch 58/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 562us/step - loss: 3188739.0000
Epoch 59/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 559us/step - loss: 1433136.2500
Epoch 60/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 566us/step - loss: 3014108.2500
Epoch 61/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 559us/step - loss: 4441591.5000
Epoch 62/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 594us/step - loss: 3001758.2500
Epoch 63/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 592us/step - loss: 2097501.2500
Epoch 64/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 621us/step - loss: 2318169.0000
Epoch 65/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 619us/step - loss: 1593614.6250
Epoch 66/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 582us/step - loss: 1705285.7500
Epoch 67/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 640us/step - loss: 1199484.2500
Epoch 68/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 672us/step - loss: 3183184.5000
Epoch 69/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 644us/step - loss: 5231866.0000
Epoch 70/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 611us/step - loss: 6349252.0000
Epoch 71/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 604us/step - loss: 2607157.7500
Epoch 72/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 603us/step - loss: 3448783.0000
Epoch 73/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 609us/step - loss: 1381375.1250
Epoch 74/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 608us/step - loss: 3391993.5000
Epoch 75/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 615us/step - loss: 1325286.1250
1099/1099 ━━━━━━━━━━━━━━━━━━━━ 1s 588us/step
Test MSE: 1077688.1033897095
Test RMSE: 1038.1175768619416
```

Using the Square Root of the Input Layer Nodes * Output Layer Nodes

"The most appropriate number of hidden neurons is `sqrt(input layer nodes * output layer nodes)`."

In [39]:
```
model_v3 = Sequential()
model_v3.add(Dense(3, activation = "relu", input_dim = 9))
model_v3.add(Dense(units = 1))
```

```
model_v3.compile(optimizer = "adam", loss = "mean_squared_error")
model_v3.fit(X_train_scaled, y_train, batch_size = 32, epochs = 75)
v3_pred = model_v3.predict(X_test_scaled)
v3_test_mse = mean_squared_error(y_test, v3_pred)
v3_test_rmse = np.sqrt(v3_test_mse)
print(f"Test MSE: {v3_test_mse}")
print(f"Test RMSE: {v3_test_rmse}")
```

```
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:87: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 562us/step - loss: 10855163.0000
Epoch 2/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 573us/step - loss: 10197053.0000
Epoch 3/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 554us/step - loss: 9263774.0000
Epoch 4/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 637us/step - loss: 6350989.5000
Epoch 5/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 4s 797us/step - loss: 9383126.0000
Epoch 6/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 557us/step - loss: 5203717.0000
Epoch 7/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 565us/step - loss: 4755715.0000
Epoch 8/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 563us/step - loss: 4087446.0000
Epoch 9/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 570us/step - loss: 4564910.5000
Epoch 10/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 572us/step - loss: 4840041.0000
Epoch 11/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 563us/step - loss: 3402608.2500
Epoch 12/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 573us/step - loss: 2077507.7500
Epoch 13/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 589us/step - loss: 3823624.0000
Epoch 14/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 579us/step - loss: 3098327.2500
Epoch 15/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 581us/step - loss: 2105729.0000
Epoch 16/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 575us/step - loss: 1628803.6250
Epoch 17/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 570us/step - loss: 5122567.5000
Epoch 18/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 650us/step - loss: 2514744.2500
Epoch 19/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 603us/step - loss: 1301075.1250
Epoch 20/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 704us/step - loss: 2013264.0000
Epoch 21/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 630us/step - loss: 3318893.5000
Epoch 22/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 665us/step - loss: 2049276.1250
Epoch 23/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 630us/step - loss: 1376730.7500
Epoch 24/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 592us/step - loss: 2391448.5000
Epoch 25/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 570us/step - loss: 1489399.3750
Epoch 26/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 576us/step - loss: 2106410.2500
Epoch 27/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 569us/step - loss: 4043278.7500
Epoch 28/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 4s 819us/step - loss: 2065851.0000
Epoch 29/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 4s 922us/step - loss: 2103643.2500
Epoch 30/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 645us/step - loss: 2331079.2500
Epoch 31/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 560us/step - loss: 2192036.2500
Epoch 32/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 588us/step - loss: 3152337.5000
Epoch 33/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 640us/step - loss: 1659923.6250
Epoch 34/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 654us/step - loss: 2446893.0000
Epoch 35/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 642us/step - loss: 2888739.2500
Epoch 36/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 683us/step - loss: 4069081.7500
Epoch 37/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 708us/step - loss: 2790872.2500
Epoch 38/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 660us/step - loss: 3649832.2500
Epoch 39/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 2s 557us/step - loss: 2809657.2500
Epoch 40/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 624us/step - loss: 2659858.0000
Epoch 41/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 637us/step - loss: 3245409.2500
Epoch 42/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 591us/step - loss: 2060003.1250
Epoch 43/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 585us/step - loss: 3158206.5000
Epoch 44/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 683us/step - loss: 1439143.6250
Epoch 45/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 621us/step - loss: 3996540.0000
Epoch 46/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 674us/step - loss: 2569045.5000
Epoch 47/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 708us/step - loss: 3099624.0000
Epoch 48/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 644us/step - loss: 4022408.2500
Epoch 49/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 598us/step - loss: 3144300.5000
Epoch 50/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 583us/step - loss: 1873357.2500
Epoch 51/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 583us/step - loss: 2920346.0000
Epoch 52/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 619us/step - loss: 9583587.0000
Epoch 53/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 665us/step - loss: 2943725.2500
Epoch 54/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 724us/step - loss: 1819941.7500
Epoch 55/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 649us/step - loss: 1945996.0000
Epoch 56/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 669us/step - loss: 2240906.5000
Epoch 57/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 599us/step - loss: 3334249.0000
Epoch 58/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 630us/step - loss: 2773894.7500
Epoch 59/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 587us/step - loss: 2820419.2500
Epoch 60/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 769us/step - loss: 4060488.2500
Epoch 61/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 606us/step - loss: 2556177.7500
Epoch 62/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 587us/step - loss: 3201272.2500
Epoch 63/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 593us/step - loss: 4303455.5000
Epoch 64/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 602us/step - loss: 4146976.2500
Epoch 65/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 589us/step - loss: 2029037.8750
Epoch 66/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 586us/step - loss: 1395941.3750
Epoch 67/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 598us/step - loss: 2787763.2500
Epoch 68/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 591us/step - loss: 1521850.8750
Epoch 69/75
```

```
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 598us/step - loss: 4081412.2500
Epoch 70/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 589us/step - loss: 4000773.7500
Epoch 71/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 588us/step - loss: 1396735.2500
Epoch 72/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 578us/step - loss: 1374878.2500
Epoch 73/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 590us/step - loss: 1804198.8750
Epoch 74/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 584us/step - loss: 7379534.5000
Epoch 75/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 588us/step - loss: 2637110.5000
1099/1099 ━━━━━━━━━━━━━━━━━━━━ 1s 570us/step
Test MSE: 1081025.2935118293
Test RMSE: 1039.7236620909564
```

Training Neural Networks w/ Multiple Layers

In [28]:

```python
def create_keras_model(neurons_per_layer=[32], activation = "relu"):
    model = Sequential()
    model.add(Dense(neurons_per_layer[0], activation="relu", input_dim=9))
    for neurons in neurons_per_layer[1:]:
        model.add(Dense(neurons, activation="relu"))
    model.add(Dense(1))
    model.compile(optimizer="adam", loss="mean_squared_error")
    return model

keras_model = KerasRegressor(build_fn=create_keras_model, verbose=1)

param_dist = {"model__neurons_per_layer": [[3], [5], [7], [32], [64], [128],
                                           [32, 16], [32, 16, 8], [128, 64, 32], [6
              "epochs": [50, 75, 100]}

random_search = RandomizedSearchCV(estimator=keras_model, param_distributior
                                   random_state=371)

random_search.fit(X_train_scaled, y_train)

best_params = random_search.best_params_
print("Best Parameters:", best_params)
print("Optimal Neurons Per Layer:", best_params["model__neurons_per_layer"])
print("Best Negative MSE (CV):", random_search.best_score_)

best_keras_model = random_search.best_estimator_
test_predictions_keras = best_keras_model.predict(X_test_scaled)

test_mse_keras = mean_squared_error(y_test, test_predictions_keras)
test_rmse_keras = np.sqrt(test_mse_keras)
```

```
print(f"Keras Test MSE: {test_mse_keras}")
print(f"Keras Test RMSE: {test_rmse_keras}")
```

```
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 774us/step - loss: 7980223.5000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 4260334.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 3540446.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 732us/step - loss: 4229158.5000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 3470074.7500
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 2869067.0000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 758us/step - loss: 4951017.0000
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 4971205.0000
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 1452427.3750
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 774us/step - loss: 3944863.5000
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 7514665.5000
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 797us/step - loss: 6404178.0000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 807us/step - loss: 9486952.0000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 812us/step - loss: 2365709.7500
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 2210940.5000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 821us/step - loss: 1930446.1250
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 832us/step - loss: 12961006.0000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 881us/step - loss: 2898858.2500
Epoch 19/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 832us/step - loss: 4866449.0000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 843us/step - loss: 2611781.5000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 2067834.5000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 908us/step - loss: 1579812.1250
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 964us/step - loss: 2577363.0000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 3284205.7500
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 913us/step - loss: 2190220.7500
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 929us/step - loss: 6186657.0000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 910us/step - loss: 2885393.0000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 3407774.2500
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 977us/step - loss: 3087900.7500
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 905us/step - loss: 3488673.2500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 996us/step - loss: 6963848.5000
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 3249154.7500
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 862us/step - loss: 2908132.5000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 811us/step - loss: 2294714.0000
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 751us/step - loss: 3502716.7500
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 1905532.8750
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 2982210.2500
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 758us/step - loss: 1465025.2500
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 3299881.7500
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 759us/step - loss: 3666575.0000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 758us/step - loss: 2656017.7500
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 770us/step - loss: 5596196.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 889us/step - loss: 3449625.5000
Epoch 44/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 928us/step - loss: 4797082.0000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 717us/step - loss: 3570474.7500
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 631us/step - loss: 6043419.5000
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 622us/step - loss: 1586524.8750
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 635us/step - loss: 3069491.0000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 781us/step - loss: 2443214.7500
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 4716737.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 708us/step - loss: 4811833.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 1066047.6250
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 1053453.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 1019609.9375
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 1063101.7500
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 759us/step - loss: 1096781.8750
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 1231921.2500
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 651us/step - loss: 1043527.2500
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 659us/step - loss: 1087914.8750
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 627us/step - loss: 1035184.5625
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 1047397.5625
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 620us/step - loss: 1068326.0000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 1016834.6250
Epoch 14/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 656us/step - loss: 1045314.2500
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 1134796.8750
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 627us/step - loss: 979449.2500
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 621us/step - loss: 1044044.8750
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 633us/step - loss: 1021238.8125
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 669us/step - loss: 1087587.0000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 1017411.1875
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 1000553.3125
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 1030147.9375
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 1069346.2500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 1063490.5000
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1079514.0000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 667us/step - loss: 1060060.8750
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 667us/step - loss: 1010992.0625
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 743us/step - loss: 994148.0625
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 989090.7500
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 643us/step - loss: 1028970.4375
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 1113377.6250
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 836us/step - loss: 1042727.7500
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 907us/step - loss: 1034785.1250
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 725us/step - loss: 1034038.0625
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 773us/step - loss: 976265.6875
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 760us/step - loss: 1052751.8750
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 768us/step - loss: 958318.8125
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 1016679.1250
Epoch 39/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 994902.9375
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 764us/step - loss: 1016673.6250
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 767us/step - loss: 1090276.1250
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 764us/step - loss: 993320.9375
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 757us/step - loss: 1106642.2500
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 1057016.5000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 767us/step - loss: 1026353.5625
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 1100802.1250
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 774us/step - loss: 1038549.4375
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 772us/step - loss: 1009300.7500
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 766us/step - loss: 979395.6250
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 868us/step - loss: 1120623.7500
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 746us/step - loss: 5418962.5000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 728us/step - loss: 3729758.7500
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 713us/step - loss: 4566484.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 738us/step - loss: 10945004.0000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 9493165.0000
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 3435073.2500
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 737us/step - loss: 6891285.5000
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 727us/step - loss: 2338591.0000
Epoch 9/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 741us/step - loss: 3080351.7500
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 4256655.0000
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 729us/step - loss: 3089318.5000
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 720us/step - loss: 1954573.6250
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 733us/step - loss: 3062416.0000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 6827201.0000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 731us/step - loss: 8839219.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 4581700.5000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 730us/step - loss: 1614837.0000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 717us/step - loss: 2607950.2500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 712us/step - loss: 1841420.7500
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 723us/step - loss: 5037111.5000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 2532582.7500
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 3962762.0000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 724us/step - loss: 3152209.5000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 11076134.0000
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 2620776.2500
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 4785343.5000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 731us/step - loss: 1706353.8750
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 729us/step - loss: 3960338.2500
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 2894446.2500
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 836us/step - loss: 2147156.0000
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 757us/step - loss: 9016243.0000
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 757us/step - loss: 1351976.3750
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 3138457.0000
Epoch 34/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 2775440.7500
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 748us/step - loss: 2683959.0000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 4266536.5000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 757us/step - loss: 2678114.0000
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 767us/step - loss: 3548616.7500
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 749us/step - loss: 1794830.2500
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 751us/step - loss: 4723834.5000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 754us/step - loss: 2719125.5000
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 753us/step - loss: 2137838.5000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 732us/step - loss: 2042851.1250
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 740us/step - loss: 6248136.5000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 6219887.0000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 741us/step - loss: 4689745.0000
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 751us/step - loss: 7473517.5000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 4725854.5000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 727us/step - loss: 2188293.5000
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 747us/step - loss: 1243482.3750
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 750us/step - loss: 8667551.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 751us/step - loss: 3032395.5000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 1554281.0000
Epoch 4/50
```

```
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 3019379.2500
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 2481659.0000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 740us/step - loss: 4356525.5000
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 2451490.7500
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step - loss: 3584231.5000
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 2790342.7500
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 4926309.5000
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 3781456.0000
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 4238590.5000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 2014464.1250
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 3091789.2500
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 1303586.5000
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 2591684.7500
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 1340351.1250
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 4887825.0000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 2693005.2500
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 7650117.0000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 6648945.0000
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 855us/step - loss: 2966646.2500
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 2998349.7500
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 5077535.5000
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 737us/step - loss: 3308036.2500
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 1610377.0000
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 721us/step - loss: 2392253.5000
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 2670355.0000
Epoch 29/50
```

```
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step - loss: 2568490.5000
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 3174681.2500
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 2624816.0000
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 751us/step - loss: 5989569.5000
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step - loss: 3750063.7500
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 753us/step - loss: 2755472.2500
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 756us/step - loss: 2662954.7500
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 2412576.5000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 769us/step - loss: 1595996.2500
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 771us/step - loss: 1825146.1250
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 3305945.2500
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 2393249.5000
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 1495760.2500
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 5758390.5000
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 3492720.0000
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step - loss: 2157506.0000
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 2362300.0000
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 722us/step - loss: 4282284.5000
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 3333512.0000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 2435626.7500
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 749us/step - loss: 5138271.5000
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 755us/step - loss: 2812659.7500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step
Epoch 1/50
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 732us/step - loss: 6402157.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 1397866.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 740us/step - loss: 1146442.1250
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 1089698.1250
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 1097025.5000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 1013353.7500
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 1080600.1250
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 985874.3750
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 1086407.5000
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 1075068.8750
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 1068944.7500
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 1059043.7500
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 1052017.2500
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 1019667.5625
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 1022277.9375
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 1070412.1250
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 1003395.3125
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 1024843.1250
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 1058695.1250
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 1082581.0000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 738us/step - loss: 1122062.1250
```

```
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 1009777.0000
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 998152.0625
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 1116493.5000
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 748us/step - loss: 1058959.7500
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 986095.9375
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 740us/step - loss: 1016836.0625
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 986775.6875
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 1091139.8750
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 996969.0000
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 951688.6875
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 1048245.3125
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 1018739.8125
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 1063523.3750
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 955586.3125
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 740us/step - loss: 1004593.1875
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 1095364.1250
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 983096.3750
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1017991.8125
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 1016773.9375
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 748us/step - loss: 1008491.6250
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step - loss: 989173.8750
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 970759.7500
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 985371.3125
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 985774.5625
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 1046321.7500
```

```
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 1147023.1250
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 989743.8125
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 1005950.5625
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 999206.8750
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 702us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 733us/step - loss: 8914086.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 1997923.7500
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 755us/step - loss: 4287553.5000
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 6711330.0000
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 4029139.7500
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 2326475.2500
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 1703761.5000
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 1704480.6250
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 6049214.5000
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 4167941.5000
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 7486760.5000
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 5263745.5000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 4756955.5000
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 4463939.0000
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 1779568.7500
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 4858779.0000
```

```
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 6106677.5000
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 3382508.0000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 3742548.0000
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 2075334.0000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 2001707.7500
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 3112100.2500
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 1558097.0000
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 3203965.2500
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 2129255.0000
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 6519922.5000
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 721us/step - loss: 1976386.5000
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 6450674.0000
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 6877500.0000
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 3403810.5000
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 740us/step - loss: 6657726.0000
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 1975562.0000
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 7239101.5000
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 4442404.0000
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 5162807.5000
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1481234.0000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 5339932.5000
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 7590733.0000
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 2971163.0000
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 3121107.0000
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 4809152.0000
```

```
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 1614974.1250
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 3047810.2500
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 1666264.8750
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 720us/step - loss: 2717410.5000
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 1453417.8750
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 2850181.0000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 2231719.7500
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 5063966.0000
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 722us/step - loss: 2180088.2500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 722us/step - loss: 13215248.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 3886113.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 8970445.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 4916015.5000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 705us/step - loss: 3029945.2500
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 4096604.5000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 2238780.5000
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 714us/step - loss: 5356117.5000
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 4688887.5000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 707us/step - loss: 1904112.2500
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 3963224.0000
```

```
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 5148308.0000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 716us/step - loss: 5479020.5000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 4899324.0000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 6991726.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 705us/step - loss: 3725251.5000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 3088139.2500
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 2712620.7500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 2167847.7500
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 2270448.5000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 4789021.5000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 3150654.0000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 3789362.7500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 1755418.7500
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 699us/step - loss: 3261573.0000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 1815154.7500
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 5142473.0000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 3791501.0000
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 724us/step - loss: 5940831.0000
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 2533072.7500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 2041811.3750
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 1939108.5000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 7023102.0000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 2421176.2500
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 5651093.5000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 4483702.0000
```

```
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 720us/step - loss: 3449418.5000
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 4990965.5000
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 3254158.7500
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 3944703.7500
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 2740700.0000
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 1662790.6250
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 5747077.0000
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 3967997.0000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 5869793.5000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 713us/step - loss: 3747905.5000
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 705us/step - loss: 3311478.0000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 1186271.5000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 2063601.7500
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 2932227.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 702us/step - loss: 4467387.5000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 705us/step - loss: 1144824.3750
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 723us/step - loss: 1037892.6875
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 714us/step - loss: 1020405.4375
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 1113420.1250
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 1035356.6250
```

```
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 1033445.3125
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 1182878.7500
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 1039527.1250
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 1022633.5625
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 1064823.6250
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 699us/step - loss: 1017293.5000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 1051108.2500
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 1056718.8750
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 1213598.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 649us/step - loss: 1021160.0000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 1004141.0625
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 666us/step - loss: 1111466.2500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 1166737.7500
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 660us/step - loss: 1008435.3750
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 1008048.1250
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1075770.5000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 673us/step - loss: 1108271.2500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 669us/step - loss: 1016323.0625
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 986800.3125
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 659us/step - loss: 1061605.6250
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 1077302.7500
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 665us/step - loss: 1100560.8750
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 670us/step - loss: 1029061.0625
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 1048247.1875
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 1030142.4375
```

```
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 1025037.9375
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 1031836.6875
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 1118429.1250
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 965309.7500
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 671us/step - loss: 1046337.8125
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 712us/step - loss: 1066476.6250
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 1117553.0000
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 699us/step - loss: 972026.9375
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 969692.1250
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 963801.1250
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 722us/step - loss: 1076611.6250
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 730us/step - loss: 1049495.3750
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 1005627.3750
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 1017795.7500
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 1044917.2500
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 705us/step - loss: 1011804.0625
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 998518.6875
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 750us/step - loss: 1142412.7500
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 721us/step - loss: 964904.3750
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 710us/step - loss: 7391068.0000
```

```
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 4925529.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 721us/step - loss: 5850564.5000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 6778266.0000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 1919771.8750
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 4092391.5000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 3380276.5000
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 709us/step - loss: 4875325.5000
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 707us/step - loss: 2558032.2500
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 3536275.5000
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 2540791.2500
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 5802693.5000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 4599679.5000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 720us/step - loss: 6169078.5000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 6066661.5000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 4603452.5000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 7390193.5000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 2996408.7500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 709us/step - loss: 3619542.0000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 5159141.0000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 4060639.5000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 3205702.0000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 5566523.5000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 3394908.7500
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 709us/step - loss: 2404700.7500
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 712us/step - loss: 2370094.5000
```

```
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 2534271.0000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 6272434.5000
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 3191081.5000
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 8341565.0000
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 4126045.7500
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 4687321.5000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 3646111.0000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 2284178.7500
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 3704526.7500
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 5882943.0000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 1895842.8750
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 2025925.2500
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 2475136.2500
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 5072239.5000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 4239631.5000
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 2244896.7500
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 714us/step - loss: 2005455.5000
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 2555728.0000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 3270207.0000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 5510122.0000
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 2714735.0000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 3431016.7500
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 3101884.5000
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 705us/step - loss: 1476942.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step
Epoch 1/100
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 650us/step - loss: 11455383.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 10799290.0000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 10269647.0000
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 12289093.0000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 10715507.0000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 7507187.5000
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 12646776.0000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 11504101.0000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 6494716.5000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step - loss: 5559295.5000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 655us/step - loss: 8992607.0000
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 7197664.5000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 646us/step - loss: 4727301.5000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step - loss: 4460893.5000
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 663us/step - loss: 3262983.2500
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 626us/step - loss: 5070400.0000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 2307167.7500
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 5363836.0000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 655us/step - loss: 4595326.0000
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 4689534.5000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 597us/step - loss: 5135726.0000
```

```
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 2327773.7500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 654us/step - loss: 2706973.2500
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 2180772.5000
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 4200833.0000
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 2348642.7500
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 4196534.0000
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 3103353.7500
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1739188.3750
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 7531749.0000
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 654us/step - loss: 1873006.0000
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 3426021.2500
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 7008326.0000
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 649us/step - loss: 5383251.0000
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 3870653.7500
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 653us/step - loss: 5084826.0000
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 663us/step - loss: 3477447.7500
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 5190534.5000
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 2133433.0000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 2919714.0000
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 1506504.1250
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 2526877.0000
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 5107432.5000
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 2548115.7500
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 653us/step - loss: 2641551.0000
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 2852421.2500
```

```
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 3887680.2500
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 6746930.0000
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 655us/step - loss: 2930251.5000
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 3260896.0000
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 643us/step - loss: 7203032.0000
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 3012574.2500
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 2730328.2500
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 642us/step - loss: 4620976.0000
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step - loss: 2687247.7500
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 2928248.0000
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 7129312.0000
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 644us/step - loss: 5618585.0000
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 6672098.0000
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 642us/step - loss: 3520880.5000
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 2973492.7500
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 1648776.1250
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 3435859.2500
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 657us/step - loss: 5452551.5000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 626us/step - loss: 2149179.7500
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step - loss: 6504693.0000
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 6490826.5000
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 598us/step - loss: 3062238.7500
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step - loss: 4301915.5000
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 2847340.2500
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 4747774.5000
```

```
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 645us/step - loss: 5112759.0000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 631us/step - loss: 2762440.7500
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 3249667.2500
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 3452146.0000
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 613us/step - loss: 4626343.0000
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step - loss: 3971350.2500
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 3777807.2500
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 643us/step - loss: 3592964.2500
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 4467221.5000
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 637us/step - loss: 4020935.5000
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 4969633.0000
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 3309543.2500
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 2397042.0000
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 659us/step - loss: 3266143.0000
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 2705675.0000
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 649us/step - loss: 2451713.5000
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 3153250.5000
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 641us/step - loss: 5402599.5000
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 2627987.5000
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 657us/step - loss: 4133855.7500
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 642us/step - loss: 1581783.5000
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step - loss: 6028860.0000
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 641us/step - loss: 2344765.0000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 1413861.0000
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 3394216.2500
```

```
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 644us/step - loss: 5272361.0000
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 7424504.0000
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 631us/step - loss: 2010808.1250
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 625us/step - loss: 2765121.2500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 647us/step - loss: 9452276.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 9179713.0000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 658us/step - loss: 8776061.0000
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step - loss: 8036708.0000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 639us/step - loss: 7333615.5000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 627us/step - loss: 6542272.0000
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 5638516.5000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 642us/step - loss: 5003795.5000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 4147475.2500
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 645us/step - loss: 3522550.5000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 2943152.0000
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 2521489.2500
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 2208783.0000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 2050730.7500
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 627us/step - loss: 1947248.1250
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 655us/step - loss: 1842752.3750
```

```
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 626us/step - loss: 1799117.6250
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 642us/step - loss: 1661507.5000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 645us/step - loss: 1551737.0000
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 1528637.8750
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 1513066.0000
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 1501168.0000
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 655us/step - loss: 1461503.5000
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 1452150.8750
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 1409057.2500
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 1335680.7500
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1306073.8750
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 1312481.6250
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 657us/step - loss: 1224511.5000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 1314724.0000
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1232434.0000
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 663us/step - loss: 1159276.3750
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 1218073.8750
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 1156184.1250
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 1171304.2500
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 663us/step - loss: 1204745.0000
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 1136732.3750
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 1239874.5000
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 1107507.7500
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 1089172.6250
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 658us/step - loss: 1133476.0000
```

```
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 1119087.8750
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 1111817.6250
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 1110435.3750
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 1119436.1250
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1099104.0000
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1129868.6250
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 1132874.1250
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1097764.1250
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1095655.6250
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1036876.3125
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 1004826.7500
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1081309.5000
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1062540.3750
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1134661.6250
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 1093844.3750
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1126589.3750
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1157280.0000
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1024537.1875
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1057840.1250
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1016371.6250
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1012603.1875
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1005377.0625
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1064945.0000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 1035984.3125
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1054600.3750
```

```
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1086537.2500
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1057589.2500
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 1066853.3750
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1148824.3750
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1027040.8750
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1065851.8750
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 1092017.7500
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 1119577.1250
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 1105921.2500
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1037526.1250
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1005320.8125
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1092811.5000
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 1035214.0625
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1103575.6250
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1076458.2500
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1061821.1250
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 978866.8750
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1112981.5000
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 1077275.7500
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 1141104.8750
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 1053937.2500
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 1073563.8750
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1073488.1250
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1041447.5000
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1077119.5000
```

```
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1007044.4375
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 1086105.6250
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 1046916.2500
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 1086194.2500
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1110117.8750
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1119436.8750
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1043119.3125
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 1063224.3750
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1058639.0000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 17249516.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 9826983.0000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 10644857.0000
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 14708112.0000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 10092903.0000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 9042669.0000
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 10014786.0000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 6998092.0000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 8886566.0000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 8382856.0000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 6994250.5000
```

```
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 658us/step - loss: 7420209.5000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 5826767.5000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 6771032.0000
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 8805364.0000
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 6847241.0000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 7040567.0000
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 7359356.5000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 7391482.0000
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 5022520.5000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 5965059.0000
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 8249006.0000
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 4355829.0000
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 5939220.0000
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 5909130.5000
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 3681132.7500
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 2656736.5000
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 3543747.7500
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 2396524.7500
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 4138817.0000
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 3070937.2500
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 2226391.5000
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1831796.5000
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 2762224.7500
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 6347862.0000
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 7363403.0000
```

```
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1907974.5000
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 3572123.7500
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 4299712.5000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 5561477.5000
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1605874.7500
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1725514.7500
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 3735420.7500
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1907670.2500
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 4954805.0000
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 2256300.0000
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 6555063.0000
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 5588058.0000
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 5038258.5000
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 4064670.2500
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 4425132.0000
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 4245053.0000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 4846074.5000
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 2073645.3750
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 3588459.5000
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 2331843.5000
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 5825086.0000
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 3664244.2500
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 4464261.0000
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 2661911.7500
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 6797959.0000
```

```
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step - loss: 4156719.2500
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 4936602.0000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 5307276.5000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 6798220.5000
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 4107925.0000
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 2521722.2500
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 4270123.5000
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 3731353.2500
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 2591161.2500
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 4923311.5000
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 4485746.5000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 2725253.0000
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1840121.3750
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 2033087.0000
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 6888164.0000
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 5234385.5000
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 2903440.0000
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 4618357.0000
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 4109757.5000
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 4643902.0000
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 1500675.7500
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 6361220.5000
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 5439733.5000
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 3063264.2500
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 3139500.7500
```

```
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1817052.6250
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 2966921.0000
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1478849.2500
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 3650264.7500
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1500460.5000
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 2563753.0000
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 3110813.5000
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 3423139.5000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 3981216.2500
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 3217226.7500
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 4115761.7500
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 2242688.2500
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 2575280.7500
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 2576003.5000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 690us/step - loss: 13751500.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 2848147.2500
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 4547703.5000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 2943259.7500
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 699us/step - loss: 5389090.5000
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 4057264.0000
```

```
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 3145823.2500
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 3355077.5000
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 5020206.5000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 712us/step - loss: 5456999.0000
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 3049044.2500
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 4300615.0000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 1898121.2500
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 9133060.0000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 1850187.6250
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 2454941.0000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 4622494.0000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 4261482.5000
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2416365.7500
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 1912432.7500
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 5131226.0000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 4372931.0000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2497668.7500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 2152431.0000
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 3178750.0000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 4649040.5000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 2221132.0000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 2099548.7500
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 3438511.7500
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 5260037.5000
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 1201257.8750
```

```
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 2527995.0000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 2936910.0000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 5238965.5000
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 6445426.5000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 3848929.5000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 1531325.3750
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 3018251.0000
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 2543098.7500
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 1502604.3750
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 3612630.7500
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 3038052.2500
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 3485494.7500
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 2098330.2500
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 4383802.5000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 3775545.7500
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 3251044.5000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 4209625.0000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 1267738.6250
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 2692845.0000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 675us/step - loss: 7733771.5000
```

```
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 1729442.3750
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 1351514.7500
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 669us/step - loss: 1232101.6250
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 1076708.6250
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 1098925.5000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 1040125.5625
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 1224695.2500
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 1057800.2500
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 1085738.1250
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 1067501.5000
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 1038998.9375
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 1044778.2500
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 1049214.5000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 1095887.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 1108701.1250
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 1134421.1250
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 657us/step - loss: 1001231.9375
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 657us/step - loss: 1136580.3750
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 651us/step - loss: 1017368.9375
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 1009289.1875
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 705us/step - loss: 1029601.9375
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 977057.2500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 722us/step - loss: 1032634.6875
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 1014147.5000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 738us/step - loss: 1076163.0000
```

```
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 728us/step - loss: 967230.8125
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 1000429.1250
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 986649.1250
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 1042812.3125
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 1006292.1250
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 1026337.3750
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 1011571.6250
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 727us/step - loss: 1021712.6875
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 1087713.1250
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1141458.7500
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 1083931.7500
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 985259.0625
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 1025871.5000
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 1014266.9375
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 1007861.0625
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 984048.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 967604.9375
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 990966.5000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 673us/step - loss: 965407.6875
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 982261.0625
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1055373.2500
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 1002380.0625
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 668us/step - loss: 1065884.3750
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 986076.9375
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 658us/step
Epoch 1/50
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 675us/step - loss: 11636341.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 667us/step - loss: 5042725.0000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 6921962.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 5222675.0000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 1430485.2500
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 671us/step - loss: 2738102.5000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 650us/step - loss: 3021172.7500
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 647us/step - loss: 4413311.0000
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 666us/step - loss: 1914229.5000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 656us/step - loss: 2701260.7500
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 4405674.5000
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 667us/step - loss: 6854943.5000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 2927285.0000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 669us/step - loss: 1184330.5000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 2568252.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 668us/step - loss: 2548469.5000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 659us/step - loss: 4422292.5000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 2117557.2500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 2042727.0000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 5232243.5000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 5820463.0000
```

```
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 2975607.2500
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 662us/step - loss: 8281036.5000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 666us/step - loss: 2430895.5000
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 1462661.3750
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 670us/step - loss: 5353595.5000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 2755659.5000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 671us/step - loss: 2484218.2500
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 661us/step - loss: 3191636.2500
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 2059462.1250
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 661us/step - loss: 4625482.0000
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 5891192.0000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 671us/step - loss: 1974263.6250
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 2371172.0000
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 652us/step - loss: 3053412.0000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 1158007.8750
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 2977576.2500
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 658us/step - loss: 4591080.0000
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 4468785.0000
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 659us/step - loss: 2746197.0000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 1549984.3750
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 1641326.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 1485702.6250
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 3155678.0000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 1315337.0000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 1883955.0000
```

```
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 6777756.0000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 3031366.7500
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 1918662.2500
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 670us/step - loss: 3753536.7500
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 628us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 776us/step - loss: 7195631.0000
Epoch 2/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 4669983.0000
Epoch 3/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 750us/step - loss: 4062193.5000
Epoch 4/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 4963295.5000
Epoch 5/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 9601939.0000
Epoch 6/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 2045188.5000
Epoch 7/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 1291780.6250
Epoch 8/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 1999569.7500
Epoch 9/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 790us/step - loss: 2687437.5000
Epoch 10/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 2348426.0000
Epoch 11/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 6618338.5000
Epoch 12/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 756us/step - loss: 2501287.7500
Epoch 13/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 2950000.2500
Epoch 14/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 5308311.0000
Epoch 15/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 2696432.7500
Epoch 16/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 758us/step - loss: 2282793.2500
```

```
Epoch 17/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 2968573.2500
Epoch 18/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 752us/step - loss: 6617689.5000
Epoch 19/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 758us/step - loss: 4370811.5000
Epoch 20/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 5627281.5000
Epoch 21/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 11182986.0000
Epoch 22/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 760us/step - loss: 1554830.2500
Epoch 23/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 3352988.5000
Epoch 24/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 751us/step - loss: 2333743.5000
Epoch 25/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 3072360.0000
Epoch 26/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 2393755.5000
Epoch 27/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 2522011.2500
Epoch 28/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 1991557.0000
Epoch 29/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 2636338.0000
Epoch 30/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step - loss: 2129906.7500
Epoch 31/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 747us/step - loss: 2987682.0000
Epoch 32/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 759us/step - loss: 3626176.0000
Epoch 33/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 1680026.2500
Epoch 34/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 2655227.5000
Epoch 35/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 2133101.0000
Epoch 36/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 2325611.0000
Epoch 37/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 802us/step - loss: 2183110.7500
Epoch 38/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 3076718.2500
Epoch 39/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 2512034.0000
Epoch 40/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 1903070.8750
Epoch 41/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 5469496.0000
```

```
Epoch 42/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1740152.8750
Epoch 43/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 751us/step - loss: 1586981.7500
Epoch 44/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 2003101.5000
Epoch 45/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 789us/step - loss: 2240674.2500
Epoch 46/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 3184577.0000
Epoch 47/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 793us/step - loss: 3571778.7500
Epoch 48/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 789us/step - loss: 3075421.2500
Epoch 49/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 748us/step - loss: 1995739.6250
Epoch 50/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 5403979.0000
Epoch 51/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1546523.6250
Epoch 52/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 747us/step - loss: 4492099.5000
Epoch 53/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 768us/step - loss: 1777261.8750
Epoch 54/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 2426455.7500
Epoch 55/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 3380343.7500
Epoch 56/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 1926208.3750
Epoch 57/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 2246171.2500
Epoch 58/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 6774718.0000
Epoch 59/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 2730156.7500
Epoch 60/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 824us/step - loss: 3618566.5000
Epoch 61/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 2035080.6250
Epoch 62/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 789us/step - loss: 1703760.1250
Epoch 63/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 802us/step - loss: 2959841.5000
Epoch 64/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 3882198.0000
Epoch 65/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 1268941.0000
Epoch 66/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 2527001.2500
```

```
Epoch 67/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 2559370.2500
Epoch 68/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 3449987.0000
Epoch 69/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 3902581.2500
Epoch 70/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 6057199.5000
Epoch 71/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 3019045.5000
Epoch 72/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 3008593.7500
Epoch 73/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 2601010.7500
Epoch 74/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 2028424.7500
Epoch 75/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 790us/step - loss: 1144354.1250
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 766us/step - loss: 3769862.5000
Epoch 2/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 1090750.6250
Epoch 3/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 755us/step - loss: 1033252.3750
Epoch 4/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 793us/step - loss: 1100317.8750
Epoch 5/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 1057205.3750
Epoch 6/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 1003251.3125
Epoch 7/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 793us/step - loss: 1035994.6250
Epoch 8/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 994us/step - loss: 1088933.7500
Epoch 9/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 806us/step - loss: 1039439.0000
Epoch 10/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 1001386.6250
Epoch 11/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 803us/step - loss: 939643.7500
```

```
Epoch 12/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 1196454.3750
Epoch 13/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 1083965.6250
Epoch 14/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 753us/step - loss: 946423.5625
Epoch 15/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 1024464.3750
Epoch 16/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 753us/step - loss: 989918.8125
Epoch 17/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 980190.6250
Epoch 18/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 1014607.4375
Epoch 19/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 973222.4375
Epoch 20/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 798us/step - loss: 1057413.7500
Epoch 21/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 807us/step - loss: 1051170.2500
Epoch 22/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 1195306.6250
Epoch 23/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 971805.3750
Epoch 24/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 1005991.9375
Epoch 25/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 1021455.3125
Epoch 26/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 790us/step - loss: 956170.8750
Epoch 27/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 759us/step - loss: 1099379.0000
Epoch 28/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 753us/step - loss: 1059198.3750
Epoch 29/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 1123067.1250
Epoch 30/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 1087736.3750
Epoch 31/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 766us/step - loss: 1042581.4375
Epoch 32/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1016748.4375
Epoch 33/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 753us/step - loss: 1135125.5000
Epoch 34/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 1000926.4375
Epoch 35/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 769us/step - loss: 1088478.8750
Epoch 36/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 976951.4375
```

```
Epoch 37/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 770us/step - loss: 936765.9375
Epoch 38/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 768us/step - loss: 1040399.6875
Epoch 39/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 764us/step - loss: 976248.4375
Epoch 40/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 1073079.5000
Epoch 41/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 1000525.1250
Epoch 42/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 1005516.8750
Epoch 43/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 1029541.7500
Epoch 44/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 746us/step - loss: 1050137.0000
Epoch 45/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 807us/step - loss: 967002.6250
Epoch 46/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 1005794.0000
Epoch 47/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 1035190.7500
Epoch 48/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 802us/step - loss: 1038285.8750
Epoch 49/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 980829.6250
Epoch 50/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 1039137.8125
Epoch 51/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 863us/step - loss: 1016286.1250
Epoch 52/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 823us/step - loss: 992398.5625
Epoch 53/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 822us/step - loss: 961487.1875
Epoch 54/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 954976.3125
Epoch 55/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 1069611.8750
Epoch 56/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 822us/step - loss: 959891.6250
Epoch 57/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 820us/step - loss: 957651.8750
Epoch 58/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 843us/step - loss: 975670.1250
Epoch 59/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 828us/step - loss: 973174.5625
Epoch 60/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 1031905.0625
Epoch 61/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 766us/step - loss: 997876.3750
```

```
Epoch 62/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1039885.4375
Epoch 63/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 832us/step - loss: 999622.7500
Epoch 64/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 806us/step - loss: 945818.6875
Epoch 65/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 1047621.7500
Epoch 66/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 762us/step - loss: 1014150.0625
Epoch 67/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 1081121.6250
Epoch 68/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 969099.3125
Epoch 69/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 756us/step - loss: 1085277.7500
Epoch 70/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 798us/step - loss: 970844.0625
Epoch 71/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 981603.0625
Epoch 72/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 972us/step - loss: 957342.2500
Epoch 73/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 813us/step - loss: 966197.1250
Epoch 74/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 753us/step - loss: 1041717.9375
Epoch 75/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 979181.0625
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 756us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 824us/step - loss: 6698049.5000
Epoch 2/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 815us/step - loss: 3807826.5000
Epoch 3/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 834us/step - loss: 3794843.7500
Epoch 4/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 2067225.7500
Epoch 5/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 818us/step - loss: 2646118.2500
Epoch 6/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 821us/step - loss: 1985878.7500
```

```
Epoch 7/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 2576562.2500
Epoch 8/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 10745668.0000
Epoch 9/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 1780256.2500
Epoch 10/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 5294866.5000
Epoch 11/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 2124837.5000
Epoch 12/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 4495266.0000
Epoch 13/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 3209814.0000
Epoch 14/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 6142070.5000
Epoch 15/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 789us/step - loss: 3062326.7500
Epoch 16/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 839us/step - loss: 4894578.0000
Epoch 17/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 821us/step - loss: 4041936.5000
Epoch 18/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 809us/step - loss: 2834926.7500
Epoch 19/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 800us/step - loss: 5455878.0000
Epoch 20/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 5431138.0000
Epoch 21/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 2248602.0000
Epoch 22/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 5019387.5000
Epoch 23/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 2596241.0000
Epoch 24/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 1324349.3750
Epoch 25/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 2910810.5000
Epoch 26/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 1589136.6250
Epoch 27/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 802us/step - loss: 2145946.7500
Epoch 28/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 768us/step - loss: 1192347.3750
Epoch 29/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 756us/step - loss: 1767892.7500
Epoch 30/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 6525131.5000
Epoch 31/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 1628111.2500
```

```
Epoch 32/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 2205171.2500
Epoch 33/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 831us/step - loss: 2830852.5000
Epoch 34/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 6061590.5000
Epoch 35/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 4257847.5000
Epoch 36/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 818us/step - loss: 3568980.0000
Epoch 37/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 1ms/step - loss: 2358410.0000
Epoch 38/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 7537681.0000
Epoch 39/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 4139518.0000
Epoch 40/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 737us/step - loss: 6524910.5000
Epoch 41/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 752us/step - loss: 1532722.3750
Epoch 42/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 3811771.7500
Epoch 43/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 6620340.5000
Epoch 44/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 740us/step - loss: 4690139.5000
Epoch 45/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 6128435.5000
Epoch 46/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 759us/step - loss: 3499238.5000
Epoch 47/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 1222619.1250
Epoch 48/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 2821771.7500
Epoch 49/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 1573576.6250
Epoch 50/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 3244911.5000
Epoch 51/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 1769777.7500
Epoch 52/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 750us/step - loss: 1937959.0000
Epoch 53/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step - loss: 2533704.0000
Epoch 54/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 1452722.5000
Epoch 55/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 2368485.2500
Epoch 56/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 765us/step - loss: 6311325.0000
```

```
Epoch 57/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 2577928.7500
Epoch 58/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 790us/step - loss: 2532677.7500
Epoch 59/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 2370684.7500
Epoch 60/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 1504928.2500
Epoch 61/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 1280582.8750
Epoch 62/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 3362412.7500
Epoch 63/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 3346304.0000
Epoch 64/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 1635806.5000
Epoch 65/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 4762579.5000
Epoch 66/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 753us/step - loss: 6098822.0000
Epoch 67/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step - loss: 3724852.2500
Epoch 68/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 2964622.0000
Epoch 69/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 768us/step - loss: 4211000.5000
Epoch 70/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 3900964.0000
Epoch 71/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 765us/step - loss: 1491380.5000
Epoch 72/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 765us/step - loss: 4571782.0000
Epoch 73/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 766us/step - loss: 8414855.0000
Epoch 74/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 2087706.8750
Epoch 75/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 5857198.5000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 722us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 9574807.0000
```

```
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 644us/step - loss: 8091923.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 5228416.0000
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 658us/step - loss: 5557477.5000
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 5172666.0000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 8129162.0000
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 3871824.7500
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 6023269.0000
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1886566.7500
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 2296236.5000
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 2945357.2500
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 2492706.0000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 4049431.2500
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 2415732.2500
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 4271616.0000
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1946186.3750
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 5977953.5000
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 6823402.0000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 4716898.5000
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 3163350.5000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 2311719.0000
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 9143989.0000
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 3007942.2500
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 3770037.2500
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 7185459.5000
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 3308963.7500
```

```
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 2418380.5000
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 2018231.0000
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 8716988.0000
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 2879388.2500
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1835595.2500
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 3191826.5000
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 1190436.3750
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 4493496.0000
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 2652373.0000
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 2127134.5000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 4383775.0000
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 7117565.5000
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 3074798.0000
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 4501565.0000
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 3597713.2500
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 5255589.0000
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 5003156.5000
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 2853773.0000
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 2812857.0000
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 2510156.2500
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 3497243.5000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 5481895.5000
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 3737758.5000
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 7607675.0000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step
Epoch 1/50
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 9174235.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 5791860.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 2886838.2500
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 1725449.8750
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 1518444.8750
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1407256.8750
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1284909.8750
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1204903.0000
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1291333.3750
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 702us/step - loss: 1080220.7500
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1097503.7500
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1136441.0000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1061079.2500
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1053026.2500
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1047858.3750
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1058063.3750
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1046152.6875
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1049727.3750
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 1035873.0000
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1089231.7500
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 972558.1875
```

```
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1022534.3125
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1052375.2500
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1032190.3125
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1086144.7500
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1086932.3750
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1038822.5625
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1082925.1250
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1091788.1250
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1042117.2500
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1004200.3750
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1029586.2500
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1064257.3750
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 984993.6250
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1030392.9375
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1074920.0000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 1012781.7500
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 1044411.0625
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 1008846.2500
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1154351.6250
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1034781.7500
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1025693.3750
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 1079558.3750
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1054232.0000
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1011379.1875
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1050562.8750
```

```
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 971771.5625
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1077075.5000
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1078687.6250
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 1048983.5000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 11029652.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 8557198.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 3289295.5000
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 5226161.5000
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step - loss: 5279086.0000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 1744162.3750
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 655us/step - loss: 2766792.0000
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 3886192.2500
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 6112205.5000
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 4675608.0000
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 2320159.2500
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 670us/step - loss: 6751240.5000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 1976008.8750
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1983033.2500
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 1750069.6250
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 3677506.7500
```

```
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step - loss: 3891798.7500
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 4321613.5000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 5283490.5000
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 3242538.7500
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 2766015.7500
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 2244856.7500
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 1539999.3750
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 653us/step - loss: 4720802.5000
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1869156.1250
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 4259490.5000
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 3932105.7500
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 3140313.7500
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 4971966.5000
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 8545526.0000
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 4735506.5000
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 659us/step - loss: 3202636.2500
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 3748252.7500
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 4946897.0000
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 3627723.0000
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 4634653.0000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 1659317.2500
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step - loss: 4302099.0000
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 2346531.2500
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 3542032.7500
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 3810632.5000
```

```
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 625us/step - loss: 2408416.7500
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 641us/step - loss: 1991754.8750
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 639us/step - loss: 2137209.7500
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 8045185.0000
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 639us/step - loss: 2985352.2500
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 3962001.5000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 645us/step - loss: 2802304.2500
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 6901504.0000
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 2053018.6250
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 664us/step - loss: 12436906.0000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 627us/step - loss: 12185549.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 12746427.0000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 635us/step - loss: 6662068.0000
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 643us/step - loss: 7069942.5000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 655us/step - loss: 7266759.5000
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 661us/step - loss: 4060929.7500
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 659us/step - loss: 3913304.2500
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 640us/step - loss: 3012239.7500
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 2351321.0000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 642us/step - loss: 4715974.0000
```

```
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 5582422.0000
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 641us/step - loss: 3127344.5000
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 651us/step - loss: 2793542.0000
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 633us/step - loss: 3419552.7500
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 632us/step - loss: 2057520.5000
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 609us/step - loss: 6782066.0000
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 2460700.7500
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 644us/step - loss: 2168765.0000
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 604us/step - loss: 3597210.2500
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 621us/step - loss: 6160363.0000
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 643us/step - loss: 3013153.7500
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 6207717.5000
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 631us/step - loss: 3609897.2500
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 3447764.5000
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 657us/step - loss: 1653193.3750
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 650us/step - loss: 2967822.5000
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 644us/step - loss: 3339683.2500
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 641us/step - loss: 1770814.5000
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 662us/step - loss: 4476273.5000
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 624us/step - loss: 4432209.0000
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 633us/step - loss: 3661212.0000
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 654us/step - loss: 3395913.5000
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 608us/step - loss: 5150538.0000
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 651us/step - loss: 5119491.0000
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 667us/step - loss: 4669390.0000
```

```
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 621us/step - loss: 11210469.0000
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 600us/step - loss: 1677019.3750
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 633us/step - loss: 2155551.7500
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 643us/step - loss: 3032119.5000
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 650us/step - loss: 7563602.5000
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 611us/step - loss: 5357033.0000
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 634us/step - loss: 2634721.0000
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 649us/step - loss: 4236162.5000
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 4545516.0000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 2650784.7500
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 628us/step - loss: 2372446.0000
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 607us/step - loss: 6705768.5000
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 612us/step - loss: 6548962.5000
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 629us/step - loss: 6525956.0000
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 1188781.1250
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 6153833.5000
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 651us/step - loss: 4730545.0000
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 1509318.0000
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 644us/step - loss: 2797019.0000
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 648us/step - loss: 3376738.7500
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 3557736.0000
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 3230496.2500
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 647us/step - loss: 1335292.8750
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 643us/step - loss: 1862712.5000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 604us/step - loss: 6361599.0000
```

```
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 626us/step - loss: 7353259.0000
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 4055401.7500
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 619us/step - loss: 4626877.0000
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 641us/step - loss: 2079325.2500
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 2681320.0000
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 635us/step - loss: 2915540.7500
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 605us/step - loss: 1976904.5000
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 612us/step - loss: 4422050.0000
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 624us/step - loss: 1996881.0000
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 3655371.7500
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 632us/step - loss: 2147799.0000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 645us/step - loss: 1497804.8750
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 631us/step - loss: 7391660.5000
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 3473614.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 637us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 649us/step - loss: 9491970.0000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 650us/step - loss: 8536408.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 647us/step - loss: 7096190.5000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 629us/step - loss: 5548428.5000
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 645us/step - loss: 4150585.2500
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 613us/step - loss: 2947010.5000
```

```
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 655us/step - loss: 2277638.5000
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 1870010.7500
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 613us/step - loss: 1681327.6250
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 628us/step - loss: 1685414.1250
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 599us/step - loss: 1541063.0000
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 598us/step - loss: 1667066.7500
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 606us/step - loss: 1401593.2500
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 630us/step - loss: 1295709.1250
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 1354754.1250
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 619us/step - loss: 1247084.7500
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 639us/step - loss: 1187411.3750
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 1215086.3750
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 651us/step - loss: 1190745.7500
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 650us/step - loss: 1253901.1250
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 647us/step - loss: 1240248.7500
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 653us/step - loss: 1205500.1250
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 641us/step - loss: 1155773.7500
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 641us/step - loss: 1144339.2500
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 1099857.8750
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 655us/step - loss: 1032831.5625
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 635us/step - loss: 1101322.3750
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 625us/step - loss: 1051137.6250
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 628us/step - loss: 1046835.1250
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 625us/step - loss: 1062360.6250
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 608us/step - loss: 1105438.6250
```

```
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 616us/step - loss: 1143781.7500
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 628us/step - loss: 1030580.1250
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 652us/step - loss: 1044126.1250
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 1075816.2500
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 625us/step - loss: 1078458.8750
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 608us/step - loss: 1006224.5000
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 640us/step - loss: 1075327.7500
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 639us/step - loss: 1082611.2500
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 652us/step - loss: 1005053.3125
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 633us/step - loss: 1144757.0000
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 673us/step - loss: 1065957.3750
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 656us/step - loss: 1214696.3750
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 1086814.5000
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 636us/step - loss: 1118620.6250
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 629us/step - loss: 1091720.5000
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 1064504.2500
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 659us/step - loss: 1088178.3750
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 1006990.1875
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 662us/step - loss: 1049522.6250
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 642us/step - loss: 1093599.5000
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 660us/step - loss: 1027044.7500
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 639us/step - loss: 1138488.7500
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 1089317.0000
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 637us/step - loss: 1064040.8750
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 1145789.3750
```

```
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 653us/step - loss: 1118482.6250
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 620us/step - loss: 1153266.3750
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 647us/step - loss: 1119394.0000
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 637us/step - loss: 1027704.0000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 1040720.8125
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 669us/step - loss: 1064321.2500
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1039335.1875
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 1094472.3750
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 667us/step - loss: 1079471.1250
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 987507.8750
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 657us/step - loss: 1103683.5000
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 1146919.0000
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 656us/step - loss: 1049665.5000
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 1064993.5000
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 673us/step - loss: 1028387.6875
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 642us/step - loss: 1110876.7500
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 669us/step - loss: 1083190.1250
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 647us/step - loss: 1053340.5000
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 645us/step - loss: 1127440.0000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 655us/step - loss: 13701277.0000
```

```
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 15591140.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 8521206.0000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 8249187.0000
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 6888758.5000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 3677383.0000
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 3237424.2500
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 3202895.0000
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2775214.2500
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 3721569.0000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 2295383.2500
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 2245071.0000
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 5535588.5000
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 3488897.7500
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 2122546.7500
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 2698212.2500
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 2576084.7500
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 4539592.5000
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 3827717.2500
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 720us/step - loss: 2569800.2500
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 6214670.5000
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 1383693.8750
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 2474165.2500
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1959062.1250
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 2993345.7500
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 3010323.5000
```

```
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 3218200.0000
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 6536321.0000
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 2060478.7500
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 729us/step - loss: 3914896.2500
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 662us/step - loss: 1763782.8750
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 4125143.2500
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 3598172.7500
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 2225747.2500
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 2277183.7500
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 3786608.7500
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 4401505.5000
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1603610.2500
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 3663885.2500
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 1962253.6250
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2017959.3750
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 3264397.5000
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 2184971.7500
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 8732550.0000
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 3054245.5000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 2668262.7500
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 4916427.5000
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 4408094.5000
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 2311157.2500
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 3370885.5000
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 2155022.5000
```

```
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 3690888.7500
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 4303314.0000
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 3637166.5000
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 1396608.6250
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 1987498.3750
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2780514.0000
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 5301209.0000
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 3090562.5000
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 7790914.0000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2584644.0000
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 5756951.5000
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 640us/step - loss: 5248310.5000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 1551922.2500
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 4704648.0000
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2864059.5000
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1819556.2500
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 3042536.5000
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 666us/step - loss: 1373043.6250
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 1495843.6250
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 3991799.7500
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 2630646.5000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 2617157.2500
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 4972333.5000
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1666120.6250
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step
Epoch 1/75
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 827us/step - loss: 10337993.0000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 6023181.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 832us/step - loss: 3863126.0000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 927us/step - loss: 2072378.3750
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 2422729.0000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 2417558.0000
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 808us/step - loss: 3354060.2500
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 2218660.0000
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 836us/step - loss: 1676751.3750
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 823us/step - loss: 3108063.5000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 870us/step - loss: 5521501.5000
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 849us/step - loss: 1773912.7500
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 824us/step - loss: 4142378.2500
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 809us/step - loss: 7629577.5000
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 812us/step - loss: 4802915.0000
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 802us/step - loss: 2365522.7500
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 3133563.0000
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 812us/step - loss: 2849537.7500
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 835us/step - loss: 1503310.1250
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 840us/step - loss: 4020403.0000
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 5539332.5000
```

```
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 821us/step - loss: 4252582.5000
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 804us/step - loss: 1858762.2500
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 814us/step - loss: 2790308.7500
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 2313743.0000
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 1636766.7500
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 834us/step - loss: 2193762.0000
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 843us/step - loss: 7152242.5000
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 814us/step - loss: 2999779.7500
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 913us/step - loss: 1962702.0000
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 826us/step - loss: 2263700.7500
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 826us/step - loss: 4279063.0000
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 836us/step - loss: 3374929.2500
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 812us/step - loss: 1518900.5000
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 940us/step - loss: 6467453.0000
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 841us/step - loss: 3985410.2500
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 817us/step - loss: 1701221.7500
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 825us/step - loss: 1176664.2500
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 953us/step - loss: 7082598.0000
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 4938207.0000
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 814us/step - loss: 6071514.5000
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 822us/step - loss: 4000461.5000
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 840us/step - loss: 1399275.7500
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 844us/step - loss: 2380839.5000
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 2098530.0000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 846us/step - loss: 6213638.0000
```

```
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 855us/step - loss: 2192439.7500
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 825us/step - loss: 3952687.7500
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 856us/step - loss: 3710378.5000
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 835us/step - loss: 3984081.5000
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 899us/step - loss: 3798159.2500
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 895us/step - loss: 4512483.5000
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 819us/step - loss: 5605618.0000
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 817us/step - loss: 4574415.0000
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 814us/step - loss: 3102314.5000
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 801us/step - loss: 1413242.3750
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 5323682.0000
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 799us/step - loss: 3484503.2500
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 808us/step - loss: 5452190.0000
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 1864023.2500
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 815us/step - loss: 3504447.2500
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 7122500.0000
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 847us/step - loss: 2378075.0000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 848us/step - loss: 2315620.2500
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 825us/step - loss: 3174515.5000
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 799us/step - loss: 4399948.5000
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 3720261.0000
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 805us/step - loss: 2057517.8750
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 806us/step - loss: 4143822.7500
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 1716161.0000
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 5226699.5000
```

```
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 810us/step - loss: 4075752.0000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 821us/step - loss: 3650084.5000
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 830us/step - loss: 8477152.0000
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 822us/step - loss: 2001030.2500
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 780us/step - loss: 3405275.2500
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 1083972.5000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 1127228.1250
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 770us/step - loss: 1060700.6250
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 1047577.4375
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 739us/step - loss: 1002108.5625
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 772us/step - loss: 1062041.3750
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 1029065.8750
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 765us/step - loss: 1056728.7500
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 1041073.5625
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 1056422.1250
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 1008993.8750
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 1086307.2500
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 980839.5625
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 1154135.3750
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 1038237.9375
```

```
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 984225.4375
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 784us/step - loss: 1077403.0000
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 792us/step - loss: 956840.6250
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 964861.3750
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 789us/step - loss: 1014694.2500
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 789us/step - loss: 1036792.5625
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 792us/step - loss: 1051215.3750
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 781us/step - loss: 949605.9375
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 753us/step - loss: 963799.8125
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 1024958.5625
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 918075.8125
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 1009477.0000
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 980982.6250
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 768us/step - loss: 1011657.7500
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 789us/step - loss: 1025086.1875
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 774us/step - loss: 1053041.3750
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 778us/step - loss: 1041456.1250
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 784us/step - loss: 1036295.0625
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 780us/step - loss: 967589.4375
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 774us/step - loss: 1083466.6250
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 967813.6250
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 773us/step - loss: 1220757.6250
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 760us/step - loss: 1059583.5000
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 776us/step - loss: 978045.3750
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 768us/step - loss: 974237.4375
```

```
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 784us/step - loss: 1014715.5625
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 1079508.0000
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 1010894.3750
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 1047834.5625
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 1060305.0000
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 747us/step - loss: 1048675.2500
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 757us/step - loss: 1047350.4375
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 780us/step - loss: 1012261.3750
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 781us/step - loss: 981656.7500
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 939525.5625
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 1032128.0000
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 778us/step - loss: 1068208.8750
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 969544.9375
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 768us/step - loss: 1031323.7500
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 1018380.1250
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 1095394.8750
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 764us/step - loss: 968740.4375
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 749us/step - loss: 965837.6875
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 747us/step - loss: 1003168.5000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 746us/step - loss: 1025926.1875
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 962047.1250
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 776us/step - loss: 973799.8125
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 750us/step - loss: 1087709.7500
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 931897.5625
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 1061832.6250
```

```
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 1050881.1250
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 760us/step - loss: 1061801.6250
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 985331.9375
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 764us/step - loss: 1089869.2500
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 750us/step - loss: 997871.5625
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 722us/step - loss: 996420.3750
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 756us/step - loss: 961105.9375
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 1007541.0000
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 1042718.5625
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 761us/step - loss: 4942523.5000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 754us/step - loss: 2954146.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 767us/step - loss: 9744625.0000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 738us/step - loss: 1747813.7500
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 740us/step - loss: 3454456.5000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 754us/step - loss: 2620758.7500
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 733us/step - loss: 1147251.0000
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 732us/step - loss: 2349039.7500
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 716us/step - loss: 4584922.0000
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 4471733.0000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 741us/step - loss: 1890275.6250
```

```
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 732us/step - loss: 3834067.7500
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 715us/step - loss: 3567980.2500
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 748us/step - loss: 9510932.0000
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 730us/step - loss: 3517983.5000
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 751us/step - loss: 2946998.2500
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 731us/step - loss: 3168687.7500
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 742us/step - loss: 8399431.0000
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 749us/step - loss: 2104044.2500
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 744us/step - loss: 7009853.5000
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 742us/step - loss: 1265839.3750
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 4654277.5000
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 729us/step - loss: 2079303.1250
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 748us/step - loss: 4468124.5000
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 753us/step - loss: 2421699.5000
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 743us/step - loss: 8046215.5000
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 2260596.2500
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 3375235.7500
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 1906075.1250
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 3527803.5000
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 5319086.5000
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 1590657.7500
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 737us/step - loss: 5910144.5000
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 741us/step - loss: 2354401.2500
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 3596921.0000
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 722us/step - loss: 2812593.7500
```

```
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 2557472.2500
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 4529131.0000
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 766us/step - loss: 7457142.5000
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 2088038.3750
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 778us/step - loss: 4513095.0000
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 741us/step - loss: 1487604.0000
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 2283193.2500
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 765us/step - loss: 2312347.0000
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 768us/step - loss: 3088704.5000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 4137563.0000
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 764us/step - loss: 2249919.7500
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 1494990.7500
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 765us/step - loss: 1763538.3750
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 4084353.2500
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 770us/step - loss: 2874643.2500
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 4070905.2500
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 3452477.5000
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 760us/step - loss: 1654898.3750
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 5058198.5000
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 747us/step - loss: 4333930.5000
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 764us/step - loss: 2624562.7500
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 760us/step - loss: 2922768.0000
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 1900767.1250
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 4842227.0000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 884us/step - loss: 2083577.5000
```

```
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 6385903.5000
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 2886946.0000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 3182909.2500
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 5144878.0000
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 3019131.2500
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 7769826.5000
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 879us/step - loss: 3677359.5000
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 4539627.0000
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 2435730.5000
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 2004514.3750
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 1963520.1250
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 765us/step - loss: 2187641.2500
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 1686006.7500
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 4602201.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 3s 738us/step - loss: 8126386.5000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 1534210.2500
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1855286.8750
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 4324684.5000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1559642.0000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 2695428.7500
```

```
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 2507508.0000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 2254747.5000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 1949390.7500
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 2857201.5000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 2869997.2500
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 2258031.7500
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 4040382.2500
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 3117045.0000
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 1754368.1250
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 2151829.0000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 2971181.2500
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 7423361.0000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 3874477.7500
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 3297644.0000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 3414817.0000
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 720us/step - loss: 2679822.2500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 3543407.7500
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 2421091.0000
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 5264743.5000
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 3570710.2500
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 1587097.3750
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 4049893.5000
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 3406869.0000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 641us/step - loss: 3164534.2500
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 2606192.7500
```

```
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 1541156.2500
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 3082673.7500
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 6904454.5000
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 3220841.5000
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 1890163.2500
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 3984372.5000
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 3370170.0000
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 2994106.5000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 4888650.5000
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 1585355.3750
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1633520.5000
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 4755551.0000
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 2627839.2500
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 2328272.2500
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 1805589.0000
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 4256341.0000
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 702us/step - loss: 2608625.7500
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 5656424.0000
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 2388173.2500
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 4111410.5000
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 4125130.0000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 2219128.0000
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 3664643.7500
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 1185887.8750
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 4920286.0000
```

```
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 9243433.0000
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 4455798.0000
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 3369067.5000
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 6205644.0000
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 3086363.2500
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 6088784.5000
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 7768403.5000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 3325437.2500
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1326913.0000
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 3081377.7500
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 5572977.5000
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 3520466.0000
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1475518.6250
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 2887038.0000
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 2728911.0000
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 2865402.5000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 5144939.5000
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 5039342.0000
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 3763134.7500
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 5126591.5000
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 2208127.5000
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 2175148.2500
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 8563492.0000
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 5811388.5000
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 6331392.5000
```

```
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 2782270.7500
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 4091366.7500
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 6681912.0000
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 2674859.7500
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1796475.1250
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 1652846.3750
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 2585953.5000
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 4351964.0000
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 3397490.0000
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 3441662.0000
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 2486053.0000
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 5579828.5000
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 4054066.0000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 1227067.6250
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 3913709.2500
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 5941370.5000
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 3819549.2500
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 5368060.5000
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 3404950.2500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 709us/step - loss: 5870329.5000
```

```
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1267881.3750
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 1066229.8750
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1056993.5000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 991025.7500
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 1042025.0625
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 1138331.8750
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1040833.6250
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1021917.3125
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 1145858.3750
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 1013614.8750
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1024783.8750
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 1007099.0000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 990427.6875
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 1011626.8750
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1092155.6250
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 994448.2500
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 1082383.1250
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1017772.5625
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1049375.0000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 1071418.0000
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1010646.7500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 1113264.1250
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1012793.8125
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1030776.6250
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 988247.5000
```

```
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 1070653.8750
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 959694.3750
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 908us/step - loss: 1006499.5000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1016171.0625
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 1024529.1875
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1004832.3125
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1038315.9375
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 993880.4375
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1041872.7500
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 952990.1250
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1003958.2500
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 992054.2500
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1020103.0000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 1055267.1250
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 1048106.1875
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 972673.3125
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 1037949.2500
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 946073.6250
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 1037835.9375
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1001770.0000
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1063399.8750
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 975222.5625
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1045791.7500
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1011259.3125
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 959920.5625
```

```
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1084419.0000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1057353.7500
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 962623.8125
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1193271.6250
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 978531.5000
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 670us/step - loss: 956303.1250
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 1012045.6875
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 980775.5625
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 655us/step - loss: 1083337.2500
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1031155.8750
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1180741.6250
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 1063525.8750
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1028138.3750
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1001707.8750
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 985240.1875
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 988323.8750
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 963103.0625
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 1044414.6875
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1037042.1250
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1067329.6250
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 1011063.2500
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 948455.2500
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1104916.1250
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1046939.9375
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1022340.2500
```

```
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 986468.6250
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 1002127.4375
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 979781.1250
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1103080.2500
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 1027114.7500
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 978591.8125
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1070947.6250
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 1014378.1250
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1012398.3125
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 1031014.3750
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 748us/step - loss: 1016627.1875
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 1076300.5000
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 987us/step - loss: 1033185.7500
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 721us/step - loss: 1069457.5000
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1046032.3125
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 653us/step - loss: 998981.9375
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 987583.7500
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1010334.0000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 639us/step - loss: 1009813.1250
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 646us/step - loss: 999252.1250
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 632us/step - loss: 991683.8750
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 636us/step - loss: 1019405.6250
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 646us/step - loss: 1006968.3125
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 1019074.1250
733/733 ━━━━━━━━━━━━━━━━━━━━ 0s 591us/step
Epoch 1/100
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 642us/step - loss: 7458703.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 2220050.2500
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 3939431.2500
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 2833594.2500
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 642us/step - loss: 3443725.5000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 627us/step - loss: 6422918.0000
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 1443059.6250
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step - loss: 4694968.0000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 2553637.5000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 3665206.0000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 6979729.5000
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 834us/step - loss: 2858580.5000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 5811224.5000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 2332867.0000
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 3045258.2500
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 613us/step - loss: 2559381.7500
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 2977001.2500
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step - loss: 5185314.0000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 4093124.0000
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 4168922.7500
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 2675887.5000
```

```
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 4118726.5000
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 614us/step - loss: 2067125.7500
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 627us/step - loss: 2032064.5000
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 617us/step - loss: 4379880.0000
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 6588388.5000
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 5588815.5000
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 614us/step - loss: 4653903.0000
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 8141001.0000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 2388393.5000
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 2577898.0000
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step - loss: 3850264.0000
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 2731050.0000
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 2473841.5000
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 5704266.0000
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 636us/step - loss: 1888076.6250
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 613us/step - loss: 4636861.0000
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 3578739.2500
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 2140043.2500
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 642us/step - loss: 6081862.0000
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 2598284.7500
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 627us/step - loss: 1127327.0000
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 626us/step - loss: 5060618.5000
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 2992399.2500
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 1994451.5000
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 3411737.7500
```

```
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 617us/step - loss: 2895160.2500
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 4078302.7500
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 3042266.2500
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 5605993.0000
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 2532023.2500
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 626us/step - loss: 4903409.5000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 617us/step - loss: 3255291.2500
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 5686449.5000
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 614us/step - loss: 1269611.3750
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 2045789.3750
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 3951136.5000
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 617us/step - loss: 1461610.1250
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 4556629.5000
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 1367280.1250
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 3184628.0000
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 1869061.0000
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 5528207.5000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 4406213.5000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 616us/step - loss: 3998172.0000
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 5417993.5000
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 616us/step - loss: 2308369.5000
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 3240022.7500
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 7854517.5000
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 4353861.5000
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 625us/step - loss: 4848466.0000
```

```
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 6288797.5000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 612us/step - loss: 9110684.0000
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 2578945.0000
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 2771504.5000
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 613us/step - loss: 2942040.2500
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 2386820.0000
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 611us/step - loss: 3641236.7500
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 3576683.7500
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 614us/step - loss: 1976985.5000
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 4520756.5000
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 6442450.5000
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 641us/step - loss: 2311847.0000
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 626us/step - loss: 2786822.0000
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 3231995.5000
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 6706145.5000
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 611us/step - loss: 3381921.5000
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 616us/step - loss: 1633661.6250
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 3141224.2500
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 2757247.2500
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 2475888.2500
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 613us/step - loss: 1750153.3750
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 613us/step - loss: 1803636.8750
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 614us/step - loss: 2291252.7500
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 1480697.7500
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 3811882.2500
```

```
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 5084141.0000
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 2856025.7500
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 3230747.2500
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 2930199.2500
733/733 ━━━━━━━━━━━━━━━━━━━━ 0s 557us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 636us/step - loss: 5063611.0000
Epoch 2/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 650us/step - loss: 3041939.0000
Epoch 3/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 640us/step - loss: 6037871.5000
Epoch 4/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 639us/step - loss: 1361148.0000
Epoch 5/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 644us/step - loss: 1174961.5000
Epoch 6/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 647us/step - loss: 1828405.6250
Epoch 7/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 643us/step - loss: 5505457.5000
Epoch 8/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 652us/step - loss: 1753390.1250
Epoch 9/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 654us/step - loss: 2348000.0000
Epoch 10/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 640us/step - loss: 3273968.7500
Epoch 11/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 651us/step - loss: 3808050.7500
Epoch 12/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 644us/step - loss: 2181924.7500
Epoch 13/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 670us/step - loss: 2479104.5000
Epoch 14/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 656us/step - loss: 1381111.1250
Epoch 15/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 652us/step - loss: 1869371.3750
Epoch 16/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 659us/step - loss: 1880631.8750
```

```
Epoch 17/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 658us/step - loss: 3211132.0000
Epoch 18/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 655us/step - loss: 2725587.5000
Epoch 19/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 662us/step - loss: 1848941.6250
Epoch 20/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 676us/step - loss: 1428921.8750
Epoch 21/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 664us/step - loss: 2053088.5000
Epoch 22/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 672us/step - loss: 1886276.1250
Epoch 23/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 680us/step - loss: 2525225.2500
Epoch 24/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 656us/step - loss: 2460741.2500
Epoch 25/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 655us/step - loss: 3698056.7500
Epoch 26/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 660us/step - loss: 5012451.5000
Epoch 27/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 658us/step - loss: 2373076.5000
Epoch 28/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 665us/step - loss: 4283889.0000
Epoch 29/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 656us/step - loss: 2547561.7500
Epoch 30/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 670us/step - loss: 1250429.8750
Epoch 31/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 665us/step - loss: 2370998.0000
Epoch 32/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 662us/step - loss: 2148604.2500
Epoch 33/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 643us/step - loss: 1402691.7500
Epoch 34/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 665us/step - loss: 2836724.0000
Epoch 35/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 651us/step - loss: 3354184.5000
Epoch 36/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 661us/step - loss: 4458285.0000
Epoch 37/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 659us/step - loss: 2053929.2500
Epoch 38/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 654us/step - loss: 2090879.2500
Epoch 39/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 636us/step - loss: 3843366.7500
Epoch 40/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 653us/step - loss: 2306782.0000
Epoch 41/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 667us/step - loss: 1882255.7500
```

```
Epoch 42/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 634us/step - loss: 1571429.1250
Epoch 43/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 647us/step - loss: 2432744.2500
Epoch 44/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 645us/step - loss: 2226796.0000
Epoch 45/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 657us/step - loss: 2993887.7500
Epoch 46/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 644us/step - loss: 1940332.1250
Epoch 47/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 646us/step - loss: 3415840.0000
Epoch 48/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 665us/step - loss: 1708472.5000
Epoch 49/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 654us/step - loss: 3704602.7500
Epoch 50/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 640us/step - loss: 1589785.5000
Epoch 51/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 671us/step - loss: 1611264.7500
Epoch 52/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 651us/step - loss: 2112267.2500
Epoch 53/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 654us/step - loss: 3047422.5000
Epoch 54/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 652us/step - loss: 1754063.2500
Epoch 55/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 648us/step - loss: 4989432.5000
Epoch 56/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 642us/step - loss: 3814399.5000
Epoch 57/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 639us/step - loss: 1380144.2500
Epoch 58/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 664us/step - loss: 1272756.8750
Epoch 59/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 650us/step - loss: 1640955.2500
Epoch 60/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 659us/step - loss: 1712007.7500
Epoch 61/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 670us/step - loss: 3616899.5000
Epoch 62/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 654us/step - loss: 1601476.7500
Epoch 63/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 651us/step - loss: 3009925.7500
Epoch 64/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 648us/step - loss: 2160109.0000
Epoch 65/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 647us/step - loss: 3810270.7500
Epoch 66/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 660us/step - loss: 1577675.1250
```

```
Epoch 67/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 646us/step - loss: 3930404.0000
Epoch 68/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 656us/step - loss: 1571116.2500
Epoch 69/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 641us/step - loss: 2461969.0000
Epoch 70/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 640us/step - loss: 1684883.2500
Epoch 71/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 646us/step - loss: 3062218.2500
Epoch 72/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 646us/step - loss: 2675875.2500
Epoch 73/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 649us/step - loss: 2385947.7500
Epoch 74/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 639us/step - loss: 5071559.5000
Epoch 75/75
4395/4395 ━━━━━━━━━━━━━━━━━━━━ 3s 655us/step - loss: 3363907.0000
Best Parameters: {'model__neurons_per_layer': [128, 128], 'epochs': 75, 'bat
ch_size': 32}
Optimal Neurons Per Layer: [128, 128]
Best Negative MSE (CV): -2775768.216699162
1099/1099 ━━━━━━━━━━━━━━━━━━━━ 1s 629us/step
Keras Test MSE: 1023729.0822174851
Keras Test RMSE: 1011.7949803282704
```

Finding the Most Important Features

In [50]:

```python
input_layer_weights = best_keras_model.model_.layers[0].get_weights()[0]

feature_importance = np.sum(np.abs(input_layer_weights), axis=1)

ranked_features = np.argsort(-feature_importance)
ranked_feature_names = [features[i] for i in ranked_features]

print("Feature Importance:", feature_importance)
print("Ranked Features (by importance):", ranked_features)
print("Ranked Features (by importance):", ranked_feature_names)
print("----------------------------------")
print("Top 7 Features (from importance):", ranked_feature_names[:7])
```

```
Feature Importance: [20.341803 27.283226 23.182415 26.393032 83.854485 51.09
806  87.00321
 26.83015  26.31126 ]
Ranked Features (by importance): [6 4 5 1 7 3 8 2 0]
Ranked Features (by importance): ['total_outstanding_orders', 'total_onshift
_dashers', 'total_busy_dashers', 'num_distinct_items', 'estimated_order_plac
e_duration', 'max_item_price', 'estimated_store_to_consumer_driving_duratio
n', 'min_item_price', 'total_items']
----------------------------------
Top 7 Features (from importance): ['total_outstanding_orders', 'total_onshif
t_dashers', 'total_busy_dashers', 'num_distinct_items', 'estimated_order_pla
ce_duration', 'max_item_price', 'estimated_store_to_consumer_driving_duratio
n']
```

New Model with Reduced Features

In [52]:
```
top_7_features = ["total_outstanding_orders", "total_onshift_dashers", "tota
                  "estimated_order_place_duration", "max_item_price", "estim

X_train_top_features = X_train_scaled[:, ranked_features[:7]]
X_test_top_features = X_test_scaled[:, ranked_features[:7]]
```

In [56]:
```
def create_reduced_model(layers_config = [32], activation_function = "relu")
    model_reduced = Sequential()
    model_reduced.add(Dense(layers_config[0], activation = activation_functi
    for neurons in layers_config[1:]:
        model_reduced.add(Dense(neurons, activation = activation_function))
    model_reduced.add(Dense(1))
    model_reduced.compile(optimizer = "adam", loss = "mean_squared_error")
    return model_reduced
keras_model_reduced = KerasRegressor(build_fn=create_reduced_model, verbose=
param_grid_reduced = {
    "model__layers_config": [[3], [5], [7], [32], [64], [128], [32, 32], [12
                             [32, 16], [32, 16, 8], [128, 64, 32], [64, 64,

random_search_reduced = RandomizedSearchCV(estimator = keras_model_reduced,
                                           cv = 3, scoring = "neg_mean_squar

random_search_reduced.fit(X_train_top_features, y_train)

best_params_reduced = random_search_reduced.best_params_
print("Best Parameters (Reduced):", best_params_reduced)
print("Optimal Layers Config (Reduced):", best_params_reduced["model__layers
print("Best Negative MSE (CV):", random_search_reduced.best_score_)
best_reduced_model = random_search_reduced.best_estimator_
test_predictions_reduced = best_reduced_model.predict(X_test_top_features)
test_mse_reduced = mean_squared_error(y_test, test_predictions_reduced)
test_rmse_reduced = np.sqrt(test_mse_reduced)
print(f"Reduced Model Test MSE: {test_mse_reduced}")
```

```
print(f"Reduced Model Test RMSE: {test_rmse_reduced}")
```

```
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 4s 871us/step - loss: 6699607.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 837us/step - loss: 3380297.2500
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 840us/step - loss: 3219995.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 3934462.5000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 874us/step - loss: 1981510.0000
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 842us/step - loss: 4801854.0000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 850us/step - loss: 1395364.2500
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 881us/step - loss: 3181760.2500
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 846us/step - loss: 5623115.5000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 852us/step - loss: 2210845.7500
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 2614678.5000
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 862us/step - loss: 3988946.0000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 7747039.0000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 3599867.0000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 845us/step - loss: 4464871.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 863us/step - loss: 3450658.0000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 3596052.7500
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 6154900.5000
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 856us/step - loss: 2445912.5000
Epoch 20/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 892us/step - loss: 2135393.0000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 3307901.7500
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 848us/step - loss: 3484523.7500
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 841us/step - loss: 3361572.0000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 845us/step - loss: 1698769.6250
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 843us/step - loss: 2048855.3750
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 845us/step - loss: 8556043.0000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 1546042.8750
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 3240837.7500
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 830us/step - loss: 1154321.8750
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 2420387.2500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 834us/step - loss: 4214901.0000
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 4156455.5000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 826us/step - loss: 2811778.5000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 1551269.0000
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 1861847.3750
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 847us/step - loss: 5066131.0000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 838us/step - loss: 11401358.0000
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 2573215.0000
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 5826117.5000
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 906us/step - loss: 2266093.7500
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 842us/step - loss: 2584474.2500
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 832us/step - loss: 8693837.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 1735393.2500
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 5806075.5000
Epoch 45/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 834us/step - loss: 7312114.5000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 842us/step - loss: 2139715.7500
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 842us/step - loss: 4272235.0000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 836us/step - loss: 4151207.2500
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 857us/step - loss: 3073664.7500
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 834us/step - loss: 8418387.0000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 746us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 4s 846us/step - loss: 5287451.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 838us/step - loss: 1264657.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 1090898.8750
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 1069380.7500
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 1040984.4375
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 996823.6875
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 1011693.5625
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 1138218.6250
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 849us/step - loss: 1039765.9375
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 841us/step - loss: 1054921.6250
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 843us/step - loss: 1037037.6875
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 826us/step - loss: 1147011.2500
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 829us/step - loss: 1033311.8125
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 841us/step - loss: 1072186.6250
Epoch 15/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 844us/step - loss: 1061463.5000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 844us/step - loss: 1084081.0000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 883us/step - loss: 1116684.5000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 1151131.7500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 820us/step - loss: 1018763.8125
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 829us/step - loss: 1012183.3750
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 890us/step - loss: 1057128.6250
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 1176110.1250
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 1049594.2500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 1078949.2500
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 880us/step - loss: 980283.5000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 823us/step - loss: 1042747.1875
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 841us/step - loss: 961625.3125
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 1037210.8125
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 985702.8125
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 826us/step - loss: 997575.7500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 1032446.8125
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 819us/step - loss: 993007.5625
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 816us/step - loss: 1038076.8125
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 844us/step - loss: 944180.6875
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 824us/step - loss: 1078004.0000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 1062290.6250
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 821us/step - loss: 1071109.1250
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 980us/step - loss: 957239.5625
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 835us/step - loss: 1007722.3125
Epoch 40/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 843us/step - loss: 1025437.4375
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 814us/step - loss: 976923.8750
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 837us/step - loss: 948396.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 958211.1250
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 815us/step - loss: 982310.0625
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 817us/step - loss: 991114.5625
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 899us/step - loss: 957883.7500
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 851us/step - loss: 990509.5625
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 824us/step - loss: 1047256.0000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 819us/step - loss: 1013190.1250
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 835us/step - loss: 1029607.1250
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 4s 812us/step - loss: 10017423.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 803us/step - loss: 6728330.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 825us/step - loss: 1671076.6250
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 810us/step - loss: 4965389.0000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 789us/step - loss: 8625129.0000
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 802us/step - loss: 1473337.8750
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 806us/step - loss: 6760194.5000
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 805us/step - loss: 3556802.7500
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 814us/step - loss: 3059439.7500
Epoch 10/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 810us/step - loss: 2284458.7500
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 794us/step - loss: 2891709.2500
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 821us/step - loss: 2805819.0000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 806us/step - loss: 3822509.7500
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 1697994.5000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 807us/step - loss: 3152264.2500
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 3838044.5000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 1727261.8750
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 3567340.5000
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 794us/step - loss: 1581778.0000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 2590362.7500
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 6751443.0000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 810us/step - loss: 7363475.0000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 832us/step - loss: 3460983.2500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 2576334.2500
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 826us/step - loss: 2710003.0000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 1566484.0000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 810us/step - loss: 4047479.2500
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 804us/step - loss: 2529243.5000
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 3987408.2500
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 803us/step - loss: 6408289.0000
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 1746485.5000
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 794us/step - loss: 5470163.0000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 815us/step - loss: 5032880.0000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 796us/step - loss: 2919028.7500
Epoch 35/50
```

```
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 799us/step - loss: 6958714.5000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 811us/step - loss: 5983479.0000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 811us/step - loss: 3159005.5000
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 2441205.2500
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 2281896.2500
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 802us/step - loss: 4242020.0000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 799us/step - loss: 8040081.5000
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 797us/step - loss: 6777763.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 797us/step - loss: 1810403.3750
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 780us/step - loss: 1544163.3750
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 2134205.0000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 811us/step - loss: 2222023.5000
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 780us/step - loss: 3094313.0000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 5597145.0000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 801us/step - loss: 3573938.5000
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 823us/step - loss: 1279430.7500
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 845us/step - loss: 7984174.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 3012418.5000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 766us/step - loss: 1998635.0000
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 8140584.5000
Epoch 5/50
```

```
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 3143463.5000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 762us/step - loss: 3950250.0000
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 3312804.0000
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 7837578.0000
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 2442368.7500
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 3638286.5000
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 2267364.7500
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 2604615.0000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 5642831.0000
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 826us/step - loss: 1512670.3750
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 828us/step - loss: 2494149.5000
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 806us/step - loss: 1831078.8750
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 2852613.7500
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 1990731.0000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 3720173.2500
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1885198.5000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 5969460.5000
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 3433078.5000
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 829us/step - loss: 2728526.2500
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 4177669.7500
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 3161827.5000
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 2409265.2500
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 2710369.7500
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 2307859.5000
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 798us/step - loss: 4727960.0000
Epoch 30/50
```

```
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 789us/step - loss: 8988769.0000
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 2674650.7500
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 2089461.6250
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 3294485.0000
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1731211.0000
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 2455257.0000
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 5598197.5000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 5648630.5000
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 2850173.0000
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 2661091.7500
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 834us/step - loss: 3658258.0000
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 5976313.5000
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 3745036.5000
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 6377951.5000
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 4006593.2500
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 2362640.7500
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 5995953.5000
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 1904626.3750
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 3095318.7500
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 817us/step - loss: 1920184.7500
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 7617019.0000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step
Epoch 1/50
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 6157791.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 1243022.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 1162879.8750
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 1061116.2500
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 1004804.8750
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 841us/step - loss: 998163.3125
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 789us/step - loss: 1025654.3750
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 1037624.1875
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 1099378.0000
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 1032210.0625
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 1042784.4375
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1118481.5000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 1082042.3750
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 836us/step - loss: 1153658.7500
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 1116181.5000
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 1014505.5625
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 790us/step - loss: 1024733.0625
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1004150.5625
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 1010432.9375
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 1007272.8125
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 1024779.8125
```

```
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 1063193.0000
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 1053609.7500
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 946646.5625
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 1078915.5000
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 789us/step - loss: 1138721.1250
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 1010646.5625
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1042815.1250
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 823us/step - loss: 1086461.1250
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 1039654.2500
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 771us/step - loss: 1032184.9375
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 1007867.6250
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 1135890.0000
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 969778.3750
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 966481.1875
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 879us/step - loss: 1035451.0625
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 830us/step - loss: 1056829.6250
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 845us/step - loss: 1138968.5000
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 823us/step - loss: 1001166.7500
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 808us/step - loss: 1082689.8750
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 824us/step - loss: 1013234.0625
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 836us/step - loss: 1103736.8750
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1046165.2500
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 1053199.0000
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 1102864.1250
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 931919.0625
```

```
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 985603.2500
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 997781.1875
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1065549.5000
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 1014833.7500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 9442030.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 2364093.5000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 2151188.2500
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 5950524.5000
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 3718038.0000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 4292882.5000
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 1410339.6250
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 2364614.2500
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 4030599.7500
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 769us/step - loss: 2286830.7500
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 5208794.0000
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 762us/step - loss: 1973869.1250
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 5223526.5000
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 2732254.0000
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 793us/step - loss: 2012656.6250
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 2925326.7500
```

```
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 1506530.0000
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 3616269.5000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 874us/step - loss: 1772946.3750
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 4428792.0000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 1698291.8750
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 3071370.0000
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 16142241.0000
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 5114976.0000
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 2976243.5000
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 3099554.5000
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 3085114.2500
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 826us/step - loss: 3290202.5000
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 4192872.5000
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 3373769.5000
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 848us/step - loss: 2728080.5000
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 838us/step - loss: 5516522.0000
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 814us/step - loss: 2633710.7500
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 822us/step - loss: 4257417.5000
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 843us/step - loss: 9774226.0000
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 843us/step - loss: 6689888.5000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 841us/step - loss: 1590251.3750
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 871us/step - loss: 3003100.0000
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 803us/step - loss: 4779419.5000
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 813us/step - loss: 1888693.3750
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 2619538.2500
```

```
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 815us/step - loss: 2487489.7500
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 2696806.7500
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 2309414.7500
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 1756459.8750
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 2709828.2500
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 3801760.5000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 1424263.0000
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 1279584.0000
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 769us/step - loss: 2836729.2500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 760us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 763us/step - loss: 9165035.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 748us/step - loss: 2033518.2500
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 757us/step - loss: 4328719.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 756us/step - loss: 4403608.5000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 789us/step - loss: 2357149.7500
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 978us/step - loss: 3456085.2500
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 2225907.2500
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 3102479.7500
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 778us/step - loss: 4663217.0000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 770us/step - loss: 3676875.7500
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 773us/step - loss: 4220416.5000
```

```
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 1250288.1250
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 3217413.7500
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 2609703.7500
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 2782534.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 4227086.5000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 3049732.0000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 3412598.7500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 1638700.6250
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 6876588.5000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 772us/step - loss: 5074723.5000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 3487785.2500
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 3834541.7500
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 837us/step - loss: 6039657.5000
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 2248821.5000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 773us/step - loss: 5515920.5000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 5140093.0000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 4258107.5000
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 901us/step - loss: 2213755.7500
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 2846167.7500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 6516982.0000
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 4431191.5000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 768us/step - loss: 1314022.0000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 2736743.0000
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 784us/step - loss: 3009877.2500
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 811us/step - loss: 2466875.2500
```

```
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 2611824.2500
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 770us/step - loss: 2060430.2500
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 778us/step - loss: 3352488.7500
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 756us/step - loss: 2830716.7500
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 2292119.0000
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 9094331.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 773us/step - loss: 4331577.5000
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 5715379.5000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 3787711.7500
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 5381666.0000
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 5307378.0000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 776us/step - loss: 2589325.7500
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 3988515.5000
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 1247820.6250
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 802us/step - loss: 4715669.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 817us/step - loss: 1124262.1250
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 815us/step - loss: 1080430.6250
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 1008374.8125
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 1284610.6250
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 831us/step - loss: 1047629.0625
```

```
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 797us/step - loss: 1074820.8750
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 1028765.1875
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 820us/step - loss: 1044236.0000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 1061261.6250
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 819us/step - loss: 1122282.2500
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 794us/step - loss: 1109579.5000
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 804us/step - loss: 1045142.9375
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 798us/step - loss: 1019391.8125
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 1135262.7500
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 1104810.7500
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 792us/step - loss: 1014507.1875
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 796us/step - loss: 1024971.6250
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 781us/step - loss: 986828.7500
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 1077498.2500
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 1009501.4375
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 1046329.8750
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 844us/step - loss: 1013606.8125
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 812us/step - loss: 1015494.1250
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 1059878.0000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 1069777.3750
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 780us/step - loss: 1047150.6250
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 1104864.0000
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 1058318.1250
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 1027016.3750
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 1021600.8750
```

```
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 977623.3125
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 757us/step - loss: 997623.5625
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 725us/step - loss: 973477.0625
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 975946.9375
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 981395.0000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 773us/step - loss: 964335.3750
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 778us/step - loss: 1040209.6875
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 977443.5000
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 792us/step - loss: 1031233.0000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 945186.1875
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 1056419.1250
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 973564.7500
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 1010458.6250
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 841us/step - loss: 1028256.0000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 818us/step - loss: 985782.6250
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 838us/step - loss: 1036101.2500
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 1039115.8750
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 980479.7500
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 1087131.0000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 792us/step - loss: 7337689.0000
```

```
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 4846071.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 792us/step - loss: 3622313.2500
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 767us/step - loss: 3357867.7500
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 820us/step - loss: 3701240.5000
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 2374707.5000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 6986784.5000
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 4021051.2500
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 784us/step - loss: 2746368.5000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 4548144.0000
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 770us/step - loss: 4014896.2500
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 2694516.2500
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 789us/step - loss: 3657520.7500
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 780us/step - loss: 7502631.0000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 5204652.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 2436025.2500
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 897us/step - loss: 4505804.5000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 4485119.0000
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 794us/step - loss: 4613183.0000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 794us/step - loss: 4655992.0000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 4723000.0000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 7616532.0000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 800us/step - loss: 5252040.5000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 2999016.2500
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 756us/step - loss: 4630728.0000
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 840us/step - loss: 6475958.5000
```

```
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 810us/step - loss: 3825067.2500
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 835us/step - loss: 3703790.5000
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 885us/step - loss: 2334853.5000
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 6083082.0000
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 5066181.5000
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 747us/step - loss: 3196689.5000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 2632591.0000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 4410180.5000
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 2869368.5000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 6026307.0000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 790us/step - loss: 3328972.7500
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 794us/step - loss: 2090396.2500
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 2917991.5000
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 837us/step - loss: 3244510.0000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 1755204.2500
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 801us/step - loss: 2984454.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 2703758.5000
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 808us/step - loss: 1110743.3750
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 843us/step - loss: 1665845.8750
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 812us/step - loss: 2056055.6250
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 807us/step - loss: 3062966.2500
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 903us/step - loss: 3719162.2500
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 858us/step - loss: 5695873.0000
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 845us/step - loss: 3986396.7500
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 808us/step
Epoch 1/100
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 12274619.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 819us/step - loss: 12033888.0000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 755us/step - loss: 11114700.0000
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 747us/step - loss: 9438790.0000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 749us/step - loss: 11569729.0000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 8897879.0000
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 9588374.0000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 7602985.0000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 816us/step - loss: 7979218.0000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 829us/step - loss: 8419506.0000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 825us/step - loss: 6344706.0000
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 7737986.5000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 6633177.5000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 6772744.0000
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 3422456.7500
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 814us/step - loss: 5973161.0000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 2718081.2500
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 3899124.7500
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 2817571.7500
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 836us/step - loss: 3868645.0000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 860us/step - loss: 4131220.0000
```

```
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 2826565.2500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 817us/step - loss: 2770937.0000
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 808us/step - loss: 3913794.7500
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 771us/step - loss: 2826469.2500
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 5180385.0000
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 758us/step - loss: 2991892.2500
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 790us/step - loss: 3325918.0000
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 2446960.0000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 3862115.2500
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 766us/step - loss: 6279204.0000
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 5241521.0000
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 4304682.0000
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 3981652.7500
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 5446281.5000
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 4196383.5000
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 3230233.5000
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 11322196.0000
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step - loss: 6397478.5000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 2206943.0000
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 5310647.5000
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 3533741.2500
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 2953255.0000
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 5726724.5000
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 3840155.5000
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 3537918.0000
```

```
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 1917275.8750
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 5461323.5000
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 2073141.8750
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 3405201.2500
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 3721282.5000
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 4250258.5000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 3419059.7500
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 8759523.0000
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 2230481.0000
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 2716653.7500
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 5213279.0000
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 4518248.0000
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 3320806.0000
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 4632833.5000
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 2071142.8750
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 2578580.0000
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 2694383.0000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 4581557.5000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 1378212.6250
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 2032482.2500
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 1424782.6250
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 1247872.1250
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 5647828.5000
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 2172459.0000
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 1896432.1250
```

```
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 2333598.0000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 2235005.2500
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 4753983.5000
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 638us/step - loss: 5517461.5000
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 2068122.1250
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 8730417.0000
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 721us/step - loss: 2234615.2500
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 755us/step - loss: 2198044.5000
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 2664184.5000
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 2135350.0000
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 722us/step - loss: 2150126.7500
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 881us/step - loss: 3887956.0000
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 1884151.2500
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 738us/step - loss: 2705759.7500
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 3127094.2500
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 746us/step - loss: 2642615.7500
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 3483273.2500
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 3740537.5000
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 2297976.2500
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 2046415.1250
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 771us/step - loss: 5864555.0000
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 1860817.8750
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 2461115.5000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 1373219.7500
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 6050567.5000
```

```
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 3568192.2500
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 3517527.0000
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 4514894.0000
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 3180207.7500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 9422787.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 9319023.0000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 8939532.0000
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 8583832.0000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 8144647.5000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 7599492.0000
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 7131357.0000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 6761496.0000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 6348718.5000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 6117714.5000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 5922555.5000
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 5697568.0000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 5481348.5000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 5263566.0000
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 5046402.0000
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 4737172.0000
```

```
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 4623877.0000
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 4046232.5000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 3740191.5000
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 3366138.0000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 2860874.2500
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 2408562.7500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 2049014.6250
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1764618.2500
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1536663.1250
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1319299.3750
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1139520.8750
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1202404.2500
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 1078332.6250
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1141209.7500
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 1080638.0000
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1059667.2500
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1115996.7500
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1066527.1250
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 1046973.7500
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1093133.5000
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1034506.5625
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1035729.0000
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 1097457.1250
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1033631.9375
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 758us/step - loss: 1166719.5000
```

```
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1042830.7500
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1120001.2500
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1075896.1250
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1074427.8750
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 1095801.6250
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1055801.7500
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1140826.6250
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 643us/step - loss: 1090634.5000
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1063876.8750
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 1043881.6875
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1068805.0000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 1016113.1250
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 1044099.1250
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1080428.2500
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1147114.7500
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1064911.7500
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 1066468.6250
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 1074184.7500
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 1056941.0000
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 1157055.3750
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1018633.1875
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 702us/step - loss: 1037452.5000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1043947.0000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 1059677.1250
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 1025413.6875
```

```
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1046540.0000
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 1113912.7500
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 1138425.3750
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 1070175.2500
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 1128923.3750
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 1084031.7500
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1047260.0625
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 1039853.5000
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 1108992.7500
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 1065098.5000
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 1032959.3125
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 1061256.2500
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 992461.7500
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 663us/step - loss: 1022835.3750
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1047739.6875
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 1008899.8750
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1029144.3750
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 1064796.2500
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1050496.3750
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1107765.8750
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1033975.0000
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1027448.7500
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 1078270.3750
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 659us/step - loss: 1046878.6250
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1136344.0000
```

```
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 657us/step - loss: 1077111.7500
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 1067698.2500
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 1076270.5000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 691us/step - loss: 1041585.4375
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1071160.1250
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 659us/step - loss: 1072569.0000
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1059779.8750
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 1076633.1250
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1035973.5000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 638us/step - loss: 11227077.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 11222987.0000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 627us/step - loss: 14109442.0000
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 10880574.0000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 643us/step - loss: 11378397.0000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 9145911.0000
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 636us/step - loss: 7824370.0000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 14455218.0000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 644us/step - loss: 8831781.0000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 8070247.0000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 6392666.5000
```

```
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 10093037.0000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 8177496.5000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 632us/step - loss: 8561039.0000
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step - loss: 6031419.5000
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 11857156.0000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 6244367.0000
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 644us/step - loss: 11525276.0000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step - loss: 3821303.7500
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 9563736.0000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 3465006.0000
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 4614322.5000
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 649us/step - loss: 4413298.0000
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 2852823.2500
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 1740634.3750
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 5174166.0000
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 9500324.0000
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 634us/step - loss: 3942093.0000
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 629us/step - loss: 5641268.5000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 614us/step - loss: 5592529.5000
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 2726269.5000
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 629us/step - loss: 4674487.5000
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 626us/step - loss: 5194443.0000
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 641us/step - loss: 5767658.0000
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 629us/step - loss: 8259140.0000
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 1775938.7500
```

```
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 3698218.7500
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 663us/step - loss: 3357585.7500
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 6920110.0000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 7778907.5000
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 643us/step - loss: 5017750.0000
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 4904081.5000
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 4899789.0000
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 4944649.0000
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 2455992.5000
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 670us/step - loss: 7881675.0000
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 644us/step - loss: 3433396.0000
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 616us/step - loss: 3375424.0000
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 4471856.0000
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 9793699.0000
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 2499154.0000
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 607us/step - loss: 1390996.1250
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 3541225.2500
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 632us/step - loss: 3589201.5000
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 600us/step - loss: 10306212.0000
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 605us/step - loss: 6341940.5000
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 658us/step - loss: 3002623.7500
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 657us/step - loss: 4821292.5000
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 1885701.6250
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 608us/step - loss: 4555822.0000
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 4511719.5000
```

```
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 3412599.2500
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 7695862.5000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 605us/step - loss: 4182829.0000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 3345027.2500
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 670us/step - loss: 3682628.0000
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 628us/step - loss: 5561115.5000
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 644us/step - loss: 2675355.5000
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 629us/step - loss: 2542761.7500
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 654us/step - loss: 1599149.2500
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 5573308.5000
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 616us/step - loss: 2811579.0000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 3222979.2500
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 2500680.5000
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 601us/step - loss: 6196471.5000
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 6063012.0000
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 627us/step - loss: 9765900.0000
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 3640505.0000
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 611us/step - loss: 2069790.0000
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 612us/step - loss: 6342876.0000
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step - loss: 3542475.7500
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 609us/step - loss: 5935165.0000
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 608us/step - loss: 2233988.5000
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 622us/step - loss: 3852311.7500
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 612us/step - loss: 6048845.5000
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 2404944.0000
```

```
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 4234534.5000
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 7335539.5000
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 5690713.5000
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 629us/step - loss: 4219930.0000
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 602us/step - loss: 2871875.0000
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 609us/step - loss: 2358532.7500
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 611us/step - loss: 1482917.2500
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 3324223.5000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 621us/step - loss: 2912479.0000
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 633us/step - loss: 5956584.5000
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 631us/step - loss: 5774515.0000
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 628us/step - loss: 2949848.2500
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 617us/step - loss: 2676090.0000
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 618us/step - loss: 1814331.3750
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 625us/step - loss: 9030847.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 631us/step - loss: 6973818.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 631us/step - loss: 4058446.0000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 630us/step - loss: 2978883.7500
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 630us/step - loss: 4071114.7500
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 634us/step - loss: 2836112.5000
```

```
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 620us/step - loss: 3147102.2500
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 630us/step - loss: 2963694.0000
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 620us/step - loss: 2790396.7500
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 626us/step - loss: 3872015.7500
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 621us/step - loss: 1678529.3750
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 4103715.7500
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 4463583.5000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 620us/step - loss: 2488403.2500
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 624us/step - loss: 4497307.0000
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 632us/step - loss: 7117512.5000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 631us/step - loss: 2402176.5000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 2735291.2500
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 635us/step - loss: 2242254.5000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 621us/step - loss: 2313301.2500
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 628us/step - loss: 2909158.2500
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 629us/step - loss: 6030556.0000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 622us/step - loss: 7654817.5000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 3016869.7500
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 707us/step - loss: 3197601.7500
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 2103597.0000
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 4912729.5000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 699us/step - loss: 1742668.6250
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 4838113.5000
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 1439453.7500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 7843301.5000
```

```
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 8986550.0000
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 6472256.5000
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 2386003.2500
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 3022656.5000
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 1887240.0000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 2971353.0000
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 5690362.5000
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 671us/step - loss: 8692259.0000
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 2340687.2500
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1929215.6250
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 9187110.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 690us/step - loss: 1492656.2500
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 668us/step - loss: 4275896.0000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 8995102.0000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 2218421.5000
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 3398479.7500
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 5060624.5000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 4846827.5000
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 669us/step - loss: 1872080.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 696us/step - loss: 7903006.0000
```

```
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 1869098.8750
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1372112.5000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 696us/step - loss: 1145127.6250
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 699us/step - loss: 1103150.6250
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 1129500.8750
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 1023451.0625
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 1166932.8750
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 1072364.8750
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 1066124.6250
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 1076726.2500
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1138104.1250
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 1027936.5000
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1021395.4375
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 1048856.2500
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 1156782.0000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 1013074.7500
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 1026932.9375
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 1008221.1875
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 673us/step - loss: 1063862.5000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 1076875.5000
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 1007616.0625
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 1059427.1250
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 1021679.0625
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 735us/step - loss: 1020299.8125
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 1006291.5625
```

```
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 702us/step - loss: 1062075.1250
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 980938.1875
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 988319.8750
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 983771.7500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 707us/step - loss: 985061.6250
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 717us/step - loss: 1017602.0625
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 772us/step - loss: 987957.3125
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 1111930.1250
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 759us/step - loss: 1047519.8125
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 714us/step - loss: 1064449.0000
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 1087245.2500
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 738us/step - loss: 1021130.3750
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 746us/step - loss: 948064.5625
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 1081870.7500
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 1066210.0000
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 727us/step - loss: 1099655.7500
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 1024291.2500
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 1060354.5000
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 1023054.6875
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 1008792.3125
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 727us/step - loss: 984210.3125
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 1100606.5000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 709us/step - loss: 973548.4375
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 713us/step - loss: 1043468.1875
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step
Epoch 1/50
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 698us/step - loss: 8702978.0000
Epoch 2/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 712us/step - loss: 5363195.5000
Epoch 3/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 3333026.5000
Epoch 4/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 5008185.0000
Epoch 5/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 1975319.2500
Epoch 6/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 3100697.0000
Epoch 7/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 648us/step - loss: 4131083.2500
Epoch 8/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 652us/step - loss: 4508520.0000
Epoch 9/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 640us/step - loss: 2947926.5000
Epoch 10/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 632us/step - loss: 1593634.7500
Epoch 11/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 7074833.0000
Epoch 12/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 619us/step - loss: 1645489.1250
Epoch 13/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 606us/step - loss: 2315144.7500
Epoch 14/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 585us/step - loss: 8542773.0000
Epoch 15/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 628us/step - loss: 2791695.7500
Epoch 16/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 632us/step - loss: 2357128.0000
Epoch 17/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 639us/step - loss: 1943262.5000
Epoch 18/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 656us/step - loss: 1993866.5000
Epoch 19/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 598us/step - loss: 2271575.5000
Epoch 20/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 612us/step - loss: 2075454.0000
Epoch 21/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 806us/step - loss: 3036783.7500
```

```
Epoch 22/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 2929011.5000
Epoch 23/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 5427997.5000
Epoch 24/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 5s 2ms/step - loss: 7064016.0000
Epoch 25/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 4084045.2500
Epoch 26/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 605us/step - loss: 3111707.2500
Epoch 27/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 586us/step - loss: 5854174.0000
Epoch 28/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 582us/step - loss: 2846165.5000
Epoch 29/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 578us/step - loss: 1308786.0000
Epoch 30/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 591us/step - loss: 3360442.2500
Epoch 31/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 581us/step - loss: 3415461.7500
Epoch 32/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 2966728.2500
Epoch 33/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 3371343.7500
Epoch 34/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 3552755.0000
Epoch 35/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 1373012.6250
Epoch 36/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 3893236.2500
Epoch 37/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 1834520.7500
Epoch 38/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 5825961.0000
Epoch 39/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 714us/step - loss: 7408526.5000
Epoch 40/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 891us/step - loss: 6741097.5000
Epoch 41/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 1198862.5000
Epoch 42/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 714us/step - loss: 2907297.0000
Epoch 43/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 773us/step - loss: 5062499.5000
Epoch 44/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 711us/step - loss: 1628311.8750
Epoch 45/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 733us/step - loss: 2858145.5000
Epoch 46/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 865us/step - loss: 2371674.2500
```

```
Epoch 47/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 2942747.5000
Epoch 48/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 761us/step - loss: 3115113.5000
Epoch 49/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 746us/step - loss: 3388145.5000
Epoch 50/50
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 752us/step - loss: 4400225.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 3s 880us/step - loss: 4844629.5000
Epoch 2/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 844us/step - loss: 2750421.2500
Epoch 3/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 818us/step - loss: 5640535.0000
Epoch 4/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 828us/step - loss: 6171780.5000
Epoch 5/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 859us/step - loss: 5641629.5000
Epoch 6/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 906us/step - loss: 3471756.0000
Epoch 7/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 895us/step - loss: 3407775.7500
Epoch 8/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 1ms/step - loss: 5255645.0000
Epoch 9/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 900us/step - loss: 2929963.5000
Epoch 10/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 836us/step - loss: 4213952.5000
Epoch 11/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 807us/step - loss: 2459308.5000
Epoch 12/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 812us/step - loss: 1578157.5000
Epoch 13/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 827us/step - loss: 1817265.0000
Epoch 14/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 824us/step - loss: 1216985.0000
Epoch 15/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 828us/step - loss: 4071654.0000
Epoch 16/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 828us/step - loss: 1993957.3750
```

```
Epoch 17/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 819us/step - loss: 2846669.5000
Epoch 18/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 827us/step - loss: 4023826.2500
Epoch 19/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 839us/step - loss: 1998819.7500
Epoch 20/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 825us/step - loss: 2832338.0000
Epoch 21/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 2735012.0000
Epoch 22/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 826us/step - loss: 2507597.2500
Epoch 23/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 825us/step - loss: 2116051.2500
Epoch 24/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 823us/step - loss: 2525397.5000
Epoch 25/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 4613393.0000
Epoch 26/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 832us/step - loss: 4030424.0000
Epoch 27/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 826us/step - loss: 2207191.2500
Epoch 28/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 822us/step - loss: 3550770.5000
Epoch 29/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 2822949.0000
Epoch 30/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 830us/step - loss: 9522622.0000
Epoch 31/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 838us/step - loss: 6948918.5000
Epoch 32/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 825us/step - loss: 2203450.5000
Epoch 33/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 811us/step - loss: 8594924.0000
Epoch 34/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 825us/step - loss: 2380744.0000
Epoch 35/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 1792836.8750
Epoch 36/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 2339760.0000
Epoch 37/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 809us/step - loss: 3754248.7500
Epoch 38/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 810us/step - loss: 2888714.2500
Epoch 39/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 812us/step - loss: 4671683.5000
Epoch 40/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 821us/step - loss: 1517481.8750
Epoch 41/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 4758173.5000
```

```
Epoch 42/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 816us/step - loss: 2553861.0000
Epoch 43/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 802us/step - loss: 2159456.2500
Epoch 44/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 4821010.5000
Epoch 45/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 3010578.0000
Epoch 46/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 778us/step - loss: 4587620.5000
Epoch 47/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 1388008.6250
Epoch 48/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 3161417.0000
Epoch 49/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 5983433.0000
Epoch 50/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 804us/step - loss: 3972185.5000
Epoch 51/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 800us/step - loss: 1789097.6250
Epoch 52/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 3310271.2500
Epoch 53/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 3127877.2500
Epoch 54/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 2993941.2500
Epoch 55/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 800us/step - loss: 2879946.5000
Epoch 56/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 796us/step - loss: 4155168.2500
Epoch 57/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 3109233.5000
Epoch 58/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 791us/step - loss: 3712921.0000
Epoch 59/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 799us/step - loss: 4056351.0000
Epoch 60/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 8128884.0000
Epoch 61/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 3356726.0000
Epoch 62/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 1775516.2500
Epoch 63/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 2397670.7500
Epoch 64/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 2135613.0000
Epoch 65/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 3627948.2500
Epoch 66/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 1649796.5000
```

```
Epoch 67/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 1782323.5000
Epoch 68/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 2169153.2500
Epoch 69/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 793us/step - loss: 4847443.0000
Epoch 70/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 769us/step - loss: 1472192.3750
Epoch 71/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 4942412.5000
Epoch 72/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 3659539.7500
Epoch 73/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 795us/step - loss: 1703489.8750
Epoch 74/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 3765408.0000
Epoch 75/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 8383034.0000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 760us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 3683946.2500
Epoch 2/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 1075651.8750
Epoch 3/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 748us/step - loss: 1110545.5000
Epoch 4/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 766us/step - loss: 1073378.6250
Epoch 5/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 752us/step - loss: 1061453.7500
Epoch 6/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 771us/step - loss: 1153998.8750
Epoch 7/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 1026519.4375
Epoch 8/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 1000361.5000
Epoch 9/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 1043493.1875
Epoch 10/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 761us/step - loss: 1043037.0000
Epoch 11/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 752us/step - loss: 975130.3125
```

```
Epoch 12/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 1037481.3125
Epoch 13/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 762us/step - loss: 1046365.0000
Epoch 14/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 764us/step - loss: 1072446.6250
Epoch 15/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 749us/step - loss: 941286.6875
Epoch 16/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 762us/step - loss: 1058817.5000
Epoch 17/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 754us/step - loss: 986729.9375
Epoch 18/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 1039086.9375
Epoch 19/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 764us/step - loss: 967159.5000
Epoch 20/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 1066632.7500
Epoch 21/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 1018717.1875
Epoch 22/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 761us/step - loss: 1041690.3125
Epoch 23/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 822us/step - loss: 1037099.2500
Epoch 24/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 806us/step - loss: 976311.6875
Epoch 25/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 890us/step - loss: 1012154.6250
Epoch 26/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 812us/step - loss: 1003675.5625
Epoch 27/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 802us/step - loss: 1075197.8750
Epoch 28/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 814us/step - loss: 1003410.6250
Epoch 29/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 1000711.4375
Epoch 30/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 831us/step - loss: 982900.1875
Epoch 31/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 1129749.0000
Epoch 32/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 820us/step - loss: 1010507.5625
Epoch 33/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 806us/step - loss: 964579.0000
Epoch 34/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 980us/step - loss: 1009200.7500
Epoch 35/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 1002389.1875
Epoch 36/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 813us/step - loss: 932634.5000
```

```
Epoch 37/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 1083975.1250
Epoch 38/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 807us/step - loss: 1084946.6250
Epoch 39/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 943us/step - loss: 1039364.7500
Epoch 40/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 865us/step - loss: 987329.1250
Epoch 41/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 788us/step - loss: 1062301.0000
Epoch 42/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 881us/step - loss: 944248.0625
Epoch 43/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 829us/step - loss: 1055458.1250
Epoch 44/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 1072983.5000
Epoch 45/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 985579.5000
Epoch 46/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 1024445.2500
Epoch 47/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 1034295.8750
Epoch 48/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 1088552.5000
Epoch 49/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 975337.5000
Epoch 50/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 854us/step - loss: 991730.0625
Epoch 51/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 812us/step - loss: 1120658.2500
Epoch 52/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 953us/step - loss: 1057544.2500
Epoch 53/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 952488.0625
Epoch 54/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 798us/step - loss: 1076009.7500
Epoch 55/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 825us/step - loss: 962652.9375
Epoch 56/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 821us/step - loss: 987620.0625
Epoch 57/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 1048442.0625
Epoch 58/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 870us/step - loss: 972323.1875
Epoch 59/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 857us/step - loss: 1030413.7500
Epoch 60/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 802us/step - loss: 1080495.1250
Epoch 61/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 750us/step - loss: 1001904.6250
```

```
Epoch 62/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 954964.5625
Epoch 63/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 770us/step - loss: 959824.9375
Epoch 64/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 818us/step - loss: 1003859.4375
Epoch 65/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 808us/step - loss: 1045799.0000
Epoch 66/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 934us/step - loss: 1008261.6875
Epoch 67/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 881us/step - loss: 1000301.4375
Epoch 68/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 872us/step - loss: 1017884.8125
Epoch 69/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 822us/step - loss: 1070662.6250
Epoch 70/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 879us/step - loss: 980047.3750
Epoch 71/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 828us/step - loss: 981612.1875
Epoch 72/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 806us/step - loss: 953549.5625
Epoch 73/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 989525.8125
Epoch 74/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 831us/step - loss: 979630.1875
Epoch 75/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 852us/step - loss: 991649.6250
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 3s 933us/step - loss: 5999087.0000
Epoch 2/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 865us/step - loss: 5085270.0000
Epoch 3/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 860us/step - loss: 2472662.2500
Epoch 4/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 864us/step - loss: 1593994.5000
Epoch 5/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 858us/step - loss: 2995349.2500
Epoch 6/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 856us/step - loss: 2478643.5000
```

```
Epoch 7/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 851us/step - loss: 1707948.0000
Epoch 8/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 836us/step - loss: 1612782.8750
Epoch 9/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 904us/step - loss: 4591850.0000
Epoch 10/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 809us/step - loss: 2219976.2500
Epoch 11/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 2500148.7500
Epoch 12/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 2565912.5000
Epoch 13/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 758us/step - loss: 3778017.5000
Epoch 14/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 774us/step - loss: 3712879.2500
Epoch 15/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 6695395.5000
Epoch 16/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step - loss: 6102009.5000
Epoch 17/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 4407490.0000
Epoch 18/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 2582281.7500
Epoch 19/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 4490732.0000
Epoch 20/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 756us/step - loss: 3621895.0000
Epoch 21/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 7295946.5000
Epoch 22/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 749us/step - loss: 2947729.7500
Epoch 23/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 5208984.5000
Epoch 24/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 724us/step - loss: 3215066.2500
Epoch 25/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 722us/step - loss: 3474307.7500
Epoch 26/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 2470748.5000
Epoch 27/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 3512272.5000
Epoch 28/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 721us/step - loss: 1713861.2500
Epoch 29/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 820us/step - loss: 3546010.5000
Epoch 30/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 760us/step - loss: 9243668.0000
Epoch 31/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 738us/step - loss: 4733049.5000
```

```
Epoch 32/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 4516542.0000
Epoch 33/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 722us/step - loss: 5859418.5000
Epoch 34/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 3095486.0000
Epoch 35/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step - loss: 2901292.5000
Epoch 36/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 1409801.8750
Epoch 37/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 6930408.5000
Epoch 38/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step - loss: 5448278.0000
Epoch 39/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step - loss: 3874453.2500
Epoch 40/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step - loss: 6539328.0000
Epoch 41/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 2079752.2500
Epoch 42/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 5814644.5000
Epoch 43/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 2752702.2500
Epoch 44/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 737us/step - loss: 3456343.2500
Epoch 45/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step - loss: 3500195.2500
Epoch 46/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 4537296.0000
Epoch 47/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 6068367.0000
Epoch 48/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 6120682.5000
Epoch 49/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 3699141.5000
Epoch 50/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 2573124.7500
Epoch 51/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 1853773.7500
Epoch 52/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 3258965.5000
Epoch 53/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 3408730.7500
Epoch 54/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 1519656.1250
Epoch 55/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 5342463.5000
Epoch 56/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 722us/step - loss: 1247096.2500
```

```
Epoch 57/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 3254762.7500
Epoch 58/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step - loss: 2464863.7500
Epoch 59/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 770us/step - loss: 3372573.5000
Epoch 60/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 2677971.7500
Epoch 61/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 2276292.2500
Epoch 62/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 2889071.2500
Epoch 63/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 4005723.0000
Epoch 64/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 6023471.0000
Epoch 65/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 2982514.7500
Epoch 66/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 2522149.0000
Epoch 67/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 5372811.5000
Epoch 68/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step - loss: 2388412.7500
Epoch 69/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 720us/step - loss: 1900401.7500
Epoch 70/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 1674826.5000
Epoch 71/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 11174396.0000
Epoch 72/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 1367040.6250
Epoch 73/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 4457808.5000
Epoch 74/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 10356080.0000
Epoch 75/75
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 2841675.7500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 11202031.0000
```

```
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 6608467.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 6549660.0000
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 646us/step - loss: 5462528.5000
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 4900520.0000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 3171758.7500
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 721us/step - loss: 2344292.5000
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 2415104.0000
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 4352309.0000
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 760us/step - loss: 2928206.5000
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 4001611.5000
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 5087152.5000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 4093710.5000
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 1491775.2500
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 3497553.5000
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 2860510.0000
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 5970602.0000
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 2467963.5000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 607us/step - loss: 2841114.5000
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 3686283.5000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 4541083.5000
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 624us/step - loss: 1923319.8750
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 632us/step - loss: 4093067.0000
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 3565877.0000
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 5180738.5000
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 2141156.5000
```

```
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 4920071.0000
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 2379463.5000
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 2956452.7500
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 2037397.0000
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 632us/step - loss: 2064018.6250
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 5334037.0000
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 3628426.5000
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 658us/step - loss: 1677164.3750
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 629us/step - loss: 2219927.2500
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 636us/step - loss: 3850065.5000
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 3107392.0000
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 738us/step - loss: 3617833.5000
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 4260071.5000
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 4119409.7500
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 649us/step - loss: 3815171.2500
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 3321403.5000
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 617us/step - loss: 2570034.2500
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 616us/step - loss: 1981958.5000
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 609us/step - loss: 2384545.7500
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 606us/step - loss: 3166013.7500
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 605us/step - loss: 2990858.0000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 623us/step - loss: 4401684.5000
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 2871653.5000
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 647us/step - loss: 2811980.0000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step
Epoch 1/50
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 614us/step - loss: 9213145.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 6316014.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 612us/step - loss: 3211448.5000
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 615us/step - loss: 1968879.1250
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 608us/step - loss: 1550680.2500
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 611us/step - loss: 1483225.6250
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 607us/step - loss: 1241532.0000
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 1108361.3750
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 1195762.1250
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 635us/step - loss: 1119954.3750
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 619us/step - loss: 1072244.6250
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 603us/step - loss: 1066631.5000
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 604us/step - loss: 1077464.0000
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 606us/step - loss: 1069837.3750
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 605us/step - loss: 1133208.7500
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 598us/step - loss: 1101133.7500
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 607us/step - loss: 1039976.1875
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 604us/step - loss: 1067649.6250
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 630us/step - loss: 1006947.7500
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 620us/step - loss: 1050134.5000
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 605us/step - loss: 975675.8125
```

```
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 1017750.9375
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 1049250.1250
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 1029736.0000
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 1000928.5000
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 1084623.3750
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 1120751.7500
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 1063215.5000
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 1035239.5000
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 648us/step - loss: 1011668.8750
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 1046395.1250
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 614us/step - loss: 1063619.6250
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 607us/step - loss: 1058302.6250
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 994079.8125
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 594us/step - loss: 1224269.8750
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 602us/step - loss: 1025493.6875
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 597us/step - loss: 1022796.4375
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 599us/step - loss: 1006493.8125
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 605us/step - loss: 1011358.6250
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 628us/step - loss: 1034769.3750
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 602us/step - loss: 1008594.8750
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 596us/step - loss: 998580.8750
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 607us/step - loss: 1024774.7500
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 607us/step - loss: 1019105.0000
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 600us/step - loss: 1054008.1250
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 601us/step - loss: 1053292.6250
```

```
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 600us/step - loss: 980244.5000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 640us/step - loss: 1024499.9375
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1026744.6250
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 1027996.3125
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step
Epoch 1/50
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 717us/step - loss: 11977621.0000
Epoch 2/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 738us/step - loss: 7107779.0000
Epoch 3/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 728us/step - loss: 11504479.0000
Epoch 4/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 5405136.5000
Epoch 5/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 7189919.0000
Epoch 6/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 3330457.0000
Epoch 7/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 4057460.2500
Epoch 8/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 3462551.5000
Epoch 9/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 4242916.5000
Epoch 10/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 6818706.0000
Epoch 11/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 4534213.0000
Epoch 12/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 4019530.2500
Epoch 13/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 2030080.8750
Epoch 14/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 8310605.0000
Epoch 15/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 3627046.0000
Epoch 16/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 5564734.5000
```

```
Epoch 17/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 2981060.7500
Epoch 18/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 813us/step - loss: 4691208.5000
Epoch 19/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 920us/step - loss: 8197304.5000
Epoch 20/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 3116574.2500
Epoch 21/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 3631206.0000
Epoch 22/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 4335153.5000
Epoch 23/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 4715066.5000
Epoch 24/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 3451754.2500
Epoch 25/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 3538611.7500
Epoch 26/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 3396306.5000
Epoch 27/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1671155.7500
Epoch 28/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 4965557.0000
Epoch 29/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 1497174.7500
Epoch 30/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 3520732.2500
Epoch 31/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 889us/step - loss: 4309585.5000
Epoch 32/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 809us/step - loss: 2450087.2500
Epoch 33/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step - loss: 3715240.2500
Epoch 34/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 4893681.0000
Epoch 35/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 819us/step - loss: 7027056.5000
Epoch 36/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 3902372.7500
Epoch 37/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 749us/step - loss: 10130610.0000
Epoch 38/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 721us/step - loss: 2718595.7500
Epoch 39/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 759us/step - loss: 4766763.0000
Epoch 40/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 2012704.8750
Epoch 41/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 823us/step - loss: 2784698.0000
```

```
Epoch 42/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 5223414.5000
Epoch 43/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 671us/step - loss: 1659170.7500
Epoch 44/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 651us/step - loss: 3347750.2500
Epoch 45/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 5605495.5000
Epoch 46/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 4630617.0000
Epoch 47/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 3414572.5000
Epoch 48/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 650us/step - loss: 3717971.2500
Epoch 49/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 645us/step - loss: 3599813.2500
Epoch 50/50
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 2898215.2500
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 645us/step - loss: 12379683.0000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 11052682.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 797us/step - loss: 12549087.0000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 9053938.0000
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 666us/step - loss: 7656162.5000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 630us/step - loss: 8206866.0000
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 654us/step - loss: 4379467.5000
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 632us/step - loss: 2258839.0000
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 617us/step - loss: 4111653.7500
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 664us/step - loss: 3179506.7500
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 2926409.2500
```

```
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 5383764.0000
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 5508081.5000
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 1751373.6250
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 713us/step - loss: 1546421.7500
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 7198283.5000
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 4191472.7500
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 712us/step - loss: 1652173.2500
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 2849936.0000
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 654us/step - loss: 5182124.5000
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 619us/step - loss: 2581263.0000
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 617us/step - loss: 2285209.7500
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 603us/step - loss: 1679334.5000
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 595us/step - loss: 3498116.7500
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 597us/step - loss: 3079120.7500
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 598us/step - loss: 2496741.5000
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 603us/step - loss: 4884040.0000
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 596us/step - loss: 7090606.0000
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 603us/step - loss: 3515961.5000
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 597us/step - loss: 2385424.2500
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 597us/step - loss: 1817242.5000
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 604us/step - loss: 2799800.0000
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 607us/step - loss: 2033210.0000
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 602us/step - loss: 2021484.0000
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 607us/step - loss: 2358369.7500
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 595us/step - loss: 4566732.5000
```

```
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 594us/step - loss: 4653670.0000
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 622us/step - loss: 1826955.3750
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 597us/step - loss: 2891247.7500
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 596us/step - loss: 2465244.2500
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 602us/step - loss: 3830453.7500
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 595us/step - loss: 2709540.0000
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 588us/step - loss: 3854576.0000
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 593us/step - loss: 3400906.5000
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 595us/step - loss: 2127916.2500
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 587us/step - loss: 4852757.5000
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 593us/step - loss: 1645957.8750
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 592us/step - loss: 2948489.0000
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 589us/step - loss: 3108819.7500
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 603us/step - loss: 3731367.5000
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 604us/step - loss: 3331118.0000
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 593us/step - loss: 2048618.3750
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 593us/step - loss: 1339010.2500
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 595us/step - loss: 3162644.7500
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 590us/step - loss: 3021160.7500
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 595us/step - loss: 1897297.1250
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 598us/step - loss: 2183288.7500
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 594us/step - loss: 1963530.7500
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 605us/step - loss: 3242037.7500
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 605us/step - loss: 6935931.5000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 613us/step - loss: 1548037.6250
```

```
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 590us/step - loss: 1637323.1250
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 586us/step - loss: 4617897.0000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 587us/step - loss: 3708456.5000
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 591us/step - loss: 4297066.5000
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 587us/step - loss: 3444125.5000
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 597us/step - loss: 3467918.2500
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 612us/step - loss: 2799654.0000
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 598us/step - loss: 4693418.5000
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 588us/step - loss: 4602928.0000
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 631us/step - loss: 3855944.0000
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 2465846.5000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 707us/step - loss: 3499945.7500
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 1228056.6250
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 759us/step - loss: 4882856.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 848us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 688us/step - loss: 9342913.0000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 8258416.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 695us/step - loss: 6388616.5000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 728us/step - loss: 4898254.0000
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 727us/step - loss: 3635973.0000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 805us/step - loss: 2612351.0000
```

```
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 1742274.3750
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 1440417.1250
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 717us/step - loss: 1291210.8750
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 727us/step - loss: 1287849.8750
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 738us/step - loss: 1284748.1250
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 760us/step - loss: 1281404.5000
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 680us/step - loss: 1184485.1250
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 720us/step - loss: 1141145.2500
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 733us/step - loss: 1194001.6250
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 742us/step - loss: 1141388.3750
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 713us/step - loss: 1121514.0000
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 707us/step - loss: 1122986.0000
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 1082176.2500
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 735us/step - loss: 1133025.2500
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 687us/step - loss: 1188197.2500
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 1147721.5000
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 1144004.5000
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 743us/step - loss: 1119313.6250
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 1139405.2500
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 1131141.6250
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 1038351.1250
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 718us/step - loss: 1082929.3750
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 1055232.1250
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 1063053.6250
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 739us/step - loss: 1017621.4375
```

```
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 729us/step - loss: 1256240.3750
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 698us/step - loss: 1113485.1250
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 708us/step - loss: 1121247.1250
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 720us/step - loss: 1031498.0625
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 775us/step - loss: 1132145.6250
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 1015307.9375
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 717us/step - loss: 1031624.4375
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 706us/step - loss: 1038811.7500
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 719us/step - loss: 1056232.0000
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 710us/step - loss: 1013661.3750
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 694us/step - loss: 1080152.2500
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 692us/step - loss: 1074928.2500
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 758us/step - loss: 1015800.0000
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 744us/step - loss: 1036218.0000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 714us/step - loss: 1070511.5000
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 703us/step - loss: 1088744.0000
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 1060037.7500
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 834us/step - loss: 1079766.0000
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 782us/step - loss: 1111910.7500
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 772us/step - loss: 1046755.3125
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 1063081.1250
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 820us/step - loss: 1060473.1250
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 735us/step - loss: 1059753.1250
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 1106170.3750
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 742us/step - loss: 1084928.8750
```

```
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 1075604.6250
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 685us/step - loss: 1021788.7500
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 654us/step - loss: 1023983.8750
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 688us/step - loss: 1094849.7500
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 675us/step - loss: 1067639.7500
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 683us/step - loss: 988965.4375
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 1137796.5000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 744us/step - loss: 1068861.3750
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 679us/step - loss: 1113211.1250
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 1106963.0000
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1109595.7500
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 1148743.8750
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 654us/step - loss: 1028967.2500
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 678us/step - loss: 1029717.9375
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 684us/step - loss: 1068341.3750
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 657us/step - loss: 1124838.3750
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 676us/step - loss: 1096300.5000
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 654us/step - loss: 1116068.7500
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 671us/step - loss: 993803.5625
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 669us/step - loss: 11910093.0000
```

```
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 666us/step - loss: 11206054.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 667us/step - loss: 7890180.0000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 644us/step - loss: 8370463.0000
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 8326370.5000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 645us/step - loss: 5722647.5000
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 660us/step - loss: 3205245.5000
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 637us/step - loss: 2615072.5000
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 654us/step - loss: 3422043.5000
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 630us/step - loss: 4862508.0000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 656us/step - loss: 3250696.0000
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 656us/step - loss: 7691437.5000
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 693us/step - loss: 2542144.2500
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 663us/step - loss: 3110197.5000
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 677us/step - loss: 2863890.7500
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 701us/step - loss: 2912711.5000
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 686us/step - loss: 3635423.0000
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 672us/step - loss: 4090529.2500
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 657us/step - loss: 5282118.0000
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 784us/step - loss: 1937045.8750
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 670us/step - loss: 1556987.6250
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 660us/step - loss: 4391642.5000
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 653us/step - loss: 7686470.5000
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 634us/step - loss: 1817755.8750
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 627us/step - loss: 1631280.0000
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 645us/step - loss: 2424742.2500
```

```
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 644us/step - loss: 2429507.2500
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 626us/step - loss: 7172006.0000
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 624us/step - loss: 7098631.5000
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 619us/step - loss: 4499655.5000
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 634us/step - loss: 1599146.0000
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 643us/step - loss: 10559659.0000
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 665us/step - loss: 4826379.0000
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 2236636.0000
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 639us/step - loss: 4129342.7500
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 623us/step - loss: 2352080.0000
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 609us/step - loss: 3435783.0000
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 626us/step - loss: 1499279.2500
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 622us/step - loss: 5741977.5000
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 646us/step - loss: 8973276.0000
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 634us/step - loss: 2970714.5000
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 628us/step - loss: 5714822.0000
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 616us/step - loss: 3928320.7500
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 634us/step - loss: 3538270.7500
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 617us/step - loss: 1410087.7500
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 607us/step - loss: 1887844.1250
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 634us/step - loss: 1841641.7500
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 624us/step - loss: 1434568.5000
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 626us/step - loss: 3622341.5000
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 621us/step - loss: 3554824.5000
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 611us/step - loss: 2103969.7500
```

```
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 603us/step - loss: 1807944.0000
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 605us/step - loss: 3931278.2500
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 606us/step - loss: 1724994.0000
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 616us/step - loss: 6173313.5000
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 611us/step - loss: 4934876.5000
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 670us/step - loss: 2864753.0000
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 604us/step - loss: 3262595.2500
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 603us/step - loss: 1721443.6250
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 601us/step - loss: 6180295.5000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 600us/step - loss: 9014298.0000
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 613us/step - loss: 7300288.5000
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 616us/step - loss: 4827008.5000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 616us/step - loss: 3193074.7500
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 604us/step - loss: 2466500.7500
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 615us/step - loss: 2280240.0000
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 606us/step - loss: 6059335.0000
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 622us/step - loss: 4606562.0000
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 605us/step - loss: 3831607.7500
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 612us/step - loss: 2677317.7500
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 616us/step - loss: 4715112.0000
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 605us/step - loss: 4987282.0000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 602us/step - loss: 2124402.5000
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 599us/step - loss: 5829663.5000
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 624us/step - loss: 3091940.2500
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step
Epoch 1/75
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 881us/step - loss: 5771135.5000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 848us/step - loss: 3404069.0000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 842us/step - loss: 3862681.5000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 839us/step - loss: 4235499.5000
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 1299672.2500
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 870us/step - loss: 1921310.7500
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 868us/step - loss: 3617354.5000
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 868us/step - loss: 8150496.0000
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 859us/step - loss: 2905770.2500
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 834us/step - loss: 4793511.5000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 4356979.5000
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 728us/step - loss: 8187657.5000
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 883us/step - loss: 2005259.3750
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 882us/step - loss: 2376246.2500
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 855us/step - loss: 4797358.5000
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 860us/step - loss: 5134742.5000
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 741us/step - loss: 1305314.8750
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 882us/step - loss: 2581972.2500
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 3420478.7500
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 820us/step - loss: 3706563.5000
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 836us/step - loss: 3895043.0000
```

```
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 822us/step - loss: 4634147.5000
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 846us/step - loss: 6647104.0000
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 852us/step - loss: 1567713.3750
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 674us/step - loss: 2595993.5000
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 871us/step - loss: 1607673.8750
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 869us/step - loss: 2046627.1250
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 868us/step - loss: 3323829.2500
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 893us/step - loss: 1529230.2500
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 785us/step - loss: 1715761.3750
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 877us/step - loss: 2250366.5000
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 826us/step - loss: 3290078.0000
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 1905504.1250
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 876us/step - loss: 3183046.0000
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 875us/step - loss: 2607017.2500
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 862us/step - loss: 5042782.5000
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 842us/step - loss: 3675449.7500
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 1912870.1250
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 872us/step - loss: 3299108.0000
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 837us/step - loss: 3175990.2500
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 3172462.0000
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 871us/step - loss: 2621604.2500
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 874us/step - loss: 6477881.0000
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 874us/step - loss: 2879750.2500
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 5507510.0000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 765us/step - loss: 3141784.2500
```

```
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 879us/step - loss: 5399038.5000
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 832us/step - loss: 2574479.0000
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 5594116.0000
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 868us/step - loss: 2203035.7500
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 888us/step - loss: 6182508.0000
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 846us/step - loss: 1126883.6250
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 847us/step - loss: 1887585.2500
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 704us/step - loss: 5559023.0000
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 845us/step - loss: 4676431.5000
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 832us/step - loss: 1167160.2500
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 847us/step - loss: 2578578.5000
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 4632709.0000
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 872us/step - loss: 2279798.7500
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 867us/step - loss: 3278767.2500
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 875us/step - loss: 3777461.0000
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 846us/step - loss: 2382801.0000
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 876us/step - loss: 3869962.5000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 837us/step - loss: 3896183.0000
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 870us/step - loss: 3034515.0000
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 873us/step - loss: 3365758.7500
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 873us/step - loss: 3993832.7500
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 1726909.3750
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 875us/step - loss: 7229048.0000
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 850us/step - loss: 7297883.0000
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 876us/step - loss: 3482087.5000
```

```
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 789us/step - loss: 2902665.5000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 786us/step - loss: 3802213.7500
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 872us/step - loss: 1989144.1250
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 824us/step - loss: 3611604.2500
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 858us/step - loss: 3416111.2500
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 845us/step - loss: 1062443.6250
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 1061403.1250
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 860us/step - loss: 1050327.6250
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 864us/step - loss: 1024885.3125
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 858us/step - loss: 1162125.1250
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 879us/step - loss: 1012541.4375
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 829us/step - loss: 1140197.8750
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 867us/step - loss: 1052508.6250
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 899us/step - loss: 1067544.5000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 805us/step - loss: 1059041.3750
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 697us/step - loss: 1035761.3750
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 890us/step - loss: 1012921.3125
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 846us/step - loss: 1048938.7500
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 825us/step - loss: 1107681.8750
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 689us/step - loss: 1020924.7500
```

```
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 838us/step - loss: 970880.3125
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 803us/step - loss: 1116758.3750
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 871us/step - loss: 1038465.3750
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 834us/step - loss: 1030651.5625
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 846us/step - loss: 969457.0000
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 850us/step - loss: 1020164.2500
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 847us/step - loss: 962014.1875
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 881us/step - loss: 1096054.2500
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 835us/step - loss: 1065065.5000
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 855us/step - loss: 971370.5000
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 807us/step - loss: 1030150.8750
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 859us/step - loss: 986174.6250
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 821us/step - loss: 1026004.7500
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 907us/step - loss: 1022583.1250
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 865us/step - loss: 1010647.3125
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 846us/step - loss: 1085794.7500
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 877us/step - loss: 1004713.1875
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 879us/step - loss: 1051244.6250
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 824us/step - loss: 977558.6875
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 682us/step - loss: 971640.7500
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 861us/step - loss: 1011965.3125
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 840us/step - loss: 1118566.5000
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 838us/step - loss: 936789.2500
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 968151.3750
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 941053.9375
```

```
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 844us/step - loss: 1023336.1875
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 730us/step - loss: 1123672.8750
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 877us/step - loss: 933873.1875
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 859us/step - loss: 1060670.5000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 855us/step - loss: 1050596.5000
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 882us/step - loss: 947238.0625
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 750us/step - loss: 1018445.8125
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 886us/step - loss: 1010625.5625
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 750us/step - loss: 1036924.0000
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 849us/step - loss: 999501.2500
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 989157.9375
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 875us/step - loss: 1076083.7500
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 861us/step - loss: 990006.0625
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 1051643.0000
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 886us/step - loss: 974268.5625
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 849us/step - loss: 961604.5625
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 865us/step - loss: 1097304.7500
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 910us/step - loss: 1005364.5625
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 700us/step - loss: 1008879.8125
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 846us/step - loss: 1017813.2500
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 852us/step - loss: 1003918.5000
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 872us/step - loss: 1031566.3125
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 791us/step - loss: 990074.5625
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 691us/step - loss: 1071560.0000
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 884us/step - loss: 1075497.5000
```

```
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 916us/step - loss: 963710.6250
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 897us/step - loss: 982942.5625
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 926us/step - loss: 978020.8125
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 976us/step - loss: 947521.1250
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 945us/step - loss: 1001000.8125
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 935us/step - loss: 975247.5000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 899us/step - loss: 937466.3750
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 889us/step - loss: 1020953.3750
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 929us/step - loss: 942762.6250
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 768us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 4s 894us/step - loss: 4095923.5000
Epoch 2/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 865us/step - loss: 5542432.5000
Epoch 3/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 839us/step - loss: 6731889.5000
Epoch 4/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 882us/step - loss: 2358303.2500
Epoch 5/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 872us/step - loss: 4282511.5000
Epoch 6/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 840us/step - loss: 4976605.5000
Epoch 7/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 859us/step - loss: 1993413.3750
Epoch 8/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 836us/step - loss: 5665896.0000
Epoch 9/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 845us/step - loss: 3876637.5000
Epoch 10/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 837us/step - loss: 2254677.0000
Epoch 11/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 833us/step - loss: 2409321.0000
```

```
Epoch 12/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 865us/step - loss: 1550483.1250
Epoch 13/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 853us/step - loss: 2917986.5000
Epoch 14/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 863us/step - loss: 2470027.0000
Epoch 15/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 860us/step - loss: 2651805.5000
Epoch 16/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 881us/step - loss: 2731574.5000
Epoch 17/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 859us/step - loss: 1300679.1250
Epoch 18/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 910us/step - loss: 6812182.0000
Epoch 19/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 902us/step - loss: 4292089.5000
Epoch 20/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 2111648.2500
Epoch 21/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 865us/step - loss: 3772181.7500
Epoch 22/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 880us/step - loss: 3016789.7500
Epoch 23/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 876us/step - loss: 2441478.5000
Epoch 24/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 868us/step - loss: 1590378.8750
Epoch 25/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 865us/step - loss: 2621674.0000
Epoch 26/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 913us/step - loss: 4016316.2500
Epoch 27/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 848us/step - loss: 3485291.5000
Epoch 28/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 880us/step - loss: 1159062.5000
Epoch 29/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 854us/step - loss: 1850244.1250
Epoch 30/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 985us/step - loss: 3834306.7500
Epoch 31/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 960us/step - loss: 6881945.0000
Epoch 32/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 5548029.5000
Epoch 33/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 930us/step - loss: 3338538.0000
Epoch 34/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 852us/step - loss: 4127940.5000
Epoch 35/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 842us/step - loss: 2251970.2500
Epoch 36/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 817us/step - loss: 3012675.5000
```

```
Epoch 37/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 827us/step - loss: 2273508.7500
Epoch 38/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 851us/step - loss: 3535654.5000
Epoch 39/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 876us/step - loss: 1535201.8750
Epoch 40/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 851us/step - loss: 3149422.2500
Epoch 41/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 851us/step - loss: 2717195.0000
Epoch 42/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 823us/step - loss: 8631508.0000
Epoch 43/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 864us/step - loss: 1825484.1250
Epoch 44/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 873us/step - loss: 1559550.8750
Epoch 45/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 918us/step - loss: 3306129.5000
Epoch 46/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 887us/step - loss: 9035654.0000
Epoch 47/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 898us/step - loss: 2192773.2500
Epoch 48/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 878us/step - loss: 6125595.0000
Epoch 49/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 859us/step - loss: 1155509.0000
Epoch 50/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 799us/step - loss: 3075012.5000
Epoch 51/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 2s 828us/step - loss: 2173589.5000
Epoch 52/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 902us/step - loss: 5581644.5000
Epoch 53/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 857us/step - loss: 5711967.5000
Epoch 54/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 888us/step - loss: 1627719.7500
Epoch 55/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 994us/step - loss: 5838803.0000
Epoch 56/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 2530832.5000
Epoch 57/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 954us/step - loss: 1207973.5000
Epoch 58/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 8144967.0000
Epoch 59/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 896us/step - loss: 2487909.5000
Epoch 60/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 911us/step - loss: 6109418.5000
Epoch 61/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 933us/step - loss: 2777821.0000
```

```
Epoch 62/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 924us/step - loss: 4006349.7500
Epoch 63/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 5636578.0000
Epoch 64/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 1ms/step - loss: 3702516.2500
Epoch 65/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 876us/step - loss: 2252055.5000
Epoch 66/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 889us/step - loss: 1472082.2500
Epoch 67/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 940us/step - loss: 7295114.0000
Epoch 68/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 962us/step - loss: 2856325.2500
Epoch 69/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 882us/step - loss: 7579291.0000
Epoch 70/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 928us/step - loss: 10475897.0000
Epoch 71/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 889us/step - loss: 6997036.5000
Epoch 72/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 886us/step - loss: 4652399.0000
Epoch 73/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 919us/step - loss: 4660802.0000
Epoch 74/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 870us/step - loss: 6241032.0000
Epoch 75/75
2930/2930 ━━━━━━━━━━━━━━━━━━━━ 3s 926us/step - loss: 2336244.5000
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 835us/step - loss: 7454884.5000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 782us/step - loss: 3329235.5000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 2993264.7500
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 776us/step - loss: 1822207.0000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 2764950.0000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 810us/step - loss: 2694545.5000
```

```
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 3758348.7500
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 6194858.5000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 1639599.7500
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 3344018.7500
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 771us/step - loss: 3554935.7500
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 781us/step - loss: 3514879.5000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 3509486.2500
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 2501652.2500
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 1500312.3750
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 766us/step - loss: 1432826.5000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 4479460.0000
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 758us/step - loss: 5352497.0000
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step - loss: 3850929.5000
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 2237658.7500
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 4056082.2500
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 779us/step - loss: 2452021.2500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 770us/step - loss: 2680650.5000
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 762us/step - loss: 5896689.0000
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 768us/step - loss: 4077229.5000
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 811us/step - loss: 1900737.2500
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 764us/step - loss: 1901553.7500
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 761us/step - loss: 2534120.5000
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 770us/step - loss: 4401467.5000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 1447426.2500
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 759us/step - loss: 3983191.7500
```

```
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 761us/step - loss: 4805034.5000
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 758us/step - loss: 3377846.2500
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 760us/step - loss: 1955281.7500
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step - loss: 1927311.0000
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 741us/step - loss: 7101612.0000
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 755us/step - loss: 2517459.7500
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 751us/step - loss: 2504307.2500
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 763us/step - loss: 2580050.2500
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 764us/step - loss: 1955823.1250
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 773us/step - loss: 4860224.0000
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 770us/step - loss: 2564813.7500
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 2220672.5000
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 818us/step - loss: 4365873.0000
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 820us/step - loss: 4793539.5000
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 770us/step - loss: 4715223.5000
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 3202123.7500
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 726us/step - loss: 9103731.0000
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 772us/step - loss: 1506666.8750
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 798us/step - loss: 4472435.5000
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 765us/step - loss: 5563414.5000
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 3280188.5000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 713us/step - loss: 7879761.0000
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 794us/step - loss: 1381650.5000
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 868us/step - loss: 2859943.2500
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 2426501.0000
```

```
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 786us/step - loss: 8770813.0000
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 801us/step - loss: 3278375.2500
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 4540049.5000
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 815us/step - loss: 2142050.7500
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 812us/step - loss: 3829436.5000
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 792us/step - loss: 3527512.2500
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 827us/step - loss: 7849244.0000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 800us/step - loss: 3041350.7500
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 736us/step - loss: 3076392.7500
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 768us/step - loss: 5675838.5000
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 754us/step - loss: 1559001.3750
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 6422178.5000
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 847us/step - loss: 1630559.6250
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 805us/step - loss: 5606133.0000
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 785us/step - loss: 2452568.5000
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 813us/step - loss: 2928204.5000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 759us/step - loss: 3573626.7500
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 2352212.5000
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 777us/step - loss: 4852060.0000
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 784us/step - loss: 2746089.5000
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 787us/step - loss: 2142579.0000
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 827us/step - loss: 6209775.0000
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 771us/step - loss: 7739117.5000
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 893us/step - loss: 2187661.2500
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 914us/step - loss: 5160553.0000
```

```
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 2231848.5000
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 783us/step - loss: 3099502.0000
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 831us/step - loss: 2614522.0000
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 798us/step - loss: 4962034.5000
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 775us/step - loss: 4669749.0000
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 780us/step - loss: 2061676.8750
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 767us/step - loss: 2330813.7500
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 851us/step - loss: 3750241.2500
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 845us/step - loss: 4128178.7500
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 913us/step - loss: 3831752.0000
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 928us/step - loss: 6981539.5000
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 876us/step - loss: 2829737.5000
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 861us/step - loss: 4886932.5000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 954us/step - loss: 3566306.2500
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 832us/step - loss: 2310467.0000
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 797us/step - loss: 3801882.0000
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 757us/step - loss: 2844650.7500
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 1412777.6250
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 5640935.0000
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 743us/step
Epoch 1/100
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 709us/step - loss: 5693706.5000
```

```
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 1190615.3750
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 735us/step - loss: 1071473.2500
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 1050150.5000
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 705us/step - loss: 1099629.0000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 816us/step - loss: 1098810.8750
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 811us/step - loss: 1053845.7500
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 1064644.6250
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 1148964.0000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 733us/step - loss: 1034788.4375
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 729us/step - loss: 1158433.8750
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 731us/step - loss: 1005044.2500
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 1043297.4375
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 742us/step - loss: 1017851.4375
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 737us/step - loss: 1253265.2500
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 1062251.0000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 710us/step - loss: 1066002.6250
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 695us/step - loss: 1046691.5625
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 1109158.8750
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 720us/step - loss: 1054184.0000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1006821.8750
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 715us/step - loss: 1065118.2500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1064376.3750
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1056788.1250
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 1013479.5625
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 1015233.1875
```

```
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 983055.5000
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1075412.2500
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 1039235.3750
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 1028434.1875
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1008992.3750
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1013110.7500
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1022136.6250
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 977887.5625
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1019399.8125
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 698us/step - loss: 984010.0625
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 983506.0625
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 965825.5625
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 1060834.5000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 723us/step - loss: 1067366.3750
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 969512.8750
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1033277.9375
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 1014342.7500
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 1035546.7500
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 996150.5625
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 1038823.3125
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 702us/step - loss: 1023112.1875
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 1176008.7500
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 1014311.6875
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 704us/step - loss: 1072664.6250
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 703us/step - loss: 1108828.5000
```

```
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 976652.3750
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 972743.9375
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1057459.7500
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1053782.1250
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 670us/step - loss: 1014892.3750
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 670us/step - loss: 1006741.6250
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1137242.0000
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1016398.5625
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 993534.7500
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 687us/step - loss: 1004556.2500
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1055954.5000
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 947542.9375
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1026992.0625
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 693us/step - loss: 1016444.1250
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 982365.3125
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 686us/step - loss: 1075503.7500
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 1037082.6250
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 969282.1875
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 986228.8125
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 1035206.9375
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 1011737.0000
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 1059354.7500
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1063292.6250
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 1022403.8750
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 1030109.1875
```

```
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 676us/step - loss: 1029813.5625
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 995281.3125
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1043628.8750
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1037391.3125
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 679us/step - loss: 1043030.0625
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 987566.7500
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 949444.3750
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 1079931.6250
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 1038865.5000
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 1033163.1875
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1060702.7500
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 744us/step - loss: 1002829.1875
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 1034991.3125
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1017605.8125
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 1033985.4375
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 677us/step - loss: 1016664.1875
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 1020277.8750
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 1034954.2500
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 1018909.3750
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 999490.9375
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 682us/step - loss: 1099251.8750
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 1113958.0000
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 1047675.7500
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 981108.6250
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 720us/step
Epoch 1/100
```

```
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 681us/step - loss: 8818812.0000
Epoch 2/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 2416056.5000
Epoch 3/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 2871357.7500
Epoch 4/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 1459651.3750
Epoch 5/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 707us/step - loss: 4502774.5000
Epoch 6/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 663us/step - loss: 2472669.7500
Epoch 7/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 5599269.5000
Epoch 8/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 672us/step - loss: 5563594.5000
Epoch 9/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 4421969.5000
Epoch 10/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 5825823.5000
Epoch 11/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 3414390.5000
Epoch 12/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 12110042.0000
Epoch 13/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 674us/step - loss: 3997618.0000
Epoch 14/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 2439850.2500
Epoch 15/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 673us/step - loss: 3170500.0000
Epoch 16/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 3952793.5000
Epoch 17/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 675us/step - loss: 4158817.2500
Epoch 18/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 1549725.3750
Epoch 19/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 5414755.5000
Epoch 20/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 4098823.5000
Epoch 21/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 685us/step - loss: 3336372.2500
```

```
Epoch 22/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 3875240.7500
Epoch 23/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 5669244.0000
Epoch 24/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 3277970.7500
Epoch 25/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 2604447.0000
Epoch 26/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 678us/step - loss: 3341053.2500
Epoch 27/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 1480865.1250
Epoch 28/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 2095087.5000
Epoch 29/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 666us/step - loss: 6050485.0000
Epoch 30/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 4792549.0000
Epoch 31/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 4081279.5000
Epoch 32/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 3599765.5000
Epoch 33/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 2216165.0000
Epoch 34/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 5057038.0000
Epoch 35/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 708us/step - loss: 3107797.2500
Epoch 36/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 667us/step - loss: 2119389.0000
Epoch 37/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 6497456.5000
Epoch 38/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 660us/step - loss: 3087223.5000
Epoch 39/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 4868526.0000
Epoch 40/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 652us/step - loss: 6710352.0000
Epoch 41/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 670us/step - loss: 4201664.0000
Epoch 42/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 2432004.2500
Epoch 43/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 4040856.7500
Epoch 44/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 659us/step - loss: 6282238.5000
Epoch 45/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 3499366.2500
Epoch 46/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 3888473.7500
```

```
Epoch 47/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 656us/step - loss: 3094829.2500
Epoch 48/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 665us/step - loss: 4147541.7500
Epoch 49/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 669us/step - loss: 4135769.2500
Epoch 50/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 668us/step - loss: 2640445.5000
Epoch 51/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 680us/step - loss: 1567934.0000
Epoch 52/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 702us/step - loss: 4805200.0000
Epoch 53/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 664us/step - loss: 4866501.5000
Epoch 54/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 661us/step - loss: 3763627.5000
Epoch 55/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 662us/step - loss: 5404561.5000
Epoch 56/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 653us/step - loss: 3585012.7500
Epoch 57/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1451486.2500
Epoch 58/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1666725.1250
Epoch 59/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 1763617.1250
Epoch 60/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 1224680.2500
Epoch 61/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 739us/step - loss: 3555512.0000
Epoch 62/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 1739305.8750
Epoch 63/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 725us/step - loss: 9015032.0000
Epoch 64/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 727us/step - loss: 2869492.0000
Epoch 65/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 719us/step - loss: 5788112.5000
Epoch 66/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 1392731.5000
Epoch 67/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 4174530.2500
Epoch 68/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 738us/step - loss: 2520312.5000
Epoch 69/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 4092166.0000
Epoch 70/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 1ms/step - loss: 5454612.0000
Epoch 71/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 2s 765us/step - loss: 3248594.2500
```

```
Epoch 72/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 718us/step - loss: 4003432.2500
Epoch 73/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 749us/step - loss: 8557074.0000
Epoch 74/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 697us/step - loss: 2080709.6250
Epoch 75/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 4376817.0000
Epoch 76/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 716us/step - loss: 3110743.5000
Epoch 77/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 745us/step - loss: 3844204.7500
Epoch 78/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 700us/step - loss: 4543403.0000
Epoch 79/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 3822268.5000
Epoch 80/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 709us/step - loss: 3365036.5000
Epoch 81/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 730us/step - loss: 3975109.5000
Epoch 82/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 701us/step - loss: 2089826.6250
Epoch 83/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 712us/step - loss: 1698282.6250
Epoch 84/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 711us/step - loss: 2848041.7500
Epoch 85/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 694us/step - loss: 4934523.5000
Epoch 86/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 3159895.7500
Epoch 87/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 706us/step - loss: 1732699.6250
Epoch 88/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 699us/step - loss: 5232117.0000
Epoch 89/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 717us/step - loss: 4316436.0000
Epoch 90/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 688us/step - loss: 2027242.6250
Epoch 91/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 702us/step - loss: 1382889.5000
Epoch 92/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 689us/step - loss: 2997944.2500
Epoch 93/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 734us/step - loss: 7316751.5000
Epoch 94/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 692us/step - loss: 3828941.0000
Epoch 95/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 683us/step - loss: 1252692.0000
Epoch 96/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 696us/step - loss: 1828421.5000
```

```
Epoch 97/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 684us/step - loss: 5169364.5000
Epoch 98/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 681us/step - loss: 3547673.5000
Epoch 99/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 714us/step - loss: 3106032.0000
Epoch 100/100
1465/1465 ━━━━━━━━━━━━━━━━━━━━ 1s 690us/step - loss: 1875028.1250
733/733 ━━━━━━━━━━━━━━━━━━━━ 1s 732us/step
Epoch 1/75
/opt/anaconda3/lib/python3.11/site-packages/scikeras/wrappers.py:925: UserWa
rning: ``build_fn`` will be renamed to ``model`` in a future release, at whi
ch point use of ``build_fn`` will raise an Error instead.
  X, y = self._initialize(X, y)
/opt/anaconda3/lib/python3.11/site-packages/keras/src/layers/core/dense.py:8
7: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a laye
r. When using Sequential models, prefer using an `Input(shape)` object as th
e first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 3s 733us/step - loss: 7634481.0000
Epoch 2/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 2224672.5000
Epoch 3/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 745us/step - loss: 1183532.1250
Epoch 4/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 738us/step - loss: 3757014.5000
Epoch 5/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 751us/step - loss: 3143267.2500
Epoch 6/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 764us/step - loss: 4974851.5000
Epoch 7/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 752us/step - loss: 1053574.6250
Epoch 8/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 3162071.7500
Epoch 9/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 743us/step - loss: 3192863.0000
Epoch 10/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 1453448.0000
Epoch 11/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 758us/step - loss: 4727388.0000
Epoch 12/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 1635826.1250
Epoch 13/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 725us/step - loss: 2100077.2500
Epoch 14/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 749us/step - loss: 3123514.7500
Epoch 15/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 742us/step - loss: 3144285.5000
Epoch 16/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 746us/step - loss: 2643972.7500
```

```
Epoch 17/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 744us/step - loss: 1771780.8750
Epoch 18/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 733us/step - loss: 3801474.0000
Epoch 19/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 728us/step - loss: 1868380.8750
Epoch 20/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 744us/step - loss: 3971902.0000
Epoch 21/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 737us/step - loss: 1787419.5000
Epoch 22/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 740us/step - loss: 3034302.0000
Epoch 23/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 730us/step - loss: 1184203.7500
Epoch 24/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 743us/step - loss: 2589757.7500
Epoch 25/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 732us/step - loss: 5089283.0000
Epoch 26/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 733us/step - loss: 8637688.0000
Epoch 27/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 726us/step - loss: 2776494.2500
Epoch 28/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 730us/step - loss: 2374138.0000
Epoch 29/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 739us/step - loss: 1749299.0000
Epoch 30/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 734us/step - loss: 5452863.0000
Epoch 31/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 2274443.2500
Epoch 32/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 728us/step - loss: 2895416.5000
Epoch 33/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 723us/step - loss: 4402848.0000
Epoch 34/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 722us/step - loss: 2890976.5000
Epoch 35/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 752us/step - loss: 2385071.5000
Epoch 36/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 3240501.2500
Epoch 37/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 2084307.3750
Epoch 38/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 817us/step - loss: 5189234.0000
Epoch 39/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 821us/step - loss: 2261054.5000
Epoch 40/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 830us/step - loss: 5656730.5000
Epoch 41/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 774us/step - loss: 1374265.6250
```

```
Epoch 42/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 797us/step - loss: 1300171.7500
Epoch 43/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 793us/step - loss: 3195983.7500
Epoch 44/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 774us/step - loss: 2459397.0000
Epoch 45/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 795us/step - loss: 3594576.0000
Epoch 46/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 766us/step - loss: 4471411.0000
Epoch 47/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 779us/step - loss: 3332635.7500
Epoch 48/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 2026349.0000
Epoch 49/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 2189077.7500
Epoch 50/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 796us/step - loss: 3365745.0000
Epoch 51/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 788us/step - loss: 2814331.2500
Epoch 52/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 787us/step - loss: 4577983.0000
Epoch 53/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 772us/step - loss: 2817813.7500
Epoch 54/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 766us/step - loss: 4298369.0000
Epoch 55/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 778us/step - loss: 1369980.1250
Epoch 56/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 783us/step - loss: 2311948.2500
Epoch 57/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 770us/step - loss: 1464120.7500
Epoch 58/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 784us/step - loss: 2367104.2500
Epoch 59/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 758us/step - loss: 2961186.2500
Epoch 60/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 777us/step - loss: 2297092.7500
Epoch 61/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 767us/step - loss: 5180553.5000
Epoch 62/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 766us/step - loss: 2271634.7500
Epoch 63/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 748us/step - loss: 2295636.0000
Epoch 64/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 762us/step - loss: 2595656.2500
Epoch 65/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 736us/step - loss: 1710867.8750
Epoch 66/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 755us/step - loss: 2325464.7500
```

```
Epoch 67/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 763us/step - loss: 3389573.0000
Epoch 68/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 771us/step - loss: 2005215.3750
Epoch 69/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 758us/step - loss: 2183384.5000
Epoch 70/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 760us/step - loss: 2951634.0000
Epoch 71/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 731us/step - loss: 2590333.5000
Epoch 72/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 729us/step - loss: 7616990.0000
Epoch 73/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 729us/step - loss: 4101198.7500
Epoch 74/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 769us/step - loss: 2002223.3750
Epoch 75/75
2198/2198 ━━━━━━━━━━━━━━━━━━━━ 2s 738us/step - loss: 3092161.5000
Best Parameters (Reduced): {'model__layers_config': [64, 64, 64], 'epochs':
75, 'batch_size': 64}
Optimal Layers Config (Reduced): [64, 64, 64]
Best Negative MSE (CV): -2778767.8759973818
550/550 ━━━━━━━━━━━━━━━━━━━━ 0s 748us/step
Reduced Model Test MSE: 1029620.4618345139
Reduced Model Test RMSE: 1014.7021542474984
```