

LAL BABU

PGDDS Batch9

Assignment-1

Automobile Dataset



```
In [35]: import matplotlib.pyplot as plt
import pandas as pd
import seaborn as sns
import tensorflow as tf
from tensorflow import keras
from tensorflow.keras import layers

print(tf.__version__)
```

2.4.1

There is an automobile dataset to predict the fuel efficiency. We need to implement the Linear Regression using Feed forward neural

network (MLP architecture)

the target variable name is 'MPG' in the dataset.

we will categorise dataset in dependent and independent variables and further will use as train and test data

Import the required libraries

Here we will be making use of the Keras library for creating our model and training it. We also use Matplotlib and Seaborn for visualizing our dataset to gain a better understanding of the data we are going to be handling

In [36]:

```
import keras

from keras.models import Sequential

from keras.layers import Dense

# from keras.preprocessing.image import ImageDataGenerator

# from keras.optimizers import Adam

from sklearn.metrics import classification_report, confusion_matrix

# import tensorflow as tf

import numpy as np
```

In [37]:

```
import matplotlib.pyplot as plt
import pandas as pd
import seaborn as sns
import tensorflow as tf
from tensorflow import keras
from tensorflow.keras import layers
```

Loading the data

define the path to our data

```
In [38]: dataset_path = keras.utils.get_file("auto-mpg.data",
      "http://archive.ics.uci.edu/ml/machine-learning-databases/auto-mpg/auto-mpg.data")

column_names = ['MPG', 'Cylinders', 'Displacement', 'Horsepower', 'Weight',
      'Acceleration', 'Model Year', 'Origin']

dataset = pd.read_csv(dataset_path, names=column_names,
      na_values = "?", comment='\t',
      sep=" ", skipinitialspace=True)
```

```
In [39]: dataset.shape    #it defines the total columns and rows in our dataframe
```

Out[39]: (398, 8)

```
In [40]: dataset.head()    #head() methods gives the first five record by default
```

```
Out[40]:
```

	MPG	Cylinders	Displacement	Horsepower	Weight	Acceleration	Model Year	Origin
0	18.0	8	307.0	130.0	3504.0	12.0	70	1
1	15.0	8	350.0	165.0	3693.0	11.5	70	1
2	18.0	8	318.0	150.0	3436.0	11.0	70	1
3	16.0	8	304.0	150.0	3433.0	12.0	70	1
4	17.0	8	302.0	140.0	3449.0	10.5	70	1

```
In [41]: dataset.info()    #it gives information like features and datatype of each features, null values present in dataset
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 398 entries, 0 to 397
Data columns (total 8 columns):
#   Column          Non-Null Count  Dtype
---  -
0   MPG              398 non-null    float64
1   Cylinders        398 non-null    int64
```

```

2   Displacement  398 non-null   float64
3   Horsepower   392 non-null   float64
4   Weight       398 non-null   float64
5   Acceleration 398 non-null   float64
6   Model Year   398 non-null   int64
7   Origin       398 non-null   int64
dtypes: float64(5), int64(3)
memory usage: 25.0 KB

```

In [42]: `dataset.describe()` *#describe() methods gives details of descriptive statistics of numerical features*

```

Out[42]:

```

	MPG	Cylinders	Displacement	Horsepower	Weight	Acceleration	Model Year	Origin
count	398.000000	398.000000	398.000000	392.000000	398.000000	398.000000	398.000000	398.000000
mean	23.514573	5.454774	193.425879	104.469388	2970.424623	15.568090	76.010050	1.572864
std	7.815984	1.701004	104.269838	38.491160	846.841774	2.757689	3.697627	0.802055
min	9.000000	3.000000	68.000000	46.000000	1613.000000	8.000000	70.000000	1.000000
25%	17.500000	4.000000	104.250000	75.000000	2223.750000	13.825000	73.000000	1.000000
50%	23.000000	4.000000	148.500000	93.500000	2803.500000	15.500000	76.000000	1.000000
75%	29.000000	8.000000	262.000000	126.000000	3608.000000	17.175000	79.000000	2.000000
max	46.600000	8.000000	455.000000	230.000000	5140.000000	24.800000	82.000000	3.000000

In [43]: `dataset.isnull().sum()` *# it helps in finding null values present in each columns. in this data except "Horsepower",*

```

Out[43]:
MPG          0
Cylinders     0
Displacement  0
Horsepower    6
Weight        0
Acceleration  0
Model Year    0
Origin        0
dtype: int64

```

In [44]: `dataset['Horsepower']=dataset.Horsepower.fillna((dataset['Horsepower'].mean()))` *#fillna() function is used to remove*

```
In [45]: dataset.isnull().sum()
```

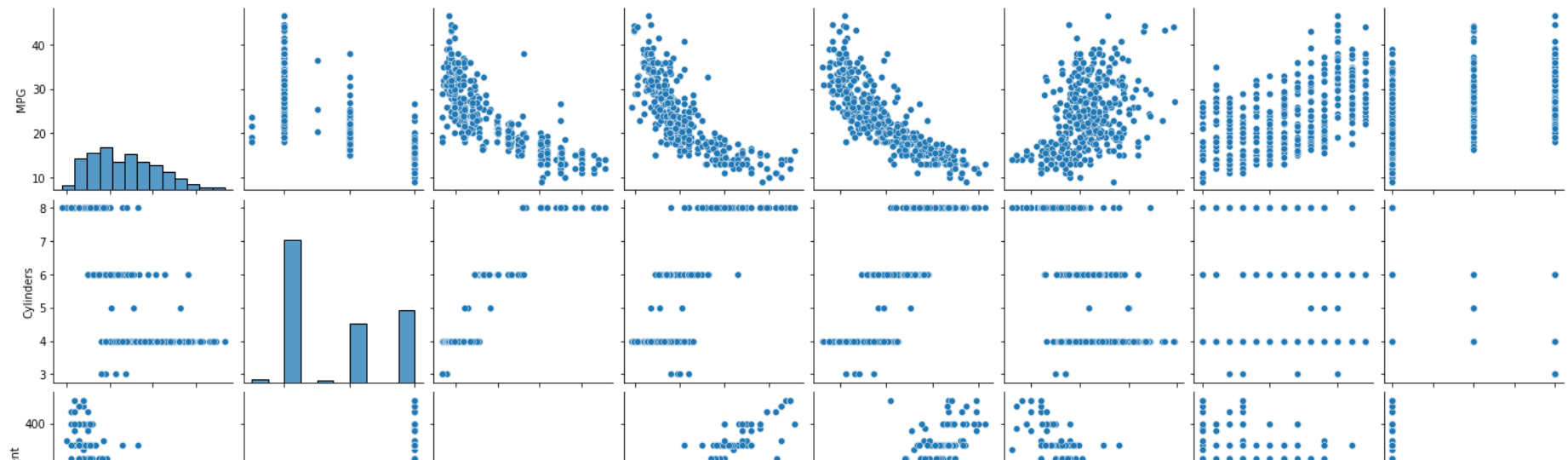
```
Out[45]: MPG            0  
Cylinders            0  
Displacement         0  
Horsepower           0  
Weight               0  
Acceleration         0  
Model Year           0  
Origin               0  
dtype: int64
```

Plot pairwise relationships in a dataset.

By default, this function will create a grid of Axes such that each numeric variable in data will be shared across the y-axes across a single row and the x-axes across a single column. The diagonal plots are treated differently: a univariate distribution plot is drawn to show the marginal distribution of the data in each column.

```
In [46]: sns.pairplot(dataset[['MPG', 'Cylinders', 'Displacement', 'Horsepower', 'Weight',  
                             'Acceleration', 'Model Year', 'Origin']])
```

```
Out[46]: <seaborn.axisgrid.PairGrid at 0x7f04b14bc310>
```





```
In [47]: dataset_independent = dataset[['Cylinders', 'Displacement', 'Horsepower', 'Weight',  
    'Acceleration', 'Model Year', 'Origin']]
```

COLINIARITY CHECK

```
In [48]: '''correlation is used to test the collinearity relationship between variables,  
    it is a measure to estimate how things are related. if two variable has high colinearity then we can  
    skip one variable out of two and it will not impact or impact may be insignificant in our prediction model'''
```

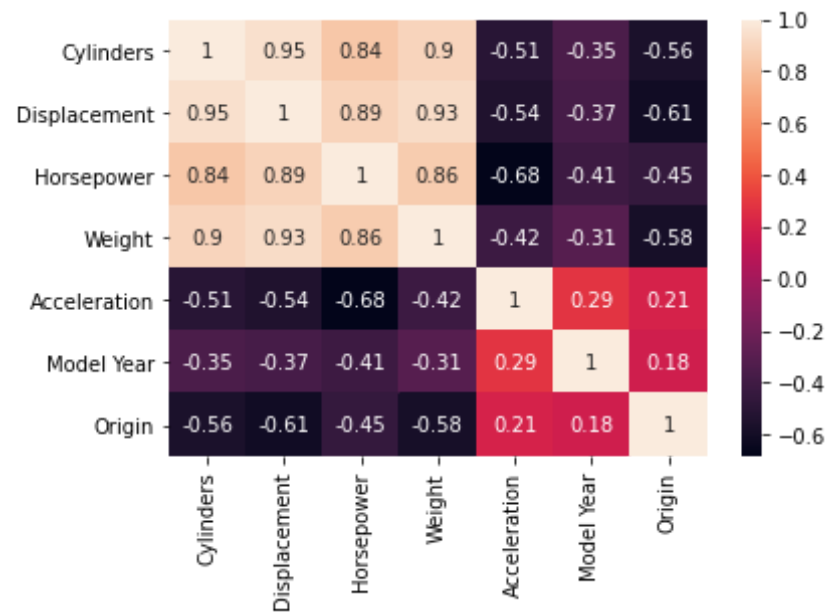
```
dataset_independent.corr()
```

```
Out[48]:
```

	Cylinders	Displacement	Horsepower	Weight	Acceleration	Model Year	Origin
Cylinders	1.000000	0.950721	0.838939	0.896017	-0.505419	-0.348746	-0.562543
Displacement	0.950721	1.000000	0.893646	0.932824	-0.543684	-0.370164	-0.609409
Horsepower	0.838939	0.893646	1.000000	0.860574	-0.684259	-0.411651	-0.453669
Weight	0.896017	0.932824	0.860574	1.000000	-0.417457	-0.306564	-0.581024
Acceleration	-0.505419	-0.543684	-0.684259	-0.417457	1.000000	0.288137	0.205873
Model Year	-0.348746	-0.370164	-0.411651	-0.306564	0.288137	1.000000	0.180662
Origin	-0.562543	-0.609409	-0.453669	-0.581024	0.205873	0.180662	1.000000

```
In [49]: sns.heatmap(dataset_independent.corr(),annot = True)
```

```
Out[49]: <matplotlib.axes._subplots.AxesSubplot at 0x7f04acf5ea90>
```

```
In [50]: # divide the data into train and test with 80 percent and 20 per respectively

train_data = dataset.sample(frac = 0.8, random_state = 0)
test_data = dataset.drop(train_data.index)
```

```
In [51]: train_data.describe()
```

```
Out[51]:
```

	MPG	Cylinders	Displacement	Horsepower	Weight	Acceleration	Model Year	Origin
count	318.000000	318.000000	318.000000	318.000000	318.000000	318.000000	318.000000	318.000000
mean	23.590566	5.427673	193.061321	104.073418	2963.823899	15.595912	75.946541	1.553459
std	7.913617	1.682941	103.812742	38.368477	844.749805	2.796282	3.705266	0.799430
min	10.000000	3.000000	70.000000	46.000000	1613.000000	8.000000	70.000000	1.000000
25%	17.125000	4.000000	100.250000	75.250000	2219.250000	13.900000	73.000000	1.000000
50%	22.750000	4.000000	151.000000	92.000000	2792.500000	15.500000	76.000000	1.000000

	MPG	Cylinders	Displacement	Horsepower	Weight	Acceleration	Model Year	Origin
75%	29.000000	6.000000	259.500000	120.000000	3571.250000	17.300000	79.000000	2.000000
max	46.600000	8.000000	455.000000	230.000000	5140.000000	24.800000	82.000000	3.000000

In [52]: `test_data.describe()`

	MPG	Cylinders	Displacement	Horsepower	Weight	Acceleration	Model Year	Origin
count	80.000000	80.000000	80.000000	80.000000	80.000000	80.000000	80.000000	80.000000
mean	23.212500	5.562500	194.875000	106.043367	2996.662500	15.457500	76.262500	1.650000
std	7.455528	1.777808	106.718413	37.715993	859.968618	2.612568	3.679377	0.812871
min	9.000000	3.000000	68.000000	48.000000	1755.000000	8.500000	70.000000	1.000000
25%	17.500000	4.000000	107.000000	78.250000	2240.750000	13.650000	73.000000	1.000000
50%	23.450000	4.000000	143.000000	96.000000	2885.500000	15.200000	76.000000	1.000000
75%	29.000000	8.000000	302.500000	133.500000	3740.000000	16.925000	80.000000	2.000000
max	43.100000	8.000000	400.000000	215.000000	4955.000000	22.200000	82.000000	3.000000

In [53]: `train_stats = train_data.describe()`
`train_stats.pop('MPG')`
`train_stats = train_stats.transpose()`

In [54]: `train_stats`

	count	mean	std	min	25%	50%	75%	max
Cylinders	318.0	5.427673	1.682941	3.0	4.00	4.0	6.00	8.0
Displacement	318.0	193.061321	103.812742	70.0	100.25	151.0	259.50	455.0
Horsepower	318.0	104.073418	38.368477	46.0	75.25	92.0	120.00	230.0
Weight	318.0	2963.823899	844.749805	1613.0	2219.25	2792.5	3571.25	5140.0

	count	mean	std	min	25%	50%	75%	max
Acceleration	318.0	15.595912	2.796282	8.0	13.90	15.5	17.30	24.8
Model Year	318.0	75.946541	3.705266	70.0	73.00	76.0	79.00	82.0
Origin	318.0	1.553459	0.799430	1.0	1.00	1.0	2.00	3.0

In [55]: *# dividing target variable into train and train dataset*

```
train_labels = train_data.pop('MPG')
test_labels = test_data.pop('MPG')
```

Normalization

when multiple attributes are there but attributes have values on different scales, this may lead to poor data models while performing data mining operations. So they are normalized to bring all the attributes on the same scale.

In [56]:

```
def norm(x):
    return (x - train_stats['mean']) / train_stats['std']
```

```
normed_train_data = norm(train_data)
normed_test_data = norm(test_data)
```

Model building using `##keras` library

"relu" is widely used activation function. ReLU stands for Rectified Linear Unit. The main advantage of using the ReLU function over other activation functions is that it does not activate all the neurons at the same time. ... Due to this reason, during the backpropagation process, the weights and biases for some neurons are not updated

We are defining two hidden layer with 64 perceptron at each level

input_shape object is used to pass number of input features into model

```
In [57]: # build the model

def build_model():
    model = keras.Sequential([
        layers.Dense(64, activation = 'relu', input_shape = [len(train_data.keys())]),
        layers.Dense(64, activation='relu'),
        layers.Dense(1)
    ])
    optimizer = tf.keras.optimizers.RMSprop(learning_rate=0.001) #default learning rate is 0.001
    model.compile(loss = 'mse',
                  optimizer = optimizer,
                  metrics = ['mae', 'mse', 'mape'])
    return model
```

```
In [58]: model = build_model()
```

```
In [59]: model.summary()
```

Model: "sequential_2"

Layer (type)	Output Shape	Param #
=====	=====	=====
dense_6 (Dense)	(None, 64)	512
dense_7 (Dense)	(None, 64)	4160
dense_8 (Dense)	(None, 1)	65
=====	=====	=====
Total params: 4,737		
Trainable params: 4,737		
Non-trainable params: 0		

In summary, we can see that model has three layer, out of which two are hidden and Dense layer says that each parameter is connected. we have used 64 perceptron at

layer first and second and Param shows the number of parameter or weight at each layer

```
In [60]: model.fit(test_data, test_labels, epochs =600, verbose =1)
```

```
Epoch 1/600
3/3 [=====] - 1s 5ms/step - loss: 261582.2852 - mae: 459.0289 - mse: 261582.2852 - mape: 241
9.1337
Epoch 2/600
3/3 [=====] - 0s 5ms/step - loss: 4322.6652 - mae: 55.1958 - mse: 4322.6652 - mape: 309.2920
Epoch 3/600
3/3 [=====] - 0s 4ms/step - loss: 173.7546 - mae: 11.2212 - mse: 173.7546 - mape: 60.3249
Epoch 4/600
3/3 [=====] - 0s 8ms/step - loss: 123.8417 - mae: 9.5933 - mse: 123.8417 - mape: 44.2963
Epoch 5/600
3/3 [=====] - 0s 5ms/step - loss: 119.9091 - mae: 9.6076 - mse: 119.9091 - mape: 46.2601
Epoch 6/600
3/3 [=====] - 0s 4ms/step - loss: 113.7319 - mae: 9.2761 - mse: 113.7319 - mape: 42.5078
Epoch 7/600
3/3 [=====] - 0s 4ms/step - loss: 106.5244 - mae: 8.4989 - mse: 106.5244 - mape: 37.7519
Epoch 8/600
3/3 [=====] - 0s 4ms/step - loss: 112.9089 - mae: 9.2452 - mse: 112.9089 - mape: 42.4320
Epoch 9/600
3/3 [=====] - 0s 5ms/step - loss: 119.5152 - mae: 9.3946 - mse: 119.5152 - mape: 41.0744
Epoch 10/600
3/3 [=====] - 0s 4ms/step - loss: 114.4718 - mae: 8.8886 - mse: 114.4718 - mape: 40.0787
Epoch 11/600
3/3 [=====] - 0s 6ms/step - loss: 180.9682 - mae: 11.0062 - mse: 180.9682 - mape: 50.4037
Epoch 12/600
3/3 [=====] - 0s 6ms/step - loss: 407.4106 - mae: 17.6130 - mse: 407.4106 - mape: 94.2228
Epoch 13/600
3/3 [=====] - 0s 6ms/step - loss: 1206.5813 - mae: 30.4460 - mse: 1206.5813 - mape: 157.1709
Epoch 14/600
3/3 [=====] - 0s 5ms/step - loss: 7814.1698 - mae: 83.0780 - mse: 7814.1698 - mape: 443.6807
Epoch 15/600
3/3 [=====] - 0s 6ms/step - loss: 2025.7159 - mae: 42.0397 - mse: 2025.7159 - mape: 224.3340
Epoch 16/600
3/3 [=====] - 0s 4ms/step - loss: 243.5982 - mae: 12.3826 - mse: 243.5982 - mape: 65.7845
Epoch 17/600
3/3 [=====] - 0s 4ms/step - loss: 145.7975 - mae: 9.6896 - mse: 145.7975 - mape: 43.8886
Epoch 18/600
3/3 [=====] - 0s 9ms/step - loss: 186.5528 - mae: 10.9768 - mse: 186.5528 - mape: 54.2831
```

Epoch 19/600
3/3 [=====] - 0s 4ms/step - loss: 2819.9729 - mae: 46.5171 - mse: 2819.9729 - mape: 236.5825
Epoch 20/600
3/3 [=====] - 0s 4ms/step - loss: 9343.9639 - mae: 89.5349 - mse: 9343.9639 - mape: 481.8280
Epoch 21/600
3/3 [=====] - 0s 7ms/step - loss: 592.4892 - mae: 22.4365 - mse: 592.4892 - mape: 112.9018
Epoch 22/600
3/3 [=====] - 0s 6ms/step - loss: 239.1700 - mae: 12.8894 - mse: 239.1700 - mape: 66.3305
Epoch 23/600
3/3 [=====] - 0s 6ms/step - loss: 971.7885 - mae: 28.9279 - mse: 971.7885 - mape: 144.3631
Epoch 24/600
3/3 [=====] - 0s 7ms/step - loss: 4406.1404 - mae: 61.7547 - mse: 4406.1404 - mape: 333.4317
Epoch 25/600
3/3 [=====] - 0s 5ms/step - loss: 3037.6640 - mae: 52.4596 - mse: 3037.6640 - mape: 278.1046
Epoch 26/600
3/3 [=====] - 0s 8ms/step - loss: 1005.0712 - mae: 27.9991 - mse: 1005.0712 - mape: 153.0274
Epoch 27/600
3/3 [=====] - 0s 6ms/step - loss: 589.2764 - mae: 22.3871 - mse: 589.2764 - mape: 109.8528
Epoch 28/600
3/3 [=====] - 0s 6ms/step - loss: 992.1494 - mae: 27.0522 - mse: 992.1494 - mape: 146.7876
Epoch 29/600
3/3 [=====] - 0s 8ms/step - loss: 7401.9891 - mae: 82.1303 - mse: 7401.9891 - mape: 438.2449
Epoch 30/600
3/3 [=====] - 0s 5ms/step - loss: 1057.0982 - mae: 28.5358 - mse: 1057.0982 - mape: 153.0502
Epoch 31/600
3/3 [=====] - 0s 5ms/step - loss: 908.9529 - mae: 28.0094 - mse: 908.9529 - mape: 143.6531
Epoch 32/600
3/3 [=====] - 0s 4ms/step - loss: 1049.0039 - mae: 28.8790 - mse: 1049.0039 - mape: 155.2536
Epoch 33/600
3/3 [=====] - 0s 5ms/step - loss: 3750.1646 - mae: 58.3003 - mse: 3750.1646 - mape: 304.5827
Epoch 34/600
3/3 [=====] - 0s 5ms/step - loss: 2354.1736 - mae: 44.7678 - mse: 2354.1736 - mape: 231.8187
Epoch 35/600
3/3 [=====] - 0s 7ms/step - loss: 1588.1316 - mae: 37.9098 - mse: 1588.1316 - mape: 191.3908
Epoch 36/600
3/3 [=====] - 0s 5ms/step - loss: 2463.4305 - mae: 45.9419 - mse: 2463.4305 - mape: 239.3862
Epoch 37/600
3/3 [=====] - 0s 5ms/step - loss: 2883.8064 - mae: 51.8196 - mse: 2883.8064 - mape: 266.5131
Epoch 38/600
3/3 [=====] - 0s 6ms/step - loss: 1062.9001 - mae: 29.0003 - mse: 1062.9001 - mape: 153.0009
Epoch 39/600
3/3 [=====] - 0s 6ms/step - loss: 1231.2029 - mae: 33.0640 - mse: 1231.2029 - mape: 169.6616
Epoch 40/600
3/3 [=====] - 0s 6ms/step - loss: 2609.0359 - mae: 47.1796 - mse: 2609.0359 - mape: 253.4771
Epoch 41/600

3/3 [=====] - 0s 5ms/step - loss: 5197.5856 - mae: 69.0039 - mse: 5197.5856 - mape: 353.3952
Epoch 42/600
3/3 [=====] - 0s 5ms/step - loss: 1171.0535 - mae: 29.9310 - mse: 1171.0535 - mape: 166.5360
Epoch 43/600
3/3 [=====] - 0s 4ms/step - loss: 1157.9099 - mae: 31.7728 - mse: 1157.9099 - mape: 166.5506
Epoch 44/600
3/3 [=====] - 0s 4ms/step - loss: 1640.9627 - mae: 36.7075 - mse: 1640.9627 - mape: 197.4822
Epoch 45/600
3/3 [=====] - 0s 4ms/step - loss: 2275.9335 - mae: 45.9064 - mse: 2275.9335 - mape: 234.7095
Epoch 46/600
3/3 [=====] - 0s 4ms/step - loss: 2752.7581 - mae: 48.9129 - mse: 2752.7581 - mape: 262.2248
Epoch 47/600
3/3 [=====] - 0s 5ms/step - loss: 2283.0430 - mae: 45.1607 - mse: 2283.0430 - mape: 232.1093
Epoch 48/600
3/3 [=====] - 0s 4ms/step - loss: 2142.1296 - mae: 42.6233 - mse: 2142.1296 - mape: 220.2674
Epoch 49/600
3/3 [=====] - 0s 4ms/step - loss: 1450.9813 - mae: 36.2206 - mse: 1450.9813 - mape: 185.1932
Epoch 50/600
3/3 [=====] - 0s 5ms/step - loss: 1251.7292 - mae: 32.0376 - mse: 1251.7292 - mape: 172.6736
Epoch 51/600
3/3 [=====] - 0s 4ms/step - loss: 1280.3925 - mae: 33.8779 - mse: 1280.3925 - mape: 175.4375
Epoch 52/600
3/3 [=====] - 0s 6ms/step - loss: 4377.1171 - mae: 62.0402 - mse: 4377.1171 - mape: 333.9807
Epoch 53/600
3/3 [=====] - 0s 4ms/step - loss: 1543.3945 - mae: 37.4547 - mse: 1543.3945 - mape: 192.9483
Epoch 54/600
3/3 [=====] - 0s 4ms/step - loss: 797.4592 - mae: 24.2782 - mse: 797.4592 - mape: 137.1355
Epoch 55/600
3/3 [=====] - 0s 4ms/step - loss: 1716.6403 - mae: 39.8065 - mse: 1716.6403 - mape: 203.7322
Epoch 56/600
3/3 [=====] - 0s 4ms/step - loss: 2425.7878 - mae: 45.7148 - mse: 2425.7878 - mape: 240.6292
Epoch 57/600
3/3 [=====] - 0s 4ms/step - loss: 3980.3923 - mae: 60.7810 - mse: 3980.3923 - mape: 305.9552
Epoch 58/600
3/3 [=====] - 0s 5ms/step - loss: 1622.3247 - mae: 36.5417 - mse: 1622.3247 - mape: 202.2010
Epoch 59/600
3/3 [=====] - 0s 4ms/step - loss: 1335.4836 - mae: 34.5945 - mse: 1335.4836 - mape: 174.6027
Epoch 60/600
3/3 [=====] - 0s 6ms/step - loss: 1928.4272 - mae: 40.7686 - mse: 1928.4272 - mape: 219.8273
Epoch 61/600
3/3 [=====] - 0s 4ms/step - loss: 1028.4791 - mae: 30.7310 - mse: 1028.4791 - mape: 152.9155
Epoch 62/600
3/3 [=====] - 0s 4ms/step - loss: 2110.9516 - mae: 42.7665 - mse: 2110.9516 - mape: 221.6302
Epoch 63/600
3/3 [=====] - 0s 5ms/step - loss: 3594.9833 - mae: 57.9336 - mse: 3594.9833 - mape: 300.2370

Epoch 64/600
3/3 [=====] - 0s 5ms/step - loss: 1805.7398 - mae: 39.8327 - mse: 1805.7398 - mape: 212.9508
Epoch 65/600
3/3 [=====] - 0s 8ms/step - loss: 518.9148 - mae: 20.9190 - mse: 518.9148 - mape: 103.8634
Epoch 66/600
3/3 [=====] - 0s 4ms/step - loss: 1007.5748 - mae: 27.8193 - mse: 1007.5748 - mape: 148.0434
Epoch 67/600
3/3 [=====] - 0s 4ms/step - loss: 3573.8958 - mae: 57.1187 - mse: 3573.8958 - mape: 305.7353
Epoch 68/600
3/3 [=====] - 0s 4ms/step - loss: 1364.0207 - mae: 33.9562 - mse: 1364.0207 - mape: 181.9914
Epoch 69/600
3/3 [=====] - 0s 5ms/step - loss: 1852.5599 - mae: 41.0326 - mse: 1852.5599 - mape: 214.6576
Epoch 70/600
3/3 [=====] - 0s 5ms/step - loss: 1601.2832 - mae: 36.4320 - mse: 1601.2832 - mape: 197.6456
Epoch 71/600
3/3 [=====] - 0s 5ms/step - loss: 2873.2226 - mae: 51.6272 - mse: 2873.2226 - mape: 264.3367
Epoch 72/600
3/3 [=====] - 0s 4ms/step - loss: 1693.7930 - mae: 37.6277 - mse: 1693.7930 - mape: 193.3540
Epoch 73/600
3/3 [=====] - 0s 4ms/step - loss: 1604.1563 - mae: 38.0711 - mse: 1604.1563 - mape: 194.6854
Epoch 74/600
3/3 [=====] - 0s 4ms/step - loss: 2820.5536 - mae: 49.7628 - mse: 2820.5536 - mape: 263.7119
Epoch 75/600
3/3 [=====] - 0s 7ms/step - loss: 2480.5276 - mae: 48.0820 - mse: 2480.5276 - mape: 243.6779
Epoch 76/600
3/3 [=====] - 0s 8ms/step - loss: 1320.0724 - mae: 33.6817 - mse: 1320.0724 - mape: 180.3726
Epoch 77/600
3/3 [=====] - 0s 4ms/step - loss: 529.3132 - mae: 21.2066 - mse: 529.3132 - mape: 107.0719
Epoch 78/600
3/3 [=====] - 0s 5ms/step - loss: 1736.7380 - mae: 38.1053 - mse: 1736.7380 - mape: 206.6714
Epoch 79/600
3/3 [=====] - 0s 5ms/step - loss: 2637.1225 - mae: 49.5204 - mse: 2637.1225 - mape: 252.1272
Epoch 80/600
3/3 [=====] - 0s 7ms/step - loss: 2489.7911 - mae: 46.3218 - mse: 2489.7911 - mape: 251.9376
Epoch 81/600
3/3 [=====] - 0s 7ms/step - loss: 1812.9634 - mae: 41.0211 - mse: 1812.9634 - mape: 212.3609
Epoch 82/600
3/3 [=====] - 0s 7ms/step - loss: 438.3157 - mae: 18.5872 - mse: 438.3157 - mape: 97.1574
Epoch 83/600
3/3 [=====] - 0s 8ms/step - loss: 1919.1661 - mae: 41.6049 - mse: 1919.1661 - mape: 213.0442
Epoch 84/600
3/3 [=====] - 0s 5ms/step - loss: 4712.9136 - mae: 64.4139 - mse: 4712.9136 - mape: 354.8490
Epoch 85/600
3/3 [=====] - 0s 5ms/step - loss: 834.1529 - mae: 26.9822 - mse: 834.1529 - mape: 142.6138
Epoch 86/600

3/3 [=====] - 0s 4ms/step - loss: 410.5833 - mae: 17.8226 - mse: 410.5833 - mape: 94.0403
Epoch 87/600
3/3 [=====] - 0s 4ms/step - loss: 1283.7125 - mae: 33.7380 - mse: 1283.7125 - mape: 174.4985
Epoch 88/600
3/3 [=====] - 0s 8ms/step - loss: 2555.4183 - mae: 47.4881 - mse: 2555.4183 - mape: 255.0943
Epoch 89/600
3/3 [=====] - 0s 5ms/step - loss: 1935.5714 - mae: 42.2322 - mse: 1935.5714 - mape: 221.7909
Epoch 90/600
3/3 [=====] - 0s 7ms/step - loss: 2031.7666 - mae: 42.1647 - mse: 2031.7666 - mape: 232.8123
Epoch 91/600
3/3 [=====] - 0s 5ms/step - loss: 590.2339 - mae: 22.5968 - mse: 590.2339 - mape: 114.4962
Epoch 92/600
3/3 [=====] - 0s 4ms/step - loss: 1620.9488 - mae: 37.1199 - mse: 1620.9488 - mape: 198.4854
Epoch 93/600
3/3 [=====] - 0s 5ms/step - loss: 3388.2125 - mae: 55.8110 - mse: 3388.2125 - mape: 296.7482
Epoch 94/600
3/3 [=====] - 0s 5ms/step - loss: 896.4389 - mae: 27.3864 - mse: 896.4389 - mape: 146.2841
Epoch 95/600
3/3 [=====] - 0s 4ms/step - loss: 810.9770 - mae: 26.8771 - mse: 810.9770 - mape: 142.2847
Epoch 96/600
3/3 [=====] - 0s 5ms/step - loss: 1606.9908 - mae: 37.3141 - mse: 1606.9908 - mape: 201.1417
Epoch 97/600
3/3 [=====] - 0s 7ms/step - loss: 884.1421 - mae: 27.7381 - mse: 884.1421 - mape: 146.0620
Epoch 98/600
3/3 [=====] - 0s 4ms/step - loss: 1232.9809 - mae: 32.3353 - mse: 1232.9809 - mape: 167.5439
Epoch 99/600
3/3 [=====] - 0s 6ms/step - loss: 2943.2896 - mae: 51.8225 - mse: 2943.2896 - mape: 265.2376
Epoch 100/600
3/3 [=====] - 0s 4ms/step - loss: 2089.7831 - mae: 42.6933 - mse: 2089.7831 - mape: 231.9424
Epoch 101/600
3/3 [=====] - 0s 4ms/step - loss: 656.5950 - mae: 23.8026 - mse: 656.5950 - mape: 117.8122
Epoch 102/600
3/3 [=====] - 0s 5ms/step - loss: 736.9250 - mae: 24.5360 - mse: 736.9250 - mape: 130.1176
Epoch 103/600
3/3 [=====] - 0s 4ms/step - loss: 2849.4003 - mae: 51.1803 - mse: 2849.4003 - mape: 266.1258
Epoch 104/600
3/3 [=====] - 0s 6ms/step - loss: 2264.4712 - mae: 44.3894 - mse: 2264.4712 - mape: 238.7867
Epoch 105/600
3/3 [=====] - 0s 7ms/step - loss: 1026.0725 - mae: 30.3284 - mse: 1026.0725 - mape: 160.4414
Epoch 106/600
3/3 [=====] - 0s 7ms/step - loss: 473.3647 - mae: 18.6024 - mse: 473.3647 - mape: 100.9241
Epoch 107/600
3/3 [=====] - 0s 5ms/step - loss: 657.7988 - mae: 23.8351 - mse: 657.7988 - mape: 120.1022
Epoch 108/600
3/3 [=====] - 0s 4ms/step - loss: 2735.8364 - mae: 48.9333 - mse: 2735.8364 - mape: 261.0577

Epoch 109/600
3/3 [=====] - 0s 5ms/step - loss: 2246.9593 - mae: 44.7665 - mse: 2246.9593 - mape: 227.8288
Epoch 110/600
3/3 [=====] - 0s 4ms/step - loss: 1505.5137 - mae: 36.4058 - mse: 1505.5137 - mape: 194.7144
Epoch 111/600
3/3 [=====] - 0s 3ms/step - loss: 1149.2045 - mae: 32.1400 - mse: 1149.2045 - mape: 167.6157
Epoch 112/600
3/3 [=====] - 0s 4ms/step - loss: 1288.9217 - mae: 33.3307 - mse: 1288.9217 - mape: 175.7325
Epoch 113/600
3/3 [=====] - 0s 6ms/step - loss: 1443.5603 - mae: 36.4271 - mse: 1443.5603 - mape: 187.0958
Epoch 114/600
3/3 [=====] - 0s 6ms/step - loss: 2052.3639 - mae: 41.9502 - mse: 2052.3639 - mape: 228.7121
Epoch 115/600
3/3 [=====] - 0s 4ms/step - loss: 1433.3831 - mae: 35.9452 - mse: 1433.3831 - mape: 190.7398
Epoch 116/600
3/3 [=====] - 0s 4ms/step - loss: 861.0384 - mae: 27.0668 - mse: 861.0384 - mape: 139.0662
Epoch 117/600
3/3 [=====] - 0s 4ms/step - loss: 2489.5316 - mae: 48.1010 - mse: 2489.5316 - mape: 247.5628
Epoch 118/600
3/3 [=====] - 0s 5ms/step - loss: 1962.9156 - mae: 41.4422 - mse: 1962.9156 - mape: 227.6686
Epoch 119/600
3/3 [=====] - 0s 4ms/step - loss: 449.9997 - mae: 19.6612 - mse: 449.9997 - mape: 98.6274
Epoch 120/600
3/3 [=====] - 0s 4ms/step - loss: 1283.8008 - mae: 32.6372 - mse: 1283.8008 - mape: 173.6455
Epoch 121/600
3/3 [=====] - 0s 5ms/step - loss: 2076.4956 - mae: 43.5453 - mse: 2076.4956 - mape: 221.3089
Epoch 122/600
3/3 [=====] - 0s 4ms/step - loss: 1719.3149 - mae: 38.5464 - mse: 1719.3149 - mape: 203.8985
Epoch 123/600
3/3 [=====] - 0s 9ms/step - loss: 889.2583 - mae: 28.2059 - mse: 889.2583 - mape: 145.8375
Epoch 124/600
3/3 [=====] - 0s 3ms/step - loss: 722.4718 - mae: 24.1600 - mse: 722.4718 - mape: 122.6978
Epoch 125/600
3/3 [=====] - 0s 4ms/step - loss: 1072.7472 - mae: 31.3058 - mse: 1072.7472 - mape: 162.3698
Epoch 126/600
3/3 [=====] - 0s 4ms/step - loss: 1912.8362 - mae: 40.8422 - mse: 1912.8362 - mape: 217.5800
Epoch 127/600
3/3 [=====] - 0s 7ms/step - loss: 2410.5452 - mae: 47.0662 - mse: 2410.5452 - mape: 245.7062
Epoch 128/600
3/3 [=====] - 0s 5ms/step - loss: 525.4987 - mae: 20.7852 - mse: 525.4987 - mape: 112.2787
Epoch 129/600
3/3 [=====] - 0s 6ms/step - loss: 321.9168 - mae: 16.0571 - mse: 321.9168 - mape: 82.1785
Epoch 130/600
3/3 [=====] - 0s 7ms/step - loss: 875.9504 - mae: 26.4290 - mse: 875.9504 - mape: 139.5093
Epoch 131/600

3/3 [=====] - 0s 4ms/step - loss: 2326.3300 - mae: 46.3221 - mse: 2326.3300 - mape: 232.3848
Epoch 132/600
3/3 [=====] - 0s 4ms/step - loss: 2946.7491 - mae: 50.6473 - mse: 2946.7491 - mape: 273.6115
Epoch 133/600
3/3 [=====] - 0s 5ms/step - loss: 600.2934 - mae: 22.9712 - mse: 600.2934 - mape: 118.8527
Epoch 134/600
3/3 [=====] - 0s 6ms/step - loss: 378.8204 - mae: 17.1717 - mse: 378.8204 - mape: 92.8980
Epoch 135/600
3/3 [=====] - 0s 4ms/step - loss: 1311.5879 - mae: 34.1411 - mse: 1311.5879 - mape: 178.0234
Epoch 136/600
3/3 [=====] - 0s 4ms/step - loss: 1996.9805 - mae: 42.2360 - mse: 1996.9805 - mape: 223.1914
Epoch 137/600
3/3 [=====] - 0s 5ms/step - loss: 1007.4015 - mae: 29.8982 - mse: 1007.4015 - mape: 155.0419
Epoch 138/600
3/3 [=====] - 0s 5ms/step - loss: 956.6336 - mae: 28.7665 - mse: 956.6336 - mape: 152.3001
Epoch 139/600
3/3 [=====] - 0s 5ms/step - loss: 500.8276 - mae: 20.2482 - mse: 500.8276 - mape: 105.2076
Epoch 140/600
3/3 [=====] - 0s 5ms/step - loss: 1720.1689 - mae: 38.5334 - mse: 1720.1689 - mape: 204.7459
Epoch 141/600
3/3 [=====] - 0s 7ms/step - loss: 3026.3387 - mae: 52.7570 - mse: 3026.3387 - mape: 277.3833
Epoch 142/600
3/3 [=====] - 0s 4ms/step - loss: 434.8238 - mae: 18.1120 - mse: 434.8238 - mape: 96.9923
Epoch 143/600
3/3 [=====] - 0s 4ms/step - loss: 447.6372 - mae: 19.6228 - mse: 447.6372 - mape: 96.6819
Epoch 144/600
3/3 [=====] - 0s 4ms/step - loss: 621.0534 - mae: 22.7791 - mse: 621.0534 - mape: 119.3045
Epoch 145/600
3/3 [=====] - 0s 6ms/step - loss: 1977.8466 - mae: 42.3711 - mse: 1977.8466 - mape: 217.3091
Epoch 146/600
3/3 [=====] - 0s 4ms/step - loss: 2440.6161 - mae: 46.4903 - mse: 2440.6161 - mape: 245.1289
Epoch 147/600
3/3 [=====] - 0s 5ms/step - loss: 694.8974 - mae: 24.7141 - mse: 694.8974 - mape: 122.9006
Epoch 148/600
3/3 [=====] - 0s 6ms/step - loss: 582.1426 - mae: 21.9657 - mse: 582.1426 - mape: 111.1900
Epoch 149/600
3/3 [=====] - 0s 5ms/step - loss: 1904.0208 - mae: 41.5973 - mse: 1904.0208 - mape: 215.7591
Epoch 150/600
3/3 [=====] - 0s 4ms/step - loss: 1462.3394 - mae: 35.6710 - mse: 1462.3394 - mape: 192.9638
Epoch 151/600
3/3 [=====] - 0s 4ms/step - loss: 571.5234 - mae: 22.3858 - mse: 571.5234 - mape: 108.9934
Epoch 152/600
3/3 [=====] - 0s 4ms/step - loss: 887.1790 - mae: 27.9226 - mse: 887.1790 - mape: 143.6766
Epoch 153/600
3/3 [=====] - 0s 5ms/step - loss: 1907.3673 - mae: 41.5468 - mse: 1907.3673 - mape: 217.3832

Epoch 154/600
3/3 [=====] - 0s 5ms/step - loss: 1256.7466 - mae: 32.5342 - mse: 1256.7466 - mape: 176.6605
Epoch 155/600
3/3 [=====] - 0s 5ms/step - loss: 1048.2040 - mae: 30.3749 - mse: 1048.2040 - mape: 161.3576
Epoch 156/600
3/3 [=====] - 0s 5ms/step - loss: 599.8319 - mae: 22.1150 - mse: 599.8319 - mape: 116.3467
Epoch 157/600
3/3 [=====] - 0s 5ms/step - loss: 1756.2185 - mae: 39.9797 - mse: 1756.2185 - mape: 211.2359
Epoch 158/600
3/3 [=====] - 0s 4ms/step - loss: 1360.3981 - mae: 34.4096 - mse: 1360.3981 - mape: 189.6321
Epoch 159/600
3/3 [=====] - 0s 4ms/step - loss: 373.6550 - mae: 17.5537 - mse: 373.6550 - mape: 86.3851
Epoch 160/600
3/3 [=====] - 0s 4ms/step - loss: 1139.9803 - mae: 31.2177 - mse: 1139.9803 - mape: 167.6283
Epoch 161/600
3/3 [=====] - 0s 4ms/step - loss: 2170.2719 - mae: 44.3374 - mse: 2170.2719 - mape: 230.4525
Epoch 162/600
3/3 [=====] - 0s 6ms/step - loss: 1930.1471 - mae: 41.1948 - mse: 1930.1471 - mape: 214.0191
Epoch 163/600
3/3 [=====] - 0s 8ms/step - loss: 1053.0994 - mae: 30.7759 - mse: 1053.0994 - mape: 164.0066
Epoch 164/600
3/3 [=====] - 0s 6ms/step - loss: 306.7716 - mae: 15.8204 - mse: 306.7716 - mape: 85.0205
Epoch 165/600
3/3 [=====] - 0s 8ms/step - loss: 269.5858 - mae: 14.2466 - mse: 269.5858 - mape: 73.2461
Epoch 166/600
3/3 [=====] - 0s 7ms/step - loss: 1154.2568 - mae: 30.7798 - mse: 1154.2568 - mape: 164.7043
Epoch 167/600
3/3 [=====] - 0s 6ms/step - loss: 3794.9188 - mae: 58.6019 - mse: 3794.9188 - mape: 313.2174
Epoch 168/600
3/3 [=====] - 0s 6ms/step - loss: 375.5879 - mae: 17.2196 - mse: 375.5879 - mape: 91.9279
Epoch 169/600
3/3 [=====] - 0s 5ms/step - loss: 197.6592 - mae: 12.2041 - mse: 197.6592 - mape: 63.0565
Epoch 170/600
3/3 [=====] - 0s 7ms/step - loss: 450.4231 - mae: 18.8129 - mse: 450.4231 - mape: 99.5783
Epoch 171/600
3/3 [=====] - 0s 4ms/step - loss: 2666.8366 - mae: 49.3952 - mse: 2666.8366 - mape: 257.0966
Epoch 172/600
3/3 [=====] - 0s 6ms/step - loss: 1319.9704 - mae: 33.9023 - mse: 1319.9704 - mape: 182.1734
Epoch 173/600
3/3 [=====] - 0s 5ms/step - loss: 152.7553 - mae: 10.8724 - mse: 152.7553 - mape: 52.0348
Epoch 174/600
3/3 [=====] - 0s 5ms/step - loss: 296.2188 - mae: 14.9820 - mse: 296.2188 - mape: 77.2208
Epoch 175/600
3/3 [=====] - 0s 4ms/step - loss: 591.7203 - mae: 22.2542 - mse: 591.7203 - mape: 116.2304
Epoch 176/600

3/3 [=====] - 0s 15ms/step - loss: 2536.9668 - mae: 47.2963 - mse: 2536.9668 - mape: 251.943
1
Epoch 177/600
3/3 [=====] - 0s 4ms/step - loss: 1656.8702 - mae: 38.3625 - mse: 1656.8702 - mape: 195.1189
Epoch 178/600
3/3 [=====] - 0s 5ms/step - loss: 644.8771 - mae: 23.2931 - mse: 644.8771 - mape: 126.3426
Epoch 179/600
3/3 [=====] - 0s 4ms/step - loss: 535.2185 - mae: 21.3671 - mse: 535.2185 - mape: 110.0575
Epoch 180/600
3/3 [=====] - 0s 4ms/step - loss: 964.6102 - mae: 28.7056 - mse: 964.6102 - mape: 154.5606
Epoch 181/600
3/3 [=====] - 0s 7ms/step - loss: 1172.7832 - mae: 32.3904 - mse: 1172.7832 - mape: 173.1901
Epoch 182/600
3/3 [=====] - 0s 4ms/step - loss: 808.8498 - mae: 26.5501 - mse: 808.8498 - mape: 137.2478
Epoch 183/600
3/3 [=====] - 0s 5ms/step - loss: 1153.7190 - mae: 32.2039 - mse: 1153.7190 - mape: 167.1528
Epoch 184/600
3/3 [=====] - 0s 5ms/step - loss: 1424.0152 - mae: 35.5729 - mse: 1424.0152 - mape: 182.6398
Epoch 185/600
3/3 [=====] - 0s 4ms/step - loss: 786.5783 - mae: 26.0524 - mse: 786.5783 - mape: 136.3742
Epoch 186/600
3/3 [=====] - 0s 4ms/step - loss: 799.6958 - mae: 25.6440 - mse: 799.6958 - mape: 138.4854
Epoch 187/600
3/3 [=====] - 0s 5ms/step - loss: 1184.2842 - mae: 32.9428 - mse: 1184.2842 - mape: 166.5341
Epoch 188/600
3/3 [=====] - 0s 4ms/step - loss: 1619.2339 - mae: 37.8404 - mse: 1619.2339 - mape: 203.7819
Epoch 189/600
3/3 [=====] - 0s 4ms/step - loss: 826.6799 - mae: 26.6989 - mse: 826.6799 - mape: 141.7066
Epoch 190/600
3/3 [=====] - 0s 4ms/step - loss: 715.0564 - mae: 24.4202 - mse: 715.0564 - mape: 131.6779
Epoch 191/600
3/3 [=====] - 0s 4ms/step - loss: 904.2716 - mae: 28.1654 - mse: 904.2716 - mape: 143.1180
Epoch 192/600
3/3 [=====] - 0s 4ms/step - loss: 2179.6328 - mae: 43.6161 - mse: 2179.6328 - mape: 236.9579
Epoch 193/600
3/3 [=====] - 0s 7ms/step - loss: 414.0047 - mae: 18.6357 - mse: 414.0047 - mape: 97.0986
Epoch 194/600
3/3 [=====] - 0s 4ms/step - loss: 104.8120 - mae: 8.0484 - mse: 104.8120 - mape: 43.0927
Epoch 195/600
3/3 [=====] - 0s 5ms/step - loss: 376.8360 - mae: 16.3192 - mse: 376.8360 - mape: 83.0204
Epoch 196/600
3/3 [=====] - 0s 5ms/step - loss: 2839.3167 - mae: 50.2461 - mse: 2839.3167 - mape: 268.7711
Epoch 197/600
3/3 [=====] - 0s 4ms/step - loss: 411.3435 - mae: 18.6642 - mse: 411.3435 - mape: 93.3901
Epoch 198/600

3/3 [=====] - 0s 6ms/step - loss: 323.1796 - mae: 16.0193 - mse: 323.1796 - mape: 85.6256
Epoch 199/600
3/3 [=====] - 0s 5ms/step - loss: 766.4483 - mae: 25.5310 - mse: 766.4483 - mape: 132.0963
Epoch 200/600
3/3 [=====] - 0s 4ms/step - loss: 2013.8746 - mae: 42.6898 - mse: 2013.8746 - mape: 227.3162
Epoch 201/600
3/3 [=====] - 0s 5ms/step - loss: 930.2997 - mae: 28.9863 - mse: 930.2997 - mape: 153.7868
Epoch 202/600
3/3 [=====] - 0s 4ms/step - loss: 277.9862 - mae: 14.4417 - mse: 277.9862 - mape: 77.0918
Epoch 203/600
3/3 [=====] - 0s 4ms/step - loss: 211.3612 - mae: 13.0168 - mse: 211.3612 - mape: 66.7018
Epoch 204/600
3/3 [=====] - 0s 4ms/step - loss: 818.5855 - mae: 25.4710 - mse: 818.5855 - mape: 136.3867
Epoch 205/600
3/3 [=====] - 0s 5ms/step - loss: 2667.6839 - mae: 49.1455 - mse: 2667.6839 - mape: 250.1421
Epoch 206/600
3/3 [=====] - 0s 6ms/step - loss: 1170.2578 - mae: 31.4479 - mse: 1170.2578 - mape: 168.7725
Epoch 207/600
3/3 [=====] - 0s 4ms/step - loss: 355.5030 - mae: 17.1390 - mse: 355.5030 - mape: 91.7259
Epoch 208/600
3/3 [=====] - 0s 4ms/step - loss: 125.7804 - mae: 9.2443 - mse: 125.7804 - mape: 47.6509
Epoch 209/600
3/3 [=====] - 0s 5ms/step - loss: 506.9739 - mae: 20.7105 - mse: 506.9739 - mape: 109.6663
Epoch 210/600
3/3 [=====] - 0s 4ms/step - loss: 1796.1755 - mae: 39.2210 - mse: 1796.1755 - mape: 210.7695
Epoch 211/600
3/3 [=====] - 0s 4ms/step - loss: 850.8934 - mae: 27.2049 - mse: 850.8934 - mape: 143.8226
Epoch 212/600
3/3 [=====] - 0s 4ms/step - loss: 827.6486 - mae: 26.9161 - mse: 827.6486 - mape: 141.9207
Epoch 213/600
3/3 [=====] - 0s 6ms/step - loss: 724.9042 - mae: 25.3884 - mse: 724.9042 - mape: 131.4412
Epoch 214/600
3/3 [=====] - 0s 12ms/step - loss: 1389.1878 - mae: 35.1402 - mse: 1389.1878 - mape: 185.129
9
Epoch 215/600
3/3 [=====] - 0s 10ms/step - loss: 1040.0686 - mae: 30.6178 - mse: 1040.0686 - mape: 157.250
9
Epoch 216/600
3/3 [=====] - 0s 3ms/step - loss: 996.1281 - mae: 29.4425 - mse: 996.1281 - mape: 156.3479
Epoch 217/600
3/3 [=====] - 0s 8ms/step - loss: 738.7887 - mae: 25.6424 - mse: 738.7887 - mape: 132.5657
Epoch 218/600
3/3 [=====] - 0s 5ms/step - loss: 456.5752 - mae: 19.0299 - mse: 456.5752 - mape: 103.3220
Epoch 219/600
3/3 [=====] - 0s 8ms/step - loss: 1352.6349 - mae: 34.9945 - mse: 1352.6349 - mape: 183.7453

Epoch 220/600
3/3 [=====] - 0s 6ms/step - loss: 1279.9244 - mae: 33.8198 - mse: 1279.9244 - mape: 173.3205
Epoch 221/600
3/3 [=====] - 0s 6ms/step - loss: 862.2955 - mae: 27.9166 - mse: 862.2955 - mape: 137.1394
Epoch 222/600
3/3 [=====] - 0s 6ms/step - loss: 417.2579 - mae: 18.3200 - mse: 417.2579 - mape: 97.2559
Epoch 223/600
3/3 [=====] - 0s 8ms/step - loss: 868.8767 - mae: 27.5040 - mse: 868.8767 - mape: 145.3362
Epoch 224/600
3/3 [=====] - 0s 6ms/step - loss: 1028.8377 - mae: 29.8458 - mse: 1028.8377 - mape: 157.4894
Epoch 225/600
3/3 [=====] - 0s 5ms/step - loss: 1036.8083 - mae: 30.4574 - mse: 1036.8083 - mape: 159.0646
Epoch 226/600
3/3 [=====] - 0s 6ms/step - loss: 1017.4853 - mae: 29.6580 - mse: 1017.4853 - mape: 161.3129
Epoch 227/600
3/3 [=====] - 0s 5ms/step - loss: 423.4234 - mae: 18.9554 - mse: 423.4234 - mape: 95.7648
Epoch 228/600
3/3 [=====] - 0s 5ms/step - loss: 637.7810 - mae: 23.4758 - mse: 637.7810 - mape: 123.4765
Epoch 229/600
3/3 [=====] - 0s 5ms/step - loss: 1377.7454 - mae: 35.3850 - mse: 1377.7454 - mape: 189.9147
Epoch 230/600
3/3 [=====] - 0s 5ms/step - loss: 513.6717 - mae: 20.9554 - mse: 513.6717 - mape: 107.2870
Epoch 231/600
3/3 [=====] - 0s 6ms/step - loss: 906.2994 - mae: 28.3760 - mse: 906.2994 - mape: 148.2049
Epoch 232/600
3/3 [=====] - 0s 3ms/step - loss: 903.0605 - mae: 27.7285 - mse: 903.0605 - mape: 146.3109
Epoch 233/600
3/3 [=====] - 0s 5ms/step - loss: 1386.5400 - mae: 35.6114 - mse: 1386.5400 - mape: 189.7926
Epoch 234/600
3/3 [=====] - 0s 3ms/step - loss: 370.4724 - mae: 17.0704 - mse: 370.4724 - mape: 91.1085
Epoch 235/600
3/3 [=====] - 0s 7ms/step - loss: 791.2092 - mae: 26.4818 - mse: 791.2092 - mape: 140.9193
Epoch 236/600
3/3 [=====] - 0s 6ms/step - loss: 668.2587 - mae: 23.5700 - mse: 668.2587 - mape: 129.2599
Epoch 237/600
3/3 [=====] - 0s 5ms/step - loss: 697.3219 - mae: 24.7921 - mse: 697.3219 - mape: 129.3674
Epoch 238/600
3/3 [=====] - 0s 7ms/step - loss: 1283.2125 - mae: 33.5802 - mse: 1283.2125 - mape: 176.4374
Epoch 239/600
3/3 [=====] - 0s 8ms/step - loss: 1211.5208 - mae: 32.8139 - mse: 1211.5208 - mape: 171.5022
Epoch 240/600
3/3 [=====] - 0s 5ms/step - loss: 757.2012 - mae: 25.2590 - mse: 757.2012 - mape: 137.2210
Epoch 241/600
3/3 [=====] - 0s 6ms/step - loss: 112.9669 - mae: 9.2498 - mse: 112.9669 - mape: 46.8268
Epoch 242/600

3/3 [=====] - 0s 7ms/step - loss: 172.6076 - mae: 11.2316 - mse: 172.6076 - mape: 60.5201
Epoch 243/600
3/3 [=====] - 0s 4ms/step - loss: 1030.2441 - mae: 29.6399 - mse: 1030.2441 - mape: 156.3706
Epoch 244/600
3/3 [=====] - 0s 4ms/step - loss: 2089.6980 - mae: 43.2801 - mse: 2089.6980 - mape: 230.3395
Epoch 245/600
3/3 [=====] - 0s 5ms/step - loss: 847.8126 - mae: 27.1788 - mse: 847.8126 - mape: 145.9943
Epoch 246/600
3/3 [=====] - 0s 6ms/step - loss: 122.2411 - mae: 9.3437 - mse: 122.2411 - mape: 49.5667
Epoch 247/600
3/3 [=====] - 0s 9ms/step - loss: 118.9601 - mae: 9.1262 - mse: 118.9601 - mape: 44.2137
Epoch 248/600
3/3 [=====] - 0s 6ms/step - loss: 767.8241 - mae: 24.6510 - mse: 767.8241 - mape: 132.7343
Epoch 249/600
3/3 [=====] - 0s 5ms/step - loss: 3157.8540 - mae: 52.3705 - mse: 3157.8540 - mape: 274.8525
Epoch 250/600
3/3 [=====] - 0s 4ms/step - loss: 274.1642 - mae: 14.5010 - mse: 274.1642 - mape: 79.4834
Epoch 251/600
3/3 [=====] - 0s 5ms/step - loss: 125.2920 - mae: 9.6395 - mse: 125.2920 - mape: 48.5421
Epoch 252/600
3/3 [=====] - 0s 7ms/step - loss: 104.4657 - mae: 8.4425 - mse: 104.4657 - mape: 42.3855
Epoch 253/600
3/3 [=====] - 0s 5ms/step - loss: 837.3673 - mae: 25.9950 - mse: 837.3673 - mape: 133.5181
Epoch 254/600
3/3 [=====] - 0s 5ms/step - loss: 1182.9252 - mae: 32.2290 - mse: 1182.9252 - mape: 171.1076
Epoch 255/600
3/3 [=====] - 0s 5ms/step - loss: 845.0758 - mae: 27.5534 - mse: 845.0758 - mape: 140.1508
Epoch 256/600
3/3 [=====] - 0s 4ms/step - loss: 742.8454 - mae: 25.0609 - mse: 742.8454 - mape: 128.0012
Epoch 257/600
3/3 [=====] - 0s 5ms/step - loss: 1087.7052 - mae: 31.1671 - mse: 1087.7052 - mape: 165.5372
Epoch 258/600
3/3 [=====] - 0s 4ms/step - loss: 634.8080 - mae: 23.1570 - mse: 634.8080 - mape: 124.3580
Epoch 259/600
3/3 [=====] - 0s 5ms/step - loss: 240.2319 - mae: 13.8425 - mse: 240.2319 - mape: 72.0431
Epoch 260/600
3/3 [=====] - 0s 6ms/step - loss: 1100.3388 - mae: 30.7455 - mse: 1100.3388 - mape: 163.2047
Epoch 261/600
3/3 [=====] - 0s 5ms/step - loss: 1240.8142 - mae: 32.9420 - mse: 1240.8142 - mape: 170.0576
Epoch 262/600
3/3 [=====] - 0s 5ms/step - loss: 629.8927 - mae: 22.9765 - mse: 629.8927 - mape: 122.8993
Epoch 263/600
3/3 [=====] - 0s 4ms/step - loss: 753.3777 - mae: 26.1077 - mse: 753.3777 - mape: 134.0962
Epoch 264/600
3/3 [=====] - 0s 5ms/step - loss: 557.8733 - mae: 21.9353 - mse: 557.8733 - mape: 113.8015

Epoch 265/600
3/3 [=====] - 0s 5ms/step - loss: 1209.6261 - mae: 33.2611 - mse: 1209.6261 - mape: 171.5482
Epoch 266/600
3/3 [=====] - 0s 5ms/step - loss: 576.7238 - mae: 21.8446 - mse: 576.7238 - mape: 117.4709
Epoch 267/600
3/3 [=====] - 0s 16ms/step - loss: 906.2032 - mae: 28.6872 - mse: 906.2032 - mape: 150.0013
Epoch 268/600
3/3 [=====] - 0s 4ms/step - loss: 567.0657 - mae: 21.3154 - mse: 567.0657 - mape: 115.8994
Epoch 269/600
3/3 [=====] - 0s 8ms/step - loss: 1306.4831 - mae: 34.6481 - mse: 1306.4831 - mape: 182.3641
Epoch 270/600
3/3 [=====] - 0s 6ms/step - loss: 497.7133 - mae: 20.0970 - mse: 497.7133 - mape: 110.8505
Epoch 271/600
3/3 [=====] - 0s 6ms/step - loss: 452.5814 - mae: 19.9789 - mse: 452.5814 - mape: 100.7629
Epoch 272/600
3/3 [=====] - 0s 7ms/step - loss: 664.9424 - mae: 23.6608 - mse: 664.9424 - mape: 129.3202
Epoch 273/600
3/3 [=====] - 0s 4ms/step - loss: 315.7179 - mae: 16.3958 - mse: 315.7179 - mape: 82.5243
Epoch 274/600
3/3 [=====] - 0s 5ms/step - loss: 1104.7321 - mae: 31.0815 - mse: 1104.7321 - mape: 163.4091
Epoch 275/600
3/3 [=====] - 0s 9ms/step - loss: 1637.8710 - mae: 38.4365 - mse: 1637.8710 - mape: 197.8959
Epoch 276/600
3/3 [=====] - 0s 7ms/step - loss: 717.7357 - mae: 24.2861 - mse: 717.7357 - mape: 135.0896
Epoch 277/600
3/3 [=====] - 0s 3ms/step - loss: 92.5089 - mae: 8.2586 - mse: 92.5089 - mape: 41.6282
Epoch 278/600
3/3 [=====] - 0s 4ms/step - loss: 124.6927 - mae: 9.3196 - mse: 124.6927 - mape: 49.9019
Epoch 279/600
3/3 [=====] - 0s 5ms/step - loss: 525.2642 - mae: 20.8308 - mse: 525.2642 - mape: 104.9463
Epoch 280/600
3/3 [=====] - 0s 5ms/step - loss: 2437.3044 - mae: 46.4089 - mse: 2437.3044 - mape: 250.6222
Epoch 281/600
3/3 [=====] - 0s 5ms/step - loss: 300.8380 - mae: 15.9570 - mse: 300.8380 - mape: 82.8396
Epoch 282/600
3/3 [=====] - 0s 5ms/step - loss: 57.1627 - mae: 5.7581 - mse: 57.1627 - mape: 28.9062
Epoch 283/600
3/3 [=====] - 0s 7ms/step - loss: 86.6347 - mae: 7.5240 - mse: 86.6347 - mape: 39.2260
Epoch 284/600
3/3 [=====] - 0s 6ms/step - loss: 949.8225 - mae: 28.0611 - mse: 949.8225 - mape: 150.7900
Epoch 285/600
3/3 [=====] - 0s 4ms/step - loss: 1457.0278 - mae: 36.3993 - mse: 1457.0278 - mape: 182.2310
Epoch 286/600
3/3 [=====] - 0s 5ms/step - loss: 841.8273 - mae: 26.5132 - mse: 841.8273 - mape: 142.3446
Epoch 287/600

3/3 [=====] - 0s 4ms/step - loss: 392.6044 - mae: 18.5722 - mse: 392.6044 - mape: 95.3251
Epoch 288/600
3/3 [=====] - 0s 4ms/step - loss: 584.3118 - mae: 22.1561 - mse: 584.3118 - mape: 118.7797
Epoch 289/600
3/3 [=====] - 0s 5ms/step - loss: 222.4287 - mae: 13.5965 - mse: 222.4287 - mape: 66.7069
Epoch 290/600
3/3 [=====] - 0s 5ms/step - loss: 738.2447 - mae: 24.9034 - mse: 738.2447 - mape: 130.8936
Epoch 291/600
3/3 [=====] - 0s 4ms/step - loss: 1374.8229 - mae: 35.5402 - mse: 1374.8229 - mape: 183.3764
Epoch 292/600
3/3 [=====] - 0s 6ms/step - loss: 518.6858 - mae: 20.5562 - mse: 518.6858 - mape: 114.4257
Epoch 293/600
3/3 [=====] - 0s 6ms/step - loss: 275.9316 - mae: 15.2433 - mse: 275.9316 - mape: 78.7282
Epoch 294/600
3/3 [=====] - 0s 5ms/step - loss: 282.2710 - mae: 14.9379 - mse: 282.2710 - mape: 76.9963
Epoch 295/600
3/3 [=====] - 0s 6ms/step - loss: 1592.4396 - mae: 38.1428 - mse: 1592.4396 - mape: 198.4286
Epoch 296/600
3/3 [=====] - 0s 4ms/step - loss: 867.2393 - mae: 27.2612 - mse: 867.2393 - mape: 144.0008
Epoch 297/600
3/3 [=====] - 0s 6ms/step - loss: 199.3245 - mae: 12.4872 - mse: 199.3245 - mape: 66.2564
Epoch 298/600
3/3 [=====] - 0s 5ms/step - loss: 121.8953 - mae: 9.2783 - mse: 121.8953 - mape: 49.9224
Epoch 299/600
3/3 [=====] - 0s 4ms/step - loss: 738.4657 - mae: 25.4619 - mse: 738.4657 - mape: 130.0852
Epoch 300/600
3/3 [=====] - 0s 8ms/step - loss: 1931.8233 - mae: 40.9465 - mse: 1931.8233 - mape: 227.4125
Epoch 301/600
3/3 [=====] - 0s 4ms/step - loss: 89.3490 - mae: 8.3146 - mse: 89.3490 - mape: 40.4999
Epoch 302/600
3/3 [=====] - 0s 4ms/step - loss: 141.7173 - mae: 10.2936 - mse: 141.7173 - mape: 53.1601
Epoch 303/600
3/3 [=====] - 0s 5ms/step - loss: 536.7908 - mae: 21.3147 - mse: 536.7908 - mape: 109.9984
Epoch 304/600
3/3 [=====] - 0s 4ms/step - loss: 1047.1270 - mae: 30.3760 - mse: 1047.1270 - mape: 160.6785
Epoch 305/600
3/3 [=====] - 0s 5ms/step - loss: 274.3658 - mae: 15.0836 - mse: 274.3658 - mape: 78.6034
Epoch 306/600
3/3 [=====] - 0s 4ms/step - loss: 472.6749 - mae: 19.8342 - mse: 472.6749 - mape: 108.9936
Epoch 307/600
3/3 [=====] - 0s 5ms/step - loss: 834.9827 - mae: 27.3145 - mse: 834.9827 - mape: 142.5024
Epoch 308/600
3/3 [=====] - 0s 5ms/step - loss: 882.0360 - mae: 27.5505 - mse: 882.0360 - mape: 150.0311
Epoch 309/600
3/3 [=====] - 0s 5ms/step - loss: 376.9738 - mae: 18.2588 - mse: 376.9738 - mape: 95.3138

Epoch 310/600
3/3 [=====] - 0s 4ms/step - loss: 198.9315 - mae: 12.3839 - mse: 198.9315 - mape: 67.3343
Epoch 311/600
3/3 [=====] - 0s 6ms/step - loss: 419.1702 - mae: 19.1843 - mse: 419.1702 - mape: 102.7531
Epoch 312/600
3/3 [=====] - 0s 4ms/step - loss: 528.0188 - mae: 20.6803 - mse: 528.0188 - mape: 111.7093
Epoch 313/600
3/3 [=====] - 0s 7ms/step - loss: 2046.0834 - mae: 43.4463 - mse: 2046.0834 - mape: 225.5917
Epoch 314/600
3/3 [=====] - 0s 4ms/step - loss: 402.2748 - mae: 18.1817 - mse: 402.2748 - mape: 97.1740
Epoch 315/600
3/3 [=====] - 0s 7ms/step - loss: 252.4544 - mae: 14.6452 - mse: 252.4544 - mape: 72.6875
Epoch 316/600
3/3 [=====] - 0s 5ms/step - loss: 279.4199 - mae: 14.8582 - mse: 279.4199 - mape: 79.2412
Epoch 317/600
3/3 [=====] - 0s 9ms/step - loss: 1008.5401 - mae: 29.9767 - mse: 1008.5401 - mape: 159.6961
Epoch 318/600
3/3 [=====] - 0s 11ms/step - loss: 436.1840 - mae: 18.9883 - mse: 436.1840 - mape: 100.1636
Epoch 319/600
3/3 [=====] - 0s 6ms/step - loss: 173.4639 - mae: 11.7636 - mse: 173.4639 - mape: 59.6356
Epoch 320/600
3/3 [=====] - 0s 5ms/step - loss: 488.9085 - mae: 20.1711 - mse: 488.9085 - mape: 106.6869
Epoch 321/600
3/3 [=====] - 0s 8ms/step - loss: 682.9596 - mae: 24.5836 - mse: 682.9596 - mape: 127.2505
Epoch 322/600
3/3 [=====] - 0s 6ms/step - loss: 591.2908 - mae: 22.5072 - mse: 591.2908 - mape: 121.2795
Epoch 323/600
3/3 [=====] - 0s 5ms/step - loss: 681.1025 - mae: 24.6984 - mse: 681.1025 - mape: 125.4063
Epoch 324/600
3/3 [=====] - 0s 6ms/step - loss: 628.3951 - mae: 23.3620 - mse: 628.3951 - mape: 124.2393
Epoch 325/600
3/3 [=====] - 0s 9ms/step - loss: 477.8342 - mae: 20.3744 - mse: 477.8342 - mape: 105.1084
Epoch 326/600
3/3 [=====] - 0s 7ms/step - loss: 498.4798 - mae: 20.4826 - mse: 498.4798 - mape: 109.3436
Epoch 327/600
3/3 [=====] - 0s 3ms/step - loss: 614.0782 - mae: 23.2899 - mse: 614.0782 - mape: 120.5853
Epoch 328/600
3/3 [=====] - 0s 6ms/step - loss: 809.3474 - mae: 26.4448 - mse: 809.3474 - mape: 143.1978
Epoch 329/600
3/3 [=====] - 0s 4ms/step - loss: 405.1066 - mae: 18.9754 - mse: 405.1066 - mape: 97.7146
Epoch 330/600
3/3 [=====] - 0s 4ms/step - loss: 436.9830 - mae: 18.7213 - mse: 436.9830 - mape: 101.1257
Epoch 331/600
3/3 [=====] - 0s 5ms/step - loss: 442.8958 - mae: 19.7208 - mse: 442.8958 - mape: 103.0932
Epoch 332/600

3/3 [=====] - 0s 5ms/step - loss: 511.1136 - mae: 20.8168 - mse: 511.1136 - mape: 109.0912
Epoch 333/600
3/3 [=====] - 0s 5ms/step - loss: 786.5481 - mae: 26.5638 - mse: 786.5481 - mape: 138.9313
Epoch 334/600
3/3 [=====] - 0s 8ms/step - loss: 406.7141 - mae: 18.2789 - mse: 406.7141 - mape: 98.3337
Epoch 335/600
3/3 [=====] - 0s 7ms/step - loss: 753.8519 - mae: 26.2285 - mse: 753.8519 - mape: 133.9646
Epoch 336/600
3/3 [=====] - 0s 4ms/step - loss: 721.6465 - mae: 24.5614 - mse: 721.6465 - mape: 129.9534
Epoch 337/600
3/3 [=====] - 0s 4ms/step - loss: 315.0064 - mae: 16.5272 - mse: 315.0064 - mape: 84.9354
Epoch 338/600
3/3 [=====] - 0s 3ms/step - loss: 281.4284 - mae: 14.7791 - mse: 281.4284 - mape: 79.3966
Epoch 339/600
3/3 [=====] - 0s 8ms/step - loss: 771.3300 - mae: 26.3987 - mse: 771.3300 - mape: 137.7402
Epoch 340/600
3/3 [=====] - 0s 6ms/step - loss: 389.9055 - mae: 17.9040 - mse: 389.9055 - mape: 92.5547
Epoch 341/600
3/3 [=====] - 0s 3ms/step - loss: 690.4802 - mae: 24.7649 - mse: 690.4802 - mape: 131.4556
Epoch 342/600
3/3 [=====] - 0s 10ms/step - loss: 319.1930 - mae: 16.0958 - mse: 319.1930 - mape: 84.4259
Epoch 343/600
3/3 [=====] - 0s 7ms/step - loss: 376.0082 - mae: 18.1898 - mse: 376.0082 - mape: 95.1640
Epoch 344/600
3/3 [=====] - 0s 7ms/step - loss: 696.4328 - mae: 24.3878 - mse: 696.4328 - mape: 130.6656
Epoch 345/600
3/3 [=====] - 0s 6ms/step - loss: 604.3375 - mae: 23.0735 - mse: 604.3375 - mape: 121.5503
Epoch 346/600
3/3 [=====] - 0s 6ms/step - loss: 460.7490 - mae: 19.6721 - mse: 460.7490 - mape: 103.2864
Epoch 347/600
3/3 [=====] - 0s 7ms/step - loss: 575.6043 - mae: 22.7079 - mse: 575.6043 - mape: 117.0759
Epoch 348/600
3/3 [=====] - 0s 5ms/step - loss: 801.7699 - mae: 26.7040 - mse: 801.7699 - mape: 142.1388
Epoch 349/600
3/3 [=====] - 0s 4ms/step - loss: 326.7910 - mae: 16.9484 - mse: 326.7910 - mape: 85.7023
Epoch 350/600
3/3 [=====] - 0s 7ms/step - loss: 361.9977 - mae: 17.2620 - mse: 361.9977 - mape: 94.7057
Epoch 351/600
3/3 [=====] - 0s 8ms/step - loss: 318.5120 - mae: 16.5780 - mse: 318.5120 - mape: 87.0601
Epoch 352/600
3/3 [=====] - 0s 6ms/step - loss: 766.3508 - mae: 25.8548 - mse: 766.3508 - mape: 138.9931
Epoch 353/600
3/3 [=====] - 0s 8ms/step - loss: 727.4760 - mae: 25.9587 - mse: 727.4760 - mape: 129.9890
Epoch 354/600
3/3 [=====] - 0s 11ms/step - loss: 248.0157 - mae: 13.9856 - mse: 248.0157 - mape: 72.8679

Epoch 355/600
3/3 [=====] - 0s 8ms/step - loss: 103.5641 - mae: 9.0366 - mse: 103.5641 - mape: 45.4125
Epoch 356/600
3/3 [=====] - 0s 9ms/step - loss: 170.4338 - mae: 11.9317 - mse: 170.4338 - mape: 60.6986
Epoch 357/600
3/3 [=====] - 0s 7ms/step - loss: 733.8377 - mae: 25.7518 - mse: 733.8377 - mape: 132.5394
Epoch 358/600
3/3 [=====] - 0s 5ms/step - loss: 1335.1425 - mae: 34.2917 - mse: 1335.1425 - mape: 180.8986
Epoch 359/600
3/3 [=====] - 0s 5ms/step - loss: 343.7665 - mae: 16.8185 - mse: 343.7665 - mape: 88.1904
Epoch 360/600
3/3 [=====] - 0s 7ms/step - loss: 116.7883 - mae: 9.1628 - mse: 116.7883 - mape: 49.2815
Epoch 361/600
3/3 [=====] - 0s 5ms/step - loss: 114.8009 - mae: 9.1670 - mse: 114.8009 - mape: 47.2357
Epoch 362/600
3/3 [=====] - 0s 7ms/step - loss: 359.1519 - mae: 16.8998 - mse: 359.1519 - mape: 89.1752
Epoch 363/600
3/3 [=====] - 0s 6ms/step - loss: 1273.4573 - mae: 34.1817 - mse: 1273.4573 - mape: 176.6330
Epoch 364/600
3/3 [=====] - 0s 8ms/step - loss: 449.1347 - mae: 19.5398 - mse: 449.1347 - mape: 105.3671
Epoch 365/600
3/3 [=====] - 0s 4ms/step - loss: 39.2311 - mae: 5.1498 - mse: 39.2311 - mape: 24.2774
Epoch 366/600
3/3 [=====] - 0s 6ms/step - loss: 54.9112 - mae: 5.7706 - mse: 54.9112 - mape: 28.2864
Epoch 367/600
3/3 [=====] - 0s 4ms/step - loss: 564.0626 - mae: 21.9700 - mse: 564.0626 - mape: 112.5454
Epoch 368/600
3/3 [=====] - 0s 4ms/step - loss: 1005.3712 - mae: 29.3522 - mse: 1005.3712 - mape: 147.1615
Epoch 369/600
3/3 [=====] - 0s 4ms/step - loss: 896.3557 - mae: 28.3102 - mse: 896.3557 - mape: 142.1182
Epoch 370/600
3/3 [=====] - 0s 4ms/step - loss: 142.4783 - mae: 10.3779 - mse: 142.4783 - mape: 56.1310
Epoch 371/600
3/3 [=====] - 0s 5ms/step - loss: 183.5937 - mae: 12.3887 - mse: 183.5937 - mape: 60.6688
Epoch 372/600
3/3 [=====] - 0s 5ms/step - loss: 336.5570 - mae: 16.4517 - mse: 336.5570 - mape: 89.2201
Epoch 373/600
3/3 [=====] - 0s 5ms/step - loss: 501.1576 - mae: 21.2897 - mse: 501.1576 - mape: 108.5875
Epoch 374/600
3/3 [=====] - 0s 6ms/step - loss: 834.3259 - mae: 26.9488 - mse: 834.3259 - mape: 143.0791
Epoch 375/600
3/3 [=====] - 0s 5ms/step - loss: 438.9981 - mae: 19.6256 - mse: 438.9981 - mape: 98.5302
Epoch 376/600
3/3 [=====] - 0s 8ms/step - loss: 335.5925 - mae: 16.8302 - mse: 335.5925 - mape: 89.2193
Epoch 377/600

3/3 [=====] - 0s 8ms/step - loss: 624.3467 - mae: 23.8741 - mse: 624.3467 - mape: 123.4386
Epoch 378/600
3/3 [=====] - 0s 6ms/step - loss: 230.0078 - mae: 13.5080 - mse: 230.0078 - mape: 71.3833
Epoch 379/600
3/3 [=====] - 0s 4ms/step - loss: 418.0159 - mae: 19.1039 - mse: 418.0159 - mape: 99.8734
Epoch 380/600
3/3 [=====] - 0s 3ms/step - loss: 435.0359 - mae: 19.1974 - mse: 435.0359 - mape: 99.4109
Epoch 381/600
3/3 [=====] - 0s 4ms/step - loss: 842.0646 - mae: 27.9681 - mse: 842.0646 - mape: 138.1666
Epoch 382/600
3/3 [=====] - 0s 4ms/step - loss: 598.5444 - mae: 22.3977 - mse: 598.5444 - mape: 118.6243
Epoch 383/600
3/3 [=====] - 0s 4ms/step - loss: 349.5571 - mae: 17.3867 - mse: 349.5571 - mape: 90.0735
Epoch 384/600
3/3 [=====] - 0s 4ms/step - loss: 187.5548 - mae: 12.3555 - mse: 187.5548 - mape: 64.2694
Epoch 385/600
3/3 [=====] - 0s 5ms/step - loss: 414.7726 - mae: 19.0246 - mse: 414.7726 - mape: 98.2890
Epoch 386/600
3/3 [=====] - 0s 7ms/step - loss: 715.2343 - mae: 24.7428 - mse: 715.2343 - mape: 136.4871
Epoch 387/600
3/3 [=====] - 0s 5ms/step - loss: 347.3213 - mae: 17.5906 - mse: 347.3213 - mape: 86.9296
Epoch 388/600
3/3 [=====] - 0s 4ms/step - loss: 297.5825 - mae: 15.7384 - mse: 297.5825 - mape: 84.2146
Epoch 389/600
3/3 [=====] - 0s 9ms/step - loss: 453.7975 - mae: 20.2298 - mse: 453.7975 - mape: 106.1286
Epoch 390/600
3/3 [=====] - 0s 7ms/step - loss: 616.4694 - mae: 23.1652 - mse: 616.4694 - mape: 125.9478
Epoch 391/600
3/3 [=====] - 0s 8ms/step - loss: 238.8257 - mae: 14.4757 - mse: 238.8257 - mape: 72.7422
Epoch 392/600
3/3 [=====] - 0s 8ms/step - loss: 345.5026 - mae: 17.0627 - mse: 345.5026 - mape: 92.4805
Epoch 393/600
3/3 [=====] - 0s 6ms/step - loss: 456.6189 - mae: 20.1820 - mse: 456.6189 - mape: 104.1348
Epoch 394/600
3/3 [=====] - 0s 6ms/step - loss: 591.9187 - mae: 22.7706 - mse: 591.9187 - mape: 119.8768
Epoch 395/600
3/3 [=====] - 0s 7ms/step - loss: 515.4568 - mae: 21.6360 - mse: 515.4568 - mape: 109.9373
Epoch 396/600
3/3 [=====] - 0s 6ms/step - loss: 256.8612 - mae: 14.2759 - mse: 256.8612 - mape: 75.5348
Epoch 397/600
3/3 [=====] - 0s 4ms/step - loss: 408.5466 - mae: 18.9405 - mse: 408.5466 - mape: 96.7482
Epoch 398/600
3/3 [=====] - 0s 5ms/step - loss: 603.6383 - mae: 22.5206 - mse: 603.6383 - mape: 123.0130
Epoch 399/600
3/3 [=====] - 0s 5ms/step - loss: 258.9957 - mae: 14.8651 - mse: 258.9957 - mape: 74.1368

Epoch 400/600
 3/3 [=====] - 0s 4ms/step - loss: 152.2591 - mae: 10.6477 - mse: 152.2591 - mape: 55.3304
 Epoch 401/600
 3/3 [=====] - 0s 6ms/step - loss: 493.6151 - mae: 21.1226 - mse: 493.6151 - mape: 109.0040
 Epoch 402/600
 3/3 [=====] - 0s 5ms/step - loss: 841.6051 - mae: 27.1596 - mse: 841.6051 - mape: 145.8879
 Epoch 403/600
 3/3 [=====] - 0s 5ms/step - loss: 302.0889 - mae: 16.2397 - mse: 302.0889 - mape: 80.6283
 Epoch 404/600
 3/3 [=====] - 0s 5ms/step - loss: 270.7018 - mae: 14.8222 - mse: 270.7018 - mape: 80.6789
 Epoch 405/600
 3/3 [=====] - 0s 4ms/step - loss: 301.6318 - mae: 16.0998 - mse: 301.6318 - mape: 81.4095
 Epoch 406/600
 3/3 [=====] - 0s 6ms/step - loss: 512.6909 - mae: 21.1903 - mse: 512.6909 - mape: 112.1666
 Epoch 407/600
 3/3 [=====] - 0s 5ms/step - loss: 450.4237 - mae: 19.8674 - mse: 450.4237 - mape: 104.6337
 Epoch 408/600
 3/3 [=====] - 0s 6ms/step - loss: 287.1516 - mae: 15.2831 - mse: 287.1516 - mape: 80.5511
 Epoch 409/600
 3/3 [=====] - 0s 6ms/step - loss: 419.9823 - mae: 19.3423 - mse: 419.9823 - mape: 96.7423
 Epoch 410/600
 3/3 [=====] - 0s 7ms/step - loss: 671.0788 - mae: 24.3571 - mse: 671.0788 - mape: 129.2531
 Epoch 411/600
 3/3 [=====] - 0s 7ms/step - loss: 194.3048 - mae: 12.7809 - mse: 194.3048 - mape: 62.4161
 Epoch 412/600
 3/3 [=====] - 0s 6ms/step - loss: 229.0800 - mae: 13.3013 - mse: 229.0800 - mape: 72.3995
 Epoch 413/600
 3/3 [=====] - 0s 5ms/step - loss: 577.6507 - mae: 22.9007 - mse: 577.6507 - mape: 118.5399
 Epoch 414/600
 3/3 [=====] - 0s 7ms/step - loss: 341.6549 - mae: 16.6672 - mse: 341.6549 - mape: 89.1438
 Epoch 415/600
 3/3 [=====] - 0s 6ms/step - loss: 524.1682 - mae: 21.5279 - mse: 524.1682 - mape: 113.4171
 Epoch 416/600
 3/3 [=====] - 0s 5ms/step - loss: 201.1534 - mae: 12.4890 - mse: 201.1534 - mape: 65.2916
 Epoch 417/600
 3/3 [=====] - 0s 6ms/step - loss: 234.6624 - mae: 14.2572 - mse: 234.6624 - mape: 71.9255
 Epoch 418/600
 3/3 [=====] - 0s 6ms/step - loss: 618.6654 - mae: 23.1226 - mse: 618.6654 - mape: 125.2021
 Epoch 419/600
 3/3 [=====] - 0s 5ms/step - loss: 396.8452 - mae: 18.8723 - mse: 396.8452 - mape: 93.5525
 Epoch 420/600
 3/3 [=====] - 0s 6ms/step - loss: 202.9147 - mae: 12.3880 - mse: 202.9147 - mape: 63.5656
 Epoch 421/600
 3/3 [=====] - 0s 5ms/step - loss: 354.7544 - mae: 17.6606 - mse: 354.7544 - mape: 90.3167
 Epoch 422/600

3/3 [=====] - 0s 6ms/step - loss: 408.2995 - mae: 18.8026 - mse: 408.2995 - mape: 96.4913
Epoch 423/600
3/3 [=====] - 0s 7ms/step - loss: 597.8760 - mae: 23.3516 - mse: 597.8760 - mape: 120.1903
Epoch 424/600
3/3 [=====] - 0s 8ms/step - loss: 349.9173 - mae: 17.0447 - mse: 349.9173 - mape: 91.5276
Epoch 425/600
3/3 [=====] - 0s 4ms/step - loss: 301.1435 - mae: 16.0847 - mse: 301.1435 - mape: 82.9838
Epoch 426/600
3/3 [=====] - 0s 5ms/step - loss: 308.3601 - mae: 15.8192 - mse: 308.3601 - mape: 85.5461
Epoch 427/600
3/3 [=====] - 0s 9ms/step - loss: 450.2512 - mae: 20.1256 - mse: 450.2512 - mape: 103.1548
Epoch 428/600
3/3 [=====] - 0s 9ms/step - loss: 330.8299 - mae: 16.4102 - mse: 330.8299 - mape: 82.2235
Epoch 429/600
3/3 [=====] - 0s 6ms/step - loss: 290.3186 - mae: 16.1708 - mse: 290.3186 - mape: 84.2202
Epoch 430/600
3/3 [=====] - 0s 4ms/step - loss: 349.8315 - mae: 17.1437 - mse: 349.8315 - mape: 93.6635
Epoch 431/600
3/3 [=====] - 0s 8ms/step - loss: 189.5036 - mae: 12.6285 - mse: 189.5036 - mape: 65.5966
Epoch 432/600
3/3 [=====] - 0s 5ms/step - loss: 267.7088 - mae: 14.5168 - mse: 267.7088 - mape: 79.0886
Epoch 433/600
3/3 [=====] - 0s 5ms/step - loss: 826.6790 - mae: 27.3252 - mse: 826.6790 - mape: 140.5224
Epoch 434/600
3/3 [=====] - 0s 4ms/step - loss: 517.8367 - mae: 20.9203 - mse: 517.8367 - mape: 111.7138
Epoch 435/600
3/3 [=====] - 0s 5ms/step - loss: 79.5096 - mae: 7.7910 - mse: 79.5096 - mape: 37.2420
Epoch 436/600
3/3 [=====] - 0s 5ms/step - loss: 122.9120 - mae: 9.5769 - mse: 122.9120 - mape: 51.5802
Epoch 437/600
3/3 [=====] - 0s 4ms/step - loss: 434.5278 - mae: 19.6463 - mse: 434.5278 - mape: 102.2182
Epoch 438/600
3/3 [=====] - 0s 6ms/step - loss: 594.4726 - mae: 22.9044 - mse: 594.4726 - mape: 122.4961
Epoch 439/600
3/3 [=====] - 0s 8ms/step - loss: 250.5322 - mae: 14.6365 - mse: 250.5322 - mape: 73.9359
Epoch 440/600
3/3 [=====] - 0s 5ms/step - loss: 290.8905 - mae: 15.5785 - mse: 290.8905 - mape: 81.8710
Epoch 441/600
3/3 [=====] - 0s 6ms/step - loss: 512.0972 - mae: 21.2980 - mse: 512.0972 - mape: 112.6147
Epoch 442/600
3/3 [=====] - 0s 5ms/step - loss: 424.0066 - mae: 19.3126 - mse: 424.0066 - mape: 103.9447
Epoch 443/600
3/3 [=====] - 0s 8ms/step - loss: 71.9190 - mae: 7.2992 - mse: 71.9190 - mape: 35.0614
Epoch 444/600
3/3 [=====] - 0s 8ms/step - loss: 44.7156 - mae: 5.5795 - mse: 44.7156 - mape: 28.1779

Epoch 445/600
3/3 [=====] - 0s 4ms/step - loss: 358.3815 - mae: 16.9901 - mse: 358.3815 - mape: 87.9075
Epoch 446/600
3/3 [=====] - 0s 4ms/step - loss: 1008.7238 - mae: 29.6646 - mse: 1008.7238 - mape: 152.7009
Epoch 447/600
3/3 [=====] - 0s 7ms/step - loss: 272.5832 - mae: 15.1614 - mse: 272.5832 - mape: 74.8398
Epoch 448/600
3/3 [=====] - 0s 7ms/step - loss: 174.2965 - mae: 11.8122 - mse: 174.2965 - mape: 63.9950
Epoch 449/600
3/3 [=====] - 0s 9ms/step - loss: 293.6785 - mae: 16.2336 - mse: 293.6785 - mape: 84.5339
Epoch 450/600
3/3 [=====] - 0s 6ms/step - loss: 326.4126 - mae: 16.8702 - mse: 326.4126 - mape: 88.9457
Epoch 451/600
3/3 [=====] - 0s 5ms/step - loss: 365.1353 - mae: 18.1317 - mse: 365.1353 - mape: 90.8619
Epoch 452/600
3/3 [=====] - 0s 5ms/step - loss: 498.1750 - mae: 20.7574 - mse: 498.1750 - mape: 110.8136
Epoch 453/600
3/3 [=====] - 0s 5ms/step - loss: 234.3861 - mae: 14.1761 - mse: 234.3861 - mape: 69.4336
Epoch 454/600
3/3 [=====] - 0s 5ms/step - loss: 262.7365 - mae: 14.7436 - mse: 262.7365 - mape: 75.0991
Epoch 455/600
3/3 [=====] - 0s 6ms/step - loss: 530.9515 - mae: 22.0972 - mse: 530.9515 - mape: 115.4189
Epoch 456/600
3/3 [=====] - 0s 5ms/step - loss: 100.7216 - mae: 8.6950 - mse: 100.7216 - mape: 43.7049
Epoch 457/600
3/3 [=====] - 0s 5ms/step - loss: 134.2487 - mae: 10.6531 - mse: 134.2487 - mape: 54.5136
Epoch 458/600
3/3 [=====] - 0s 5ms/step - loss: 299.2263 - mae: 15.2917 - mse: 299.2263 - mape: 81.5940
Epoch 459/600
3/3 [=====] - 0s 6ms/step - loss: 1129.1562 - mae: 32.0523 - mse: 1129.1562 - mape: 167.4685
Epoch 460/600
3/3 [=====] - 0s 4ms/step - loss: 177.9923 - mae: 12.1116 - mse: 177.9923 - mape: 64.8586
Epoch 461/600
3/3 [=====] - 0s 4ms/step - loss: 18.8571 - mae: 3.4061 - mse: 18.8571 - mape: 15.6530
Epoch 462/600
3/3 [=====] - 0s 5ms/step - loss: 18.2013 - mae: 3.4358 - mse: 18.2013 - mape: 16.2758
Epoch 463/600
3/3 [=====] - 0s 8ms/step - loss: 19.4836 - mae: 3.4889 - mse: 19.4836 - mape: 16.4035
Epoch 464/600
3/3 [=====] - 0s 5ms/step - loss: 384.9013 - mae: 16.9270 - mse: 384.9013 - mape: 86.3560
Epoch 465/600
3/3 [=====] - 0s 6ms/step - loss: 1333.7321 - mae: 33.4915 - mse: 1333.7321 - mape: 176.2524
Epoch 466/600
3/3 [=====] - 0s 7ms/step - loss: 141.6902 - mae: 10.8145 - mse: 141.6902 - mape: 56.7540
Epoch 467/600

3/3 [=====] - 0s 7ms/step - loss: 32.8612 - mae: 4.6691 - mse: 32.8612 - mape: 23.6054
Epoch 468/600
3/3 [=====] - 0s 5ms/step - loss: 192.0400 - mae: 12.9482 - mse: 192.0400 - mape: 63.7776
Epoch 469/600
3/3 [=====] - 0s 5ms/step - loss: 659.0833 - mae: 23.9828 - mse: 659.0833 - mape: 129.2585
Epoch 470/600
3/3 [=====] - 0s 5ms/step - loss: 365.9604 - mae: 18.3676 - mse: 365.9604 - mape: 92.6846
Epoch 471/600
3/3 [=====] - 0s 6ms/step - loss: 181.8326 - mae: 12.2877 - mse: 181.8326 - mape: 65.0119
Epoch 472/600
3/3 [=====] - 0s 7ms/step - loss: 67.0824 - mae: 7.0513 - mse: 67.0824 - mape: 34.0804
Epoch 473/600
3/3 [=====] - 0s 4ms/step - loss: 162.0517 - mae: 11.2832 - mse: 162.0517 - mape: 58.7225
Epoch 474/600
3/3 [=====] - 0s 4ms/step - loss: 947.5318 - mae: 29.5072 - mse: 947.5318 - mape: 152.5950
Epoch 475/600
3/3 [=====] - 0s 6ms/step - loss: 299.7699 - mae: 15.5485 - mse: 299.7699 - mape: 83.5117
Epoch 476/600
3/3 [=====] - 0s 4ms/step - loss: 68.0307 - mae: 7.3599 - mse: 68.0307 - mape: 36.0347
Epoch 477/600
3/3 [=====] - 0s 5ms/step - loss: 98.4128 - mae: 8.5532 - mse: 98.4128 - mape: 47.8065
Epoch 478/600
3/3 [=====] - 0s 7ms/step - loss: 242.7684 - mae: 14.6302 - mse: 242.7684 - mape: 75.6443
Epoch 479/600
3/3 [=====] - 0s 5ms/step - loss: 1138.7640 - mae: 31.5474 - mse: 1138.7640 - mape: 169.2047
Epoch 480/600
3/3 [=====] - 0s 4ms/step - loss: 463.8967 - mae: 19.9259 - mse: 463.8967 - mape: 106.2867
Epoch 481/600
3/3 [=====] - 0s 7ms/step - loss: 72.4606 - mae: 7.2629 - mse: 72.4606 - mape: 38.5200
Epoch 482/600
3/3 [=====] - 0s 10ms/step - loss: 39.2099 - mae: 5.0181 - mse: 39.2099 - mape: 23.4281
Epoch 483/600
3/3 [=====] - 0s 6ms/step - loss: 42.8894 - mae: 5.3236 - mse: 42.8894 - mape: 27.0043
Epoch 484/600
3/3 [=====] - 0s 6ms/step - loss: 489.1156 - mae: 20.4186 - mse: 489.1156 - mape: 104.0366
Epoch 485/600
3/3 [=====] - 0s 5ms/step - loss: 792.9839 - mae: 26.5414 - mse: 792.9839 - mape: 138.0947
Epoch 486/600
3/3 [=====] - 0s 6ms/step - loss: 254.7727 - mae: 14.9371 - mse: 254.7727 - mape: 72.6666
Epoch 487/600
3/3 [=====] - 0s 5ms/step - loss: 100.6570 - mae: 8.7468 - mse: 100.6570 - mape: 46.6749
Epoch 488/600
3/3 [=====] - 0s 8ms/step - loss: 139.0740 - mae: 10.7026 - mse: 139.0740 - mape: 53.1061
Epoch 489/600
3/3 [=====] - 0s 5ms/step - loss: 371.6261 - mae: 17.8670 - mse: 371.6261 - mape: 96.5595

Epoch 490/600
3/3 [=====] - 0s 5ms/step - loss: 203.6214 - mae: 13.0357 - mse: 203.6214 - mape: 66.1266
Epoch 491/600
3/3 [=====] - 0s 5ms/step - loss: 752.5235 - mae: 25.9728 - mse: 752.5235 - mape: 135.7345
Epoch 492/600
3/3 [=====] - 0s 5ms/step - loss: 431.6943 - mae: 19.4522 - mse: 431.6943 - mape: 102.8858
Epoch 493/600
3/3 [=====] - 0s 5ms/step - loss: 72.3131 - mae: 7.1519 - mse: 72.3131 - mape: 39.6303
Epoch 494/600
3/3 [=====] - 0s 6ms/step - loss: 74.3028 - mae: 7.5208 - mse: 74.3028 - mape: 35.6733
Epoch 495/600
3/3 [=====] - 0s 5ms/step - loss: 375.4670 - mae: 17.7918 - mse: 375.4670 - mape: 93.3526
Epoch 496/600
3/3 [=====] - 0s 6ms/step - loss: 500.8037 - mae: 21.2375 - mse: 500.8037 - mape: 104.9590
Epoch 497/600
3/3 [=====] - 0s 7ms/step - loss: 784.6015 - mae: 26.2914 - mse: 784.6015 - mape: 140.1562
Epoch 498/600
3/3 [=====] - 0s 6ms/step - loss: 100.2811 - mae: 8.8552 - mse: 100.2811 - mape: 42.7639
Epoch 499/600
3/3 [=====] - 0s 6ms/step - loss: 20.6940 - mae: 3.6679 - mse: 20.6940 - mape: 17.0620
Epoch 500/600
3/3 [=====] - 0s 6ms/step - loss: 24.1250 - mae: 4.0043 - mse: 24.1250 - mape: 18.5965
Epoch 501/600
3/3 [=====] - 0s 6ms/step - loss: 52.4742 - mae: 5.8909 - mse: 52.4742 - mape: 30.0111
Epoch 502/600
3/3 [=====] - 0s 6ms/step - loss: 932.9241 - mae: 28.4930 - mse: 932.9241 - mape: 147.6262
Epoch 503/600
3/3 [=====] - 0s 9ms/step - loss: 430.7129 - mae: 19.1215 - mse: 430.7129 - mape: 102.8420
Epoch 504/600
3/3 [=====] - 0s 6ms/step - loss: 157.4477 - mae: 11.5714 - mse: 157.4477 - mape: 55.4193
Epoch 505/600
3/3 [=====] - 0s 6ms/step - loss: 79.0132 - mae: 7.4453 - mse: 79.0132 - mape: 39.0176
Epoch 506/600
3/3 [=====] - 0s 6ms/step - loss: 162.2430 - mae: 11.4507 - mse: 162.2430 - mape: 60.5174
Epoch 507/600
3/3 [=====] - 0s 7ms/step - loss: 348.8214 - mae: 17.1951 - mse: 348.8214 - mape: 90.4960
Epoch 508/600
3/3 [=====] - 0s 7ms/step - loss: 464.8731 - mae: 20.6147 - mse: 464.8731 - mape: 104.3596
Epoch 509/600
3/3 [=====] - 0s 4ms/step - loss: 277.6406 - mae: 15.3040 - mse: 277.6406 - mape: 78.7043
Epoch 510/600
3/3 [=====] - 0s 5ms/step - loss: 282.3123 - mae: 15.9276 - mse: 282.3123 - mape: 80.4564
Epoch 511/600
3/3 [=====] - 0s 5ms/step - loss: 178.7806 - mae: 12.2891 - mse: 178.7806 - mape: 63.1415
Epoch 512/600

3/3 [=====] - 0s 8ms/step - loss: 192.0022 - mae: 12.8663 - mse: 192.0022 - mape: 68.4516
Epoch 513/600
3/3 [=====] - 0s 6ms/step - loss: 197.1764 - mae: 12.9621 - mse: 197.1764 - mape: 66.8018
Epoch 514/600
3/3 [=====] - 0s 7ms/step - loss: 591.1542 - mae: 23.3636 - mse: 591.1542 - mape: 116.9040
Epoch 515/600
3/3 [=====] - 0s 6ms/step - loss: 302.3184 - mae: 15.4060 - mse: 302.3184 - mape: 82.2464
Epoch 516/600
3/3 [=====] - 0s 7ms/step - loss: 112.9525 - mae: 9.6894 - mse: 112.9525 - mape: 49.9041
Epoch 517/600
3/3 [=====] - 0s 10ms/step - loss: 128.1823 - mae: 10.1753 - mse: 128.1823 - mape: 53.5472
Epoch 518/600
3/3 [=====] - 0s 7ms/step - loss: 196.4452 - mae: 13.0745 - mse: 196.4452 - mape: 66.4689
Epoch 519/600
3/3 [=====] - 0s 9ms/step - loss: 332.9540 - mae: 16.8061 - mse: 332.9540 - mape: 88.3456
Epoch 520/600
3/3 [=====] - 0s 6ms/step - loss: 360.1082 - mae: 18.1317 - mse: 360.1082 - mape: 92.4728
Epoch 521/600
3/3 [=====] - 0s 5ms/step - loss: 176.4370 - mae: 12.2246 - mse: 176.4370 - mape: 61.5979
Epoch 522/600
3/3 [=====] - 0s 5ms/step - loss: 223.7787 - mae: 13.8506 - mse: 223.7787 - mape: 73.4269
Epoch 523/600
3/3 [=====] - 0s 5ms/step - loss: 174.3701 - mae: 11.8092 - mse: 174.3701 - mape: 61.5232
Epoch 524/600
3/3 [=====] - 0s 4ms/step - loss: 516.3719 - mae: 21.5793 - mse: 516.3719 - mape: 113.9367
Epoch 525/600
3/3 [=====] - 0s 6ms/step - loss: 163.2259 - mae: 11.4356 - mse: 163.2259 - mape: 62.3526
Epoch 526/600
3/3 [=====] - 0s 4ms/step - loss: 202.7880 - mae: 12.9531 - mse: 202.7880 - mape: 65.2872
Epoch 527/600
3/3 [=====] - 0s 8ms/step - loss: 317.5140 - mae: 16.5112 - mse: 317.5140 - mape: 87.8561
Epoch 528/600
3/3 [=====] - 0s 4ms/step - loss: 498.9959 - mae: 20.9774 - mse: 498.9959 - mape: 108.4839
Epoch 529/600
3/3 [=====] - 0s 4ms/step - loss: 93.5910 - mae: 8.4036 - mse: 93.5910 - mape: 44.4114
Epoch 530/600
3/3 [=====] - 0s 7ms/step - loss: 101.4180 - mae: 9.1445 - mse: 101.4180 - mape: 47.0640
Epoch 531/600
3/3 [=====] - 0s 4ms/step - loss: 279.0870 - mae: 15.3750 - mse: 279.0870 - mape: 81.3386
Epoch 532/600
3/3 [=====] - 0s 4ms/step - loss: 662.8405 - mae: 24.2855 - mse: 662.8405 - mape: 131.9777
Epoch 533/600
3/3 [=====] - 0s 6ms/step - loss: 149.1145 - mae: 10.4838 - mse: 149.1145 - mape: 53.7427
Epoch 534/600
3/3 [=====] - 0s 10ms/step - loss: 46.8917 - mae: 5.6109 - mse: 46.8917 - mape: 28.9339

Epoch 535/600
3/3 [=====] - 0s 4ms/step - loss: 53.2914 - mae: 5.8286 - mse: 53.2914 - mape: 30.0613
Epoch 536/600
3/3 [=====] - 0s 5ms/step - loss: 450.9497 - mae: 20.0259 - mse: 450.9497 - mape: 104.5041
Epoch 537/600
3/3 [=====] - 0s 5ms/step - loss: 587.0449 - mae: 22.6069 - mse: 587.0449 - mape: 121.1557
Epoch 538/600
3/3 [=====] - 0s 6ms/step - loss: 92.1579 - mae: 8.6272 - mse: 92.1579 - mape: 42.5803
Epoch 539/600
3/3 [=====] - 0s 7ms/step - loss: 44.0482 - mae: 5.7745 - mse: 44.0482 - mape: 29.7712
Epoch 540/600
3/3 [=====] - 0s 5ms/step - loss: 151.3822 - mae: 11.1886 - mse: 151.3822 - mape: 56.4705
Epoch 541/600
3/3 [=====] - 0s 5ms/step - loss: 476.7251 - mae: 20.5630 - mse: 476.7251 - mape: 107.9549
Epoch 542/600
3/3 [=====] - 0s 8ms/step - loss: 458.7484 - mae: 20.2794 - mse: 458.7484 - mape: 108.0965
Epoch 543/600
3/3 [=====] - 0s 9ms/step - loss: 77.6689 - mae: 7.5705 - mse: 77.6689 - mape: 37.9361
Epoch 544/600
3/3 [=====] - 0s 6ms/step - loss: 26.8835 - mae: 4.2390 - mse: 26.8835 - mape: 19.6032
Epoch 545/600
3/3 [=====] - 0s 8ms/step - loss: 82.0946 - mae: 7.8570 - mse: 82.0946 - mape: 41.8025
Epoch 546/600
3/3 [=====] - 0s 8ms/step - loss: 357.1353 - mae: 17.4620 - mse: 357.1353 - mape: 90.0579
Epoch 547/600
3/3 [=====] - 0s 6ms/step - loss: 574.8452 - mae: 22.4338 - mse: 574.8452 - mape: 123.4527
Epoch 548/600
3/3 [=====] - 0s 6ms/step - loss: 75.4632 - mae: 7.5688 - mse: 75.4632 - mape: 39.1009
Epoch 549/600
3/3 [=====] - 0s 7ms/step - loss: 55.6576 - mae: 6.3348 - mse: 55.6576 - mape: 33.3637
Epoch 550/600
3/3 [=====] - 0s 10ms/step - loss: 87.8915 - mae: 7.8136 - mse: 87.8915 - mape: 39.0916
Epoch 551/600
3/3 [=====] - 0s 6ms/step - loss: 621.3749 - mae: 23.3584 - mse: 621.3749 - mape: 125.0700
Epoch 552/600
3/3 [=====] - 0s 5ms/step - loss: 44.0366 - mae: 5.4566 - mse: 44.0366 - mape: 26.8354
Epoch 553/600
3/3 [=====] - 0s 5ms/step - loss: 82.3168 - mae: 7.9758 - mse: 82.3168 - mape: 42.6281
Epoch 554/600
3/3 [=====] - 0s 6ms/step - loss: 158.2404 - mae: 11.3222 - mse: 158.2404 - mape: 56.9992
Epoch 555/600
3/3 [=====] - 0s 4ms/step - loss: 512.8441 - mae: 21.2978 - mse: 512.8441 - mape: 110.5390
Epoch 556/600
3/3 [=====] - 0s 5ms/step - loss: 292.4711 - mae: 15.9871 - mse: 292.4711 - mape: 77.7112
Epoch 557/600

3/3 [=====] - 0s 6ms/step - loss: 160.7455 - mae: 11.4009 - mse: 160.7455 - mape: 61.1331
Epoch 558/600
3/3 [=====] - 0s 8ms/step - loss: 136.2578 - mae: 11.0213 - mse: 136.2578 - mape: 56.7541
Epoch 559/600
3/3 [=====] - 0s 4ms/step - loss: 175.4323 - mae: 12.1188 - mse: 175.4323 - mape: 64.0402
Epoch 560/600
3/3 [=====] - 0s 4ms/step - loss: 215.0627 - mae: 13.8930 - mse: 215.0627 - mape: 70.5577
Epoch 561/600
3/3 [=====] - 0s 4ms/step - loss: 418.4771 - mae: 19.0028 - mse: 418.4771 - mape: 102.0084
Epoch 562/600
3/3 [=====] - 0s 4ms/step - loss: 130.5950 - mae: 10.5253 - mse: 130.5950 - mape: 53.5154
Epoch 563/600
3/3 [=====] - 0s 5ms/step - loss: 65.2520 - mae: 7.0576 - mse: 65.2520 - mape: 36.7386
Epoch 564/600
3/3 [=====] - 0s 5ms/step - loss: 74.8963 - mae: 7.4215 - mse: 74.8963 - mape: 34.6160
Epoch 565/600
3/3 [=====] - 0s 4ms/step - loss: 619.0037 - mae: 23.2791 - mse: 619.0037 - mape: 123.4222
Epoch 566/600
3/3 [=====] - 0s 4ms/step - loss: 325.1802 - mae: 16.7388 - mse: 325.1802 - mape: 89.0730
Epoch 567/600
3/3 [=====] - 0s 5ms/step - loss: 69.7095 - mae: 7.0939 - mse: 69.7095 - mape: 37.1319
Epoch 568/600
3/3 [=====] - 0s 4ms/step - loss: 61.0084 - mae: 6.6689 - mse: 61.0084 - mape: 33.2971
Epoch 569/600
3/3 [=====] - 0s 4ms/step - loss: 177.5296 - mae: 11.9866 - mse: 177.5296 - mape: 63.5570
Epoch 570/600
3/3 [=====] - 0s 4ms/step - loss: 463.8926 - mae: 20.5521 - mse: 463.8926 - mape: 106.1904
Epoch 571/600
3/3 [=====] - 0s 9ms/step - loss: 227.0052 - mae: 13.5851 - mse: 227.0052 - mape: 73.9352
Epoch 572/600
3/3 [=====] - 0s 4ms/step - loss: 379.9396 - mae: 18.6535 - mse: 379.9396 - mape: 95.1643
Epoch 573/600
3/3 [=====] - 0s 7ms/step - loss: 307.1166 - mae: 16.2599 - mse: 307.1166 - mape: 86.6767
Epoch 574/600
3/3 [=====] - 0s 4ms/step - loss: 156.3807 - mae: 11.7916 - mse: 156.3807 - mape: 58.7126
Epoch 575/600
3/3 [=====] - 0s 10ms/step - loss: 112.8463 - mae: 9.7451 - mse: 112.8463 - mape: 49.3728
Epoch 576/600
3/3 [=====] - 0s 14ms/step - loss: 103.4575 - mae: 9.2350 - mse: 103.4575 - mape: 47.1389
Epoch 577/600
3/3 [=====] - 0s 6ms/step - loss: 517.7605 - mae: 21.2257 - mse: 517.7605 - mape: 113.3465
Epoch 578/600
3/3 [=====] - 0s 7ms/step - loss: 371.6825 - mae: 18.4150 - mse: 371.6825 - mape: 93.3175
Epoch 579/600
3/3 [=====] - 0s 7ms/step - loss: 102.9962 - mae: 8.9851 - mse: 102.9962 - mape: 49.5769

```
Epoch 580/600
3/3 [=====] - 0s 5ms/step - loss: 64.0373 - mae: 6.9815 - mse: 64.0373 - mape: 33.5555
Epoch 581/600
3/3 [=====] - 0s 4ms/step - loss: 254.4685 - mae: 14.7645 - mse: 254.4685 - mape: 78.3913
Epoch 582/600
3/3 [=====] - 0s 5ms/step - loss: 384.6859 - mae: 18.4990 - mse: 384.6859 - mape: 96.6134
Epoch 583/600
3/3 [=====] - 0s 6ms/step - loss: 239.9321 - mae: 14.2224 - mse: 239.9321 - mape: 77.3058
Epoch 584/600
3/3 [=====] - 0s 7ms/step - loss: 145.5578 - mae: 11.1645 - mse: 145.5578 - mape: 57.0850
Epoch 585/600
3/3 [=====] - 0s 5ms/step - loss: 192.2154 - mae: 12.7849 - mse: 192.2154 - mape: 67.0863
Epoch 586/600
3/3 [=====] - 0s 7ms/step - loss: 523.4209 - mae: 21.8542 - mse: 523.4209 - mape: 114.7522
Epoch 587/600
3/3 [=====] - 0s 4ms/step - loss: 73.5472 - mae: 7.0074 - mse: 73.5472 - mape: 34.1803
Epoch 588/600
3/3 [=====] - 0s 6ms/step - loss: 25.1173 - mae: 3.9239 - mse: 25.1173 - mape: 18.0353
Epoch 589/600
3/3 [=====] - 0s 5ms/step - loss: 86.5226 - mae: 7.9927 - mse: 86.5226 - mape: 41.7340
Epoch 590/600
3/3 [=====] - 0s 5ms/step - loss: 622.0950 - mae: 23.8326 - mse: 622.0950 - mape: 123.0630
Epoch 591/600
3/3 [=====] - 0s 6ms/step - loss: 320.8879 - mae: 16.6450 - mse: 320.8879 - mape: 89.4698
Epoch 592/600
3/3 [=====] - 0s 5ms/step - loss: 51.3982 - mae: 6.0553 - mse: 51.3982 - mape: 30.1035
Epoch 593/600
3/3 [=====] - 0s 7ms/step - loss: 104.8154 - mae: 9.0912 - mse: 104.8154 - mape: 48.6886
Epoch 594/600
3/3 [=====] - 0s 7ms/step - loss: 373.3550 - mae: 18.3376 - mse: 373.3550 - mape: 94.0237
Epoch 595/600
3/3 [=====] - 0s 7ms/step - loss: 347.4141 - mae: 17.1162 - mse: 347.4141 - mape: 94.2018
Epoch 596/600
3/3 [=====] - 0s 7ms/step - loss: 109.9504 - mae: 9.7374 - mse: 109.9504 - mape: 48.4758
Epoch 597/600
3/3 [=====] - 0s 6ms/step - loss: 143.2035 - mae: 10.9219 - mse: 143.2035 - mape: 57.5721
Epoch 598/600
3/3 [=====] - 0s 8ms/step - loss: 238.9617 - mae: 14.6976 - mse: 238.9617 - mape: 76.2191
Epoch 599/600
3/3 [=====] - 0s 7ms/step - loss: 243.6731 - mae: 14.4027 - mse: 243.6731 - mape: 75.9672
Epoch 600/600
3/3 [=====] - 0s 7ms/step - loss: 155.2815 - mae: 11.4404 - mse: 155.2815 - mape: 59.2934
```

Out[60]: <tensorflow.python.keras.callbacks.History at 0x7f04ada80490>

In [61]: *# display training progress by printing a single dot for each completed epochs*

```
class printDot(keras.callbacks.Callback):
    def on_epoch_end(self, epoch, logs):
        if epoch % 100 == 0:
            print('')
            print('.',end = '')

EPOCHS = 600

history = model.fit(
    normed_train_data, train_labels,
    epochs = EPOCHS, validation_split = 0.2, verbose=1, callbacks = [printDot()])
```

Epoch 1/600

8/8 [=====] - 0s 57ms/step - loss: 569.4235 - mae: 22.5998 - mse: 569.4235 - mape: 95.9890 - val_loss: 551.8884 - val_mae: 22.3540 - val_mse: 551.8884 - val_mape: 93.8292

.Epoch 2/600

8/8 [=====] - 0s 13ms/step - loss: 524.4658 - mae: 21.6421 - mse: 524.4658 - mape: 91.6679 - val_loss: 507.2173 - val_mae: 21.3944 - val_mse: 507.2173 - val_mape: 89.6094

Epoch 3/600

8/8 [=====] - 0s 14ms/step - loss: 475.7641 - mae: 20.5710 - mse: 475.7641 - mape: 86.9200 - val_loss: 457.4401 - val_mae: 20.2761 - val_mse: 457.4401 - val_mape: 84.7303

Epoch 4/600

8/8 [=====] - 0s 12ms/step - loss: 421.6992 - mae: 19.3101 - mse: 421.6992 - mape: 81.4090 - val_loss: 402.2088 - val_mae: 18.9629 - val_mse: 402.2088 - val_mape: 79.0632

Epoch 5/600

8/8 [=====] - 0s 11ms/step - loss: 363.8541 - mae: 17.8907 - mse: 363.8541 - mape: 75.2793 - val_loss: 345.1175 - val_mae: 17.4928 - val_mse: 345.1175 - val_mape: 72.7363

Epoch 6/600

8/8 [=====] - 0s 14ms/step - loss: 304.5721 - mae: 16.2665 - mse: 304.5721 - mape: 68.2166 - val_loss: 286.8312 - val_mae: 15.8449 - val_mse: 286.8312 - val_mape: 65.7127

Epoch 7/600

8/8 [=====] - 0s 13ms/step - loss: 246.4331 - mae: 14.5013 - mse: 246.4331 - mape: 60.6283 - val_loss: 231.4726 - val_mae: 14.0683 - val_mse: 231.4726 - val_mape: 58.1266

Epoch 8/600

8/8 [=====] - 0s 14ms/step - loss: 192.3526 - mae: 12.5769 - mse: 192.3526 - mape: 52.3989 - val_loss: 180.2926 - val_mae: 12.1912 - val_mse: 180.2926 - val_mape: 50.2416

Epoch 9/600

8/8 [=====] - 0s 13ms/step - loss: 143.6895 - mae: 10.6854 - mse: 143.6895 - mape: 44.6642 - val_loss: 134.9626 - val_mae: 10.3704 - val_mse: 134.9626 - val_mape: 43.1393

Epoch 10/600

8/8 [=====] - 0s 10ms/step - loss: 103.6356 - mae: 8.8990 - mse: 103.6356 - mape: 37.7764 - val_loss: 98.8710 - val_mae: 8.7022 - val_mse: 98.8710 - val_mape: 37.0083

Epoch 11/600
8/8 [=====] - 0s 9ms/step - loss: 74.7488 - mae: 7.3668 - mse: 74.7488 - mape: 32.2110 - val
_loss: 74.2815 - val_mae: 7.3057 - val_mse: 74.2815 - val_mape: 32.2014
Epoch 12/600
8/8 [=====] - 0s 10ms/step - loss: 57.0995 - mae: 6.2133 - mse: 57.0995 - mape: 28.1652 - va
l_loss: 59.3129 - val_mae: 6.3853 - val_mse: 59.3129 - val_mape: 29.3280
Epoch 13/600
8/8 [=====] - 0s 9ms/step - loss: 47.8268 - mae: 5.5648 - mse: 47.8268 - mape: 25.8478 - val
_loss: 51.6942 - val_mae: 5.9715 - val_mse: 51.6942 - val_mape: 28.0647
Epoch 14/600
8/8 [=====] - 0s 10ms/step - loss: 42.4087 - mae: 5.1657 - mse: 42.4087 - mape: 24.3011 - va
l_loss: 46.0041 - val_mae: 5.6535 - val_mse: 46.0041 - val_mape: 26.9044
Epoch 15/600
8/8 [=====] - 0s 10ms/step - loss: 38.1810 - mae: 4.8396 - mse: 38.1810 - mape: 23.0308 - va
l_loss: 41.4689 - val_mae: 5.3955 - val_mse: 41.4689 - val_mape: 25.7846
Epoch 16/600
8/8 [=====] - 0s 9ms/step - loss: 34.4188 - mae: 4.5375 - mse: 34.4188 - mape: 21.6781 - val
_loss: 37.9270 - val_mae: 5.1967 - val_mse: 37.9270 - val_mape: 24.7931
Epoch 17/600
8/8 [=====] - 0s 9ms/step - loss: 30.8484 - mae: 4.3013 - mse: 30.8484 - mape: 20.5937 - val
_loss: 34.1943 - val_mae: 4.9689 - val_mse: 34.1943 - val_mape: 23.7086
Epoch 18/600
8/8 [=====] - 0s 9ms/step - loss: 28.3160 - mae: 4.0856 - mse: 28.3160 - mape: 19.6935 - val
_loss: 30.7871 - val_mae: 4.7149 - val_mse: 30.7871 - val_mape: 22.3174
Epoch 19/600
8/8 [=====] - 0s 9ms/step - loss: 25.5193 - mae: 3.8929 - mse: 25.5193 - mape: 18.5384 - val
_loss: 27.6487 - val_mae: 4.4895 - val_mse: 27.6487 - val_mape: 21.2974
Epoch 20/600
8/8 [=====] - 0s 8ms/step - loss: 23.1486 - mae: 3.7328 - mse: 23.1486 - mape: 17.7607 - val
_loss: 24.7105 - val_mae: 4.2489 - val_mse: 24.7105 - val_mape: 20.0950
Epoch 21/600
8/8 [=====] - 0s 9ms/step - loss: 21.1170 - mae: 3.5467 - mse: 21.1170 - mape: 16.7535 - val
_loss: 22.2139 - val_mae: 4.0197 - val_mse: 22.2139 - val_mape: 18.8789
Epoch 22/600
8/8 [=====] - 0s 9ms/step - loss: 19.3292 - mae: 3.3807 - mse: 19.3292 - mape: 15.9084 - val
_loss: 20.1464 - val_mae: 3.8350 - val_mse: 20.1464 - val_mape: 17.9155
Epoch 23/600
8/8 [=====] - 0s 8ms/step - loss: 17.8378 - mae: 3.2572 - mse: 17.8378 - mape: 15.2061 - val
_loss: 17.9273 - val_mae: 3.5867 - val_mse: 17.9273 - val_mape: 16.5765
Epoch 24/600
8/8 [=====] - 0s 9ms/step - loss: 16.4956 - mae: 3.1031 - mse: 16.4956 - mape: 14.3762 - val
_loss: 16.4199 - val_mae: 3.4202 - val_mse: 16.4199 - val_mape: 15.7275
Epoch 25/600
8/8 [=====] - 0s 9ms/step - loss: 15.7446 - mae: 3.0190 - mse: 15.7446 - mape: 13.7913 - val
_loss: 15.3198 - val_mae: 3.2851 - val_mse: 15.3198 - val_mape: 14.9622

Epoch 26/600
8/8 [=====] - 0s 10ms/step - loss: 14.7461 - mae: 2.9112 - mse: 14.7461 - mape: 13.1680 - val_loss: 13.7791 - val_mae: 3.1026 - val_mse: 13.7791 - val_mape: 14.0757
Epoch 27/600
8/8 [=====] - 0s 9ms/step - loss: 13.8128 - mae: 2.7595 - mse: 13.8128 - mape: 12.4607 - val_loss: 13.1791 - val_mae: 3.0204 - val_mse: 13.1791 - val_mape: 13.5419
Epoch 28/600
8/8 [=====] - 0s 9ms/step - loss: 13.2028 - mae: 2.7106 - mse: 13.2028 - mape: 12.0294 - val_loss: 12.1392 - val_mae: 2.9062 - val_mse: 12.1392 - val_mape: 13.0832
Epoch 29/600
8/8 [=====] - 0s 8ms/step - loss: 12.6851 - mae: 2.5958 - mse: 12.6851 - mape: 11.6196 - val_loss: 11.9779 - val_mae: 2.8646 - val_mse: 11.9779 - val_mape: 12.5852
Epoch 30/600
8/8 [=====] - 0s 8ms/step - loss: 12.4700 - mae: 2.5442 - mse: 12.4700 - mape: 11.2355 - val_loss: 11.0125 - val_mae: 2.7105 - val_mse: 11.0125 - val_mape: 11.8876
Epoch 31/600
8/8 [=====] - 0s 9ms/step - loss: 11.9716 - mae: 2.4864 - mse: 11.9716 - mape: 10.9466 - val_loss: 10.5913 - val_mae: 2.6494 - val_mse: 10.5913 - val_mape: 11.6701
Epoch 32/600
8/8 [=====] - 0s 9ms/step - loss: 11.7148 - mae: 2.4495 - mse: 11.7148 - mape: 10.8027 - val_loss: 10.2298 - val_mae: 2.5830 - val_mse: 10.2298 - val_mape: 11.2334
Epoch 33/600
8/8 [=====] - 0s 9ms/step - loss: 11.6871 - mae: 2.4352 - mse: 11.6871 - mape: 10.6758 - val_loss: 10.0992 - val_mae: 2.5624 - val_mse: 10.0992 - val_mape: 10.9123
Epoch 34/600
8/8 [=====] - 0s 9ms/step - loss: 11.1599 - mae: 2.3845 - mse: 11.1599 - mape: 10.4106 - val_loss: 10.1652 - val_mae: 2.6229 - val_mse: 10.1652 - val_mape: 11.3141
Epoch 35/600
8/8 [=====] - 0s 8ms/step - loss: 11.0002 - mae: 2.3755 - mse: 11.0002 - mape: 10.3157 - val_loss: 10.0727 - val_mae: 2.5381 - val_mse: 10.0727 - val_mape: 10.8763
Epoch 36/600
8/8 [=====] - 0s 10ms/step - loss: 11.0765 - mae: 2.3631 - mse: 11.0765 - mape: 10.2659 - val_loss: 9.3977 - val_mae: 2.5127 - val_mse: 9.3977 - val_mape: 11.0014
Epoch 37/600
8/8 [=====] - 0s 8ms/step - loss: 10.6293 - mae: 2.3546 - mse: 10.6293 - mape: 10.2588 - val_loss: 9.4538 - val_mae: 2.4972 - val_mse: 9.4538 - val_mape: 10.6419
Epoch 38/600
8/8 [=====] - 0s 9ms/step - loss: 10.6730 - mae: 2.3274 - mse: 10.6730 - mape: 10.1072 - val_loss: 9.1261 - val_mae: 2.4575 - val_mse: 9.1261 - val_mape: 10.5721
Epoch 39/600
8/8 [=====] - 0s 10ms/step - loss: 10.5158 - mae: 2.3212 - mse: 10.5158 - mape: 10.0489 - val_loss: 9.3952 - val_mae: 2.4204 - val_mse: 9.3952 - val_mape: 10.3411
Epoch 40/600
8/8 [=====] - 0s 9ms/step - loss: 10.4161 - mae: 2.3063 - mse: 10.4161 - mape: 10.0332 - val_loss: 8.8727 - val_mae: 2.4027 - val_mse: 8.8727 - val_mape: 10.2819

Epoch 41/600
8/8 [=====] - 0s 8ms/step - loss: 10.3923 - mae: 2.3017 - mse: 10.3923 - mape: 10.0014 - val_loss: 8.7231 - val_mae: 2.3553 - val_mse: 8.7231 - val_mape: 10.1067
Epoch 42/600
8/8 [=====] - 0s 9ms/step - loss: 10.2298 - mae: 2.2603 - mse: 10.2298 - mape: 9.8533 - val_loss: 8.7168 - val_mae: 2.3293 - val_mse: 8.7168 - val_mape: 9.9118
Epoch 43/600
8/8 [=====] - 0s 9ms/step - loss: 10.1592 - mae: 2.2618 - mse: 10.1592 - mape: 9.7650 - val_loss: 8.5275 - val_mae: 2.3248 - val_mse: 8.5275 - val_mape: 9.9663
Epoch 44/600
8/8 [=====] - 0s 9ms/step - loss: 9.9149 - mae: 2.2446 - mse: 9.9149 - mape: 9.7223 - val_loss: 8.6322 - val_mae: 2.3629 - val_mse: 8.6322 - val_mape: 9.9877
Epoch 45/600
8/8 [=====] - 0s 9ms/step - loss: 10.2056 - mae: 2.2886 - mse: 10.2056 - mape: 9.8205 - val_loss: 8.4325 - val_mae: 2.3184 - val_mse: 8.4325 - val_mape: 9.7721
Epoch 46/600
8/8 [=====] - 0s 10ms/step - loss: 9.7260 - mae: 2.2050 - mse: 9.7260 - mape: 9.5035 - val_loss: 8.2252 - val_mae: 2.2582 - val_mse: 8.2252 - val_mape: 9.5981
Epoch 47/600
8/8 [=====] - 0s 8ms/step - loss: 9.8612 - mae: 2.2228 - mse: 9.8612 - mape: 9.6334 - val_loss: 8.1921 - val_mae: 2.2711 - val_mse: 8.1921 - val_mape: 9.6049
Epoch 48/600
8/8 [=====] - 0s 9ms/step - loss: 9.7181 - mae: 2.1989 - mse: 9.7181 - mape: 9.4913 - val_loss: 8.1611 - val_mae: 2.2940 - val_mse: 8.1611 - val_mape: 9.8024
Epoch 49/600
8/8 [=====] - 0s 9ms/step - loss: 9.4868 - mae: 2.1732 - mse: 9.4868 - mape: 9.3401 - val_loss: 8.1131 - val_mae: 2.2431 - val_mse: 8.1131 - val_mape: 9.6611
Epoch 50/600
8/8 [=====] - 0s 10ms/step - loss: 9.4814 - mae: 2.1530 - mse: 9.4814 - mape: 9.3183 - val_loss: 8.3953 - val_mae: 2.2331 - val_mse: 8.3953 - val_mape: 9.4453
Epoch 51/600
8/8 [=====] - 0s 8ms/step - loss: 9.5136 - mae: 2.1490 - mse: 9.5136 - mape: 9.2664 - val_loss: 8.0331 - val_mae: 2.2747 - val_mse: 8.0331 - val_mape: 9.7488
Epoch 52/600
8/8 [=====] - 0s 8ms/step - loss: 9.2954 - mae: 2.1456 - mse: 9.2954 - mape: 9.2674 - val_loss: 8.1406 - val_mae: 2.2828 - val_mse: 8.1406 - val_mape: 9.6142
Epoch 53/600
8/8 [=====] - 0s 9ms/step - loss: 9.5530 - mae: 2.1764 - mse: 9.5530 - mape: 9.3182 - val_loss: 7.8389 - val_mae: 2.1986 - val_mse: 7.8389 - val_mape: 9.2441
Epoch 54/600
8/8 [=====] - 0s 10ms/step - loss: 9.1728 - mae: 2.1291 - mse: 9.1728 - mape: 9.1706 - val_loss: 7.8222 - val_mae: 2.2334 - val_mse: 7.8222 - val_mape: 9.4789
Epoch 55/600
8/8 [=====] - 0s 9ms/step - loss: 9.1450 - mae: 2.1319 - mse: 9.1450 - mape: 9.1607 - val_loss: 7.6708 - val_mae: 2.1908 - val_mse: 7.6708 - val_mape: 9.3476

Epoch 56/600
8/8 [=====] - 0s 8ms/step - loss: 9.0935 - mae: 2.1101 - mse: 9.0935 - mape: 9.0589 - val_loss: 7.7647 - val_mae: 2.2139 - val_mse: 7.7647 - val_mape: 9.3371
Epoch 57/600
8/8 [=====] - 0s 8ms/step - loss: 9.0712 - mae: 2.1291 - mse: 9.0712 - mape: 9.0720 - val_loss: 7.6170 - val_mae: 2.1716 - val_mse: 7.6170 - val_mape: 9.2285
Epoch 58/600
8/8 [=====] - 0s 9ms/step - loss: 9.1672 - mae: 2.1278 - mse: 9.1672 - mape: 9.0923 - val_loss: 7.6635 - val_mae: 2.1925 - val_mse: 7.6635 - val_mape: 9.2222
Epoch 59/600
8/8 [=====] - 0s 9ms/step - loss: 8.9768 - mae: 2.1126 - mse: 8.9768 - mape: 9.0147 - val_loss: 7.4948 - val_mae: 2.1426 - val_mse: 7.4948 - val_mape: 9.0034
Epoch 60/600
8/8 [=====] - 0s 8ms/step - loss: 8.6948 - mae: 2.0625 - mse: 8.6948 - mape: 8.8162 - val_loss: 7.5130 - val_mae: 2.1819 - val_mse: 7.5130 - val_mape: 9.2761
Epoch 61/600
8/8 [=====] - 0s 8ms/step - loss: 8.8810 - mae: 2.0859 - mse: 8.8810 - mape: 8.8843 - val_loss: 7.3830 - val_mae: 2.1254 - val_mse: 7.3830 - val_mape: 8.9086
Epoch 62/600
8/8 [=====] - 0s 8ms/step - loss: 8.9401 - mae: 2.0709 - mse: 8.9401 - mape: 8.8221 - val_loss: 7.3840 - val_mae: 2.1366 - val_mse: 7.3840 - val_mape: 9.1065
Epoch 63/600
8/8 [=====] - 0s 10ms/step - loss: 8.6068 - mae: 2.0357 - mse: 8.6068 - mape: 8.7198 - val_loss: 7.4122 - val_mae: 2.0812 - val_mse: 7.4122 - val_mape: 8.7776
Epoch 64/600
8/8 [=====] - 0s 10ms/step - loss: 8.6736 - mae: 2.0653 - mse: 8.6736 - mape: 8.8811 - val_loss: 7.5837 - val_mae: 2.1756 - val_mse: 7.5837 - val_mape: 9.1158
Epoch 65/600
8/8 [=====] - 0s 9ms/step - loss: 8.5488 - mae: 2.0526 - mse: 8.5488 - mape: 8.7309 - val_loss: 7.2434 - val_mae: 2.0914 - val_mse: 7.2434 - val_mape: 8.7522
Epoch 66/600
8/8 [=====] - 0s 9ms/step - loss: 8.9003 - mae: 2.0711 - mse: 8.9003 - mape: 8.7835 - val_loss: 7.3095 - val_mae: 2.0675 - val_mse: 7.3095 - val_mape: 8.7322
Epoch 67/600
8/8 [=====] - 0s 10ms/step - loss: 8.4329 - mae: 2.0258 - mse: 8.4329 - mape: 8.6940 - val_loss: 7.2367 - val_mae: 2.0812 - val_mse: 7.2367 - val_mape: 8.7010
Epoch 68/600
8/8 [=====] - 0s 10ms/step - loss: 8.4644 - mae: 2.0523 - mse: 8.4644 - mape: 8.7114 - val_loss: 7.4249 - val_mae: 2.0573 - val_mse: 7.4249 - val_mape: 8.7082
Epoch 69/600
8/8 [=====] - 0s 9ms/step - loss: 8.4016 - mae: 2.0279 - mse: 8.4016 - mape: 8.7469 - val_loss: 7.2214 - val_mae: 2.0958 - val_mse: 7.2214 - val_mape: 8.7926
Epoch 70/600
8/8 [=====] - 0s 9ms/step - loss: 8.4597 - mae: 2.0494 - mse: 8.4597 - mape: 8.7794 - val_loss: 7.1820 - val_mae: 2.0917 - val_mse: 7.1820 - val_mape: 8.8295

Epoch 71/600
8/8 [=====] - 0s 9ms/step - loss: 8.3397 - mae: 2.0162 - mse: 8.3397 - mape: 8.6473 - val_loss: 7.2025 - val_mae: 2.0825 - val_mse: 7.2025 - val_mape: 8.6867
Epoch 72/600
8/8 [=====] - 0s 9ms/step - loss: 8.1884 - mae: 1.9882 - mse: 8.1884 - mape: 8.4707 - val_loss: 7.3027 - val_mae: 2.0314 - val_mse: 7.3027 - val_mape: 8.5017
Epoch 73/600
8/8 [=====] - 0s 8ms/step - loss: 8.0969 - mae: 1.9725 - mse: 8.0969 - mape: 8.3944 - val_loss: 7.3361 - val_mae: 2.0603 - val_mse: 7.3361 - val_mape: 8.9133
Epoch 74/600
8/8 [=====] - 0s 9ms/step - loss: 8.2428 - mae: 2.0112 - mse: 8.2428 - mape: 8.6039 - val_loss: 7.0392 - val_mae: 2.0650 - val_mse: 7.0392 - val_mape: 8.6484
Epoch 75/600
8/8 [=====] - 0s 8ms/step - loss: 8.1295 - mae: 2.0023 - mse: 8.1295 - mape: 8.5862 - val_loss: 7.0944 - val_mae: 2.0083 - val_mse: 7.0944 - val_mape: 8.3966
Epoch 76/600
8/8 [=====] - 0s 9ms/step - loss: 8.2008 - mae: 2.0255 - mse: 8.2008 - mape: 8.5909 - val_loss: 7.0173 - val_mae: 2.0321 - val_mse: 7.0173 - val_mape: 8.4816
Epoch 77/600
8/8 [=====] - 0s 8ms/step - loss: 8.0995 - mae: 1.9853 - mse: 8.0995 - mape: 8.4327 - val_loss: 7.0866 - val_mae: 2.0772 - val_mse: 7.0866 - val_mape: 8.8107
Epoch 78/600
8/8 [=====] - 0s 10ms/step - loss: 7.8865 - mae: 1.9542 - mse: 7.8865 - mape: 8.3447 - val_loss: 6.9979 - val_mae: 2.0464 - val_mse: 6.9979 - val_mape: 8.5977
Epoch 79/600
8/8 [=====] - 0s 9ms/step - loss: 7.9960 - mae: 1.9920 - mse: 7.9960 - mape: 8.5857 - val_loss: 6.8465 - val_mae: 2.0042 - val_mse: 6.8465 - val_mape: 8.3626
Epoch 80/600
8/8 [=====] - 0s 9ms/step - loss: 8.1902 - mae: 1.9716 - mse: 8.1902 - mape: 8.3949 - val_loss: 6.9132 - val_mae: 2.0014 - val_mse: 6.9132 - val_mape: 8.3926
Epoch 81/600
8/8 [=====] - 0s 9ms/step - loss: 8.1442 - mae: 1.9692 - mse: 8.1442 - mape: 8.3779 - val_loss: 6.8582 - val_mae: 1.9924 - val_mse: 6.8582 - val_mape: 8.3036
Epoch 82/600
8/8 [=====] - 0s 9ms/step - loss: 7.8473 - mae: 1.9623 - mse: 7.8473 - mape: 8.3472 - val_loss: 6.7377 - val_mae: 1.9614 - val_mse: 6.7377 - val_mape: 8.1957
Epoch 83/600
8/8 [=====] - 0s 8ms/step - loss: 7.9176 - mae: 1.9876 - mse: 7.9176 - mape: 8.4605 - val_loss: 6.7370 - val_mae: 1.9830 - val_mse: 6.7370 - val_mape: 8.3816
Epoch 84/600
8/8 [=====] - 0s 8ms/step - loss: 7.7904 - mae: 1.9427 - mse: 7.7904 - mape: 8.2517 - val_loss: 6.8628 - val_mae: 2.0207 - val_mse: 6.8628 - val_mape: 8.4389
Epoch 85/600
8/8 [=====] - 0s 9ms/step - loss: 7.8389 - mae: 1.9431 - mse: 7.8389 - mape: 8.2831 - val_loss: 6.8447 - val_mae: 2.0146 - val_mse: 6.8447 - val_mape: 8.3767

Epoch 86/600
8/8 [=====] - 0s 9ms/step - loss: 7.7364 - mae: 1.9537 - mse: 7.7364 - mape: 8.3157 - val_loss: 6.7627 - val_mae: 1.9961 - val_mse: 6.7627 - val_mape: 8.2745
Epoch 87/600
8/8 [=====] - 0s 9ms/step - loss: 7.9161 - mae: 1.9897 - mse: 7.9161 - mape: 8.4302 - val_loss: 6.5921 - val_mae: 1.9262 - val_mse: 6.5921 - val_mape: 8.0534
Epoch 88/600
8/8 [=====] - 0s 9ms/step - loss: 7.6821 - mae: 1.9447 - mse: 7.6821 - mape: 8.2910 - val_loss: 6.6221 - val_mae: 1.9533 - val_mse: 6.6221 - val_mape: 8.3490
Epoch 89/600
8/8 [=====] - 0s 9ms/step - loss: 8.0233 - mae: 1.9429 - mse: 8.0233 - mape: 8.2501 - val_loss: 6.5354 - val_mae: 1.9294 - val_mse: 6.5354 - val_mape: 8.0170
Epoch 90/600
8/8 [=====] - 0s 9ms/step - loss: 7.6954 - mae: 1.9457 - mse: 7.6954 - mape: 8.2590 - val_loss: 6.6472 - val_mae: 1.9257 - val_mse: 6.6472 - val_mape: 8.0293
Epoch 91/600
8/8 [=====] - 0s 10ms/step - loss: 7.8987 - mae: 1.9500 - mse: 7.8987 - mape: 8.2242 - val_loss: 6.6342 - val_mae: 1.9359 - val_mse: 6.6342 - val_mape: 8.1780
Epoch 92/600
8/8 [=====] - 0s 9ms/step - loss: 7.5674 - mae: 1.9225 - mse: 7.5674 - mape: 8.1596 - val_loss: 6.5634 - val_mae: 1.9085 - val_mse: 6.5634 - val_mape: 7.9598
Epoch 93/600
8/8 [=====] - 0s 8ms/step - loss: 7.8623 - mae: 1.9709 - mse: 7.8623 - mape: 8.3539 - val_loss: 6.5568 - val_mae: 1.9408 - val_mse: 6.5568 - val_mape: 8.0400
Epoch 94/600
8/8 [=====] - 0s 8ms/step - loss: 7.4642 - mae: 1.8864 - mse: 7.4642 - mape: 8.0193 - val_loss: 6.7838 - val_mae: 1.9139 - val_mse: 6.7838 - val_mape: 8.0062
Epoch 95/600
8/8 [=====] - 0s 8ms/step - loss: 7.5019 - mae: 1.9232 - mse: 7.5019 - mape: 8.1687 - val_loss: 6.4405 - val_mae: 1.8983 - val_mse: 6.4405 - val_mape: 7.8853
Epoch 96/600
8/8 [=====] - 0s 10ms/step - loss: 7.7861 - mae: 1.9728 - mse: 7.7861 - mape: 8.3537 - val_loss: 6.5333 - val_mae: 1.9623 - val_mse: 6.5333 - val_mape: 8.1598
Epoch 97/600
8/8 [=====] - 0s 9ms/step - loss: 7.3837 - mae: 1.8717 - mse: 7.3837 - mape: 7.9249 - val_loss: 6.4473 - val_mae: 1.9134 - val_mse: 6.4473 - val_mape: 7.9528
Epoch 98/600
8/8 [=====] - 0s 10ms/step - loss: 7.5705 - mae: 1.9429 - mse: 7.5705 - mape: 8.3469 - val_loss: 6.4069 - val_mae: 1.8827 - val_mse: 6.4069 - val_mape: 7.8093
Epoch 99/600
8/8 [=====] - 0s 9ms/step - loss: 7.3274 - mae: 1.8785 - mse: 7.3274 - mape: 7.9866 - val_loss: 6.5568 - val_mae: 1.9469 - val_mse: 6.5568 - val_mape: 8.1562
Epoch 100/600
8/8 [=====] - 0s 9ms/step - loss: 7.3760 - mae: 1.8878 - mse: 7.3760 - mape: 8.0507 - val_loss: 6.7702 - val_mae: 2.0075 - val_mse: 6.7702 - val_mape: 8.3250

Epoch 101/600
8/8 [=====] - 0s 8ms/step - loss: 7.3860 - mae: 1.9135 - mse: 7.3860 - mape: 8.1276 - val_loss: 6.3431 - val_mae: 1.8588 - val_mse: 6.3431 - val_mape: 7.6959

.Epoch 102/600
8/8 [=====] - 0s 9ms/step - loss: 7.5273 - mae: 1.9212 - mse: 7.5273 - mape: 8.1743 - val_loss: 6.4393 - val_mae: 1.9260 - val_mse: 6.4393 - val_mape: 8.3457

Epoch 103/600
8/8 [=====] - 0s 9ms/step - loss: 7.3695 - mae: 1.8757 - mse: 7.3695 - mape: 7.9774 - val_loss: 6.3953 - val_mae: 1.8577 - val_mse: 6.3953 - val_mape: 7.7239

Epoch 104/600
8/8 [=====] - 0s 9ms/step - loss: 7.2088 - mae: 1.9101 - mse: 7.2088 - mape: 8.1248 - val_loss: 6.9289 - val_mae: 2.0080 - val_mse: 6.9289 - val_mape: 8.3911

Epoch 105/600
8/8 [=====] - 0s 9ms/step - loss: 7.4917 - mae: 1.9211 - mse: 7.4917 - mape: 8.1526 - val_loss: 6.2675 - val_mae: 1.8641 - val_mse: 6.2675 - val_mape: 7.6975

Epoch 106/600
8/8 [=====] - 0s 8ms/step - loss: 7.4893 - mae: 1.9042 - mse: 7.4893 - mape: 8.0819 - val_loss: 6.3161 - val_mae: 1.8658 - val_mse: 6.3161 - val_mape: 7.8582

Epoch 107/600
8/8 [=====] - 0s 9ms/step - loss: 7.1870 - mae: 1.8749 - mse: 7.1870 - mape: 7.9294 - val_loss: 6.3367 - val_mae: 1.8802 - val_mse: 6.3367 - val_mape: 7.9605

Epoch 108/600
8/8 [=====] - 0s 8ms/step - loss: 7.5202 - mae: 1.9324 - mse: 7.5202 - mape: 8.1566 - val_loss: 6.2561 - val_mae: 1.8502 - val_mse: 6.2561 - val_mape: 7.6391

Epoch 109/600
8/8 [=====] - 0s 9ms/step - loss: 7.0993 - mae: 1.8776 - mse: 7.0993 - mape: 7.9177 - val_loss: 6.2549 - val_mae: 1.8551 - val_mse: 6.2549 - val_mape: 7.6790

Epoch 110/600
8/8 [=====] - 0s 9ms/step - loss: 7.1841 - mae: 1.8696 - mse: 7.1841 - mape: 7.9171 - val_loss: 6.3827 - val_mae: 1.8781 - val_mse: 6.3827 - val_mape: 7.9702

Epoch 111/600
8/8 [=====] - 0s 9ms/step - loss: 7.2774 - mae: 1.9001 - mse: 7.2774 - mape: 8.0639 - val_loss: 6.2819 - val_mae: 1.8382 - val_mse: 6.2819 - val_mape: 7.6113

Epoch 112/600
8/8 [=====] - 0s 10ms/step - loss: 7.0774 - mae: 1.8501 - mse: 7.0774 - mape: 7.8625 - val_loss: 6.2088 - val_mae: 1.8448 - val_mse: 6.2088 - val_mape: 7.6048

Epoch 113/600
8/8 [=====] - 0s 9ms/step - loss: 7.2572 - mae: 1.8628 - mse: 7.2572 - mape: 7.8881 - val_loss: 6.4520 - val_mae: 1.8649 - val_mse: 6.4520 - val_mape: 7.8498

Epoch 114/600
8/8 [=====] - 0s 8ms/step - loss: 7.0449 - mae: 1.8956 - mse: 7.0449 - mape: 8.1437 - val_loss: 6.4060 - val_mae: 1.9100 - val_mse: 6.4060 - val_mape: 7.8833

Epoch 115/600
8/8 [=====] - 0s 9ms/step - loss: 7.1146 - mae: 1.8516 - mse: 7.1146 - mape: 7.8092 - val_loss: 6.4060 - val_mae: 1.9100 - val_mse: 6.4060 - val_mape: 7.8833

ss: 6.2772 - val_mae: 1.8544 - val_mse: 6.2772 - val_mape: 7.8520
Epoch 116/600
8/8 [=====] - 0s 8ms/step - loss: 7.0592 - mae: 1.8594 - mse: 7.0592 - mape: 7.9522 - val_lo
ss: 6.3967 - val_mae: 1.8963 - val_mse: 6.3967 - val_mape: 7.8176
Epoch 117/600
8/8 [=====] - 0s 9ms/step - loss: 7.0352 - mae: 1.8788 - mse: 7.0352 - mape: 7.9493 - val_lo
ss: 6.1666 - val_mae: 1.8413 - val_mse: 6.1666 - val_mape: 7.6064
Epoch 118/600
8/8 [=====] - 0s 8ms/step - loss: 7.1897 - mae: 1.8912 - mse: 7.1897 - mape: 8.0506 - val_lo
ss: 6.3200 - val_mae: 1.8799 - val_mse: 6.3200 - val_mape: 7.7965
Epoch 119/600
8/8 [=====] - 0s 9ms/step - loss: 6.9667 - mae: 1.8101 - mse: 6.9667 - mape: 7.7019 - val_lo
ss: 6.3833 - val_mae: 1.8647 - val_mse: 6.3833 - val_mape: 7.9102
Epoch 120/600
8/8 [=====] - 0s 8ms/step - loss: 7.0682 - mae: 1.8637 - mse: 7.0682 - mape: 7.9240 - val_lo
ss: 6.1520 - val_mae: 1.8450 - val_mse: 6.1520 - val_mape: 7.7236
Epoch 121/600
8/8 [=====] - 0s 9ms/step - loss: 7.0528 - mae: 1.8685 - mse: 7.0528 - mape: 8.0242 - val_lo
ss: 6.1626 - val_mae: 1.8297 - val_mse: 6.1626 - val_mape: 7.5478
Epoch 122/600
8/8 [=====] - 0s 9ms/step - loss: 6.8947 - mae: 1.8567 - mse: 6.8947 - mape: 7.8724 - val_lo
ss: 6.1164 - val_mae: 1.8365 - val_mse: 6.1164 - val_mape: 7.6004
Epoch 123/600
8/8 [=====] - 0s 10ms/step - loss: 6.9421 - mae: 1.8565 - mse: 6.9421 - mape: 7.9147 - val_l
oss: 6.1731 - val_mae: 1.8680 - val_mse: 6.1731 - val_mape: 7.7950
Epoch 124/600
8/8 [=====] - 0s 9ms/step - loss: 6.8552 - mae: 1.8522 - mse: 6.8552 - mape: 7.9386 - val_lo
ss: 6.6844 - val_mae: 1.9655 - val_mse: 6.6844 - val_mape: 8.1445
Epoch 125/600
8/8 [=====] - 0s 9ms/step - loss: 6.9732 - mae: 1.8154 - mse: 6.9732 - mape: 7.7487 - val_lo
ss: 6.2670 - val_mae: 1.8282 - val_mse: 6.2670 - val_mape: 7.6216
Epoch 126/600
8/8 [=====] - 0s 9ms/step - loss: 7.0016 - mae: 1.8697 - mse: 7.0016 - mape: 7.9648 - val_lo
ss: 6.1217 - val_mae: 1.8359 - val_mse: 6.1217 - val_mape: 7.5897
Epoch 127/600
8/8 [=====] - 0s 9ms/step - loss: 6.9269 - mae: 1.8437 - mse: 6.9269 - mape: 7.8029 - val_lo
ss: 6.2831 - val_mae: 1.8471 - val_mse: 6.2831 - val_mape: 7.7751
Epoch 128/600
8/8 [=====] - 0s 8ms/step - loss: 6.9143 - mae: 1.8519 - mse: 6.9143 - mape: 7.8595 - val_lo
ss: 6.1394 - val_mae: 1.8241 - val_mse: 6.1394 - val_mape: 7.5851
Epoch 129/600
8/8 [=====] - 0s 8ms/step - loss: 7.1663 - mae: 1.8750 - mse: 7.1663 - mape: 7.9472 - val_lo
ss: 6.4520 - val_mae: 1.8576 - val_mse: 6.4520 - val_mape: 7.6408
Epoch 130/600
8/8 [=====] - 0s 8ms/step - loss: 6.9196 - mae: 1.8576 - mse: 6.9196 - mape: 7.8430 - val_lo

ss: 6.1246 - val_mae: 1.8242 - val_mse: 6.1246 - val_mape: 7.6227
Epoch 131/600
8/8 [=====] - 0s 9ms/step - loss: 6.8793 - mae: 1.8508 - mse: 6.8793 - mape: 7.8246 - val_loss: 6.1665 - val_mae: 1.8368 - val_mse: 6.1665 - val_mape: 7.6249
Epoch 132/600
8/8 [=====] - 0s 9ms/step - loss: 6.7341 - mae: 1.8007 - mse: 6.7341 - mape: 7.7065 - val_loss: 6.4717 - val_mae: 1.9214 - val_mse: 6.4717 - val_mape: 7.9510
Epoch 133/600
8/8 [=====] - 0s 9ms/step - loss: 6.8265 - mae: 1.8317 - mse: 6.8265 - mape: 7.8338 - val_loss: 6.6317 - val_mae: 1.9072 - val_mse: 6.6317 - val_mape: 7.8373
Epoch 134/600
8/8 [=====] - 0s 10ms/step - loss: 6.7496 - mae: 1.8397 - mse: 6.7496 - mape: 7.8219 - val_loss: 6.1314 - val_mae: 1.8153 - val_mse: 6.1314 - val_mape: 7.5114
Epoch 135/600
8/8 [=====] - 0s 9ms/step - loss: 6.7993 - mae: 1.8216 - mse: 6.7993 - mape: 7.7583 - val_loss: 6.4261 - val_mae: 1.8547 - val_mse: 6.4261 - val_mape: 7.7501
Epoch 136/600
8/8 [=====] - 0s 8ms/step - loss: 6.7817 - mae: 1.8389 - mse: 6.7817 - mape: 7.7980 - val_loss: 6.1932 - val_mae: 1.8175 - val_mse: 6.1932 - val_mape: 7.5160
Epoch 137/600
8/8 [=====] - 0s 8ms/step - loss: 6.8130 - mae: 1.8269 - mse: 6.8130 - mape: 7.7185 - val_loss: 6.2816 - val_mae: 1.8337 - val_mse: 6.2816 - val_mape: 7.5532
Epoch 138/600
8/8 [=====] - 0s 8ms/step - loss: 6.6750 - mae: 1.8126 - mse: 6.6750 - mape: 7.7002 - val_loss: 6.1965 - val_mae: 1.8359 - val_mse: 6.1965 - val_mape: 7.5421
Epoch 139/600
8/8 [=====] - 0s 10ms/step - loss: 6.5937 - mae: 1.7867 - mse: 6.5937 - mape: 7.6316 - val_loss: 6.2980 - val_mae: 1.8272 - val_mse: 6.2980 - val_mape: 7.5124
Epoch 140/600
8/8 [=====] - 0s 8ms/step - loss: 6.8210 - mae: 1.8802 - mse: 6.8210 - mape: 8.0660 - val_loss: 7.0048 - val_mae: 1.9669 - val_mse: 7.0048 - val_mape: 8.0330
Epoch 141/600
8/8 [=====] - 0s 9ms/step - loss: 6.9071 - mae: 1.8218 - mse: 6.9071 - mape: 7.6865 - val_loss: 6.1543 - val_mae: 1.8529 - val_mse: 6.1543 - val_mape: 7.6691
Epoch 142/600
8/8 [=====] - 0s 10ms/step - loss: 6.5710 - mae: 1.8122 - mse: 6.5710 - mape: 7.7272 - val_loss: 6.0763 - val_mae: 1.8172 - val_mse: 6.0763 - val_mape: 7.4643
Epoch 143/600
8/8 [=====] - 0s 8ms/step - loss: 6.6587 - mae: 1.8128 - mse: 6.6587 - mape: 7.7222 - val_loss: 6.2396 - val_mae: 1.8254 - val_mse: 6.2396 - val_mape: 7.4923
Epoch 144/600
8/8 [=====] - 0s 9ms/step - loss: 6.7901 - mae: 1.8258 - mse: 6.7901 - mape: 7.7529 - val_loss: 6.2598 - val_mae: 1.8721 - val_mse: 6.2598 - val_mape: 8.0437
Epoch 145/600
8/8 [=====] - 0s 9ms/step - loss: 6.5849 - mae: 1.8383 - mse: 6.5849 - mape: 7.8406 - val_loss:

ss: 6.1266 - val_mae: 1.8207 - val_mse: 6.1266 - val_mape: 7.5072
Epoch 146/600
8/8 [=====] - 0s 9ms/step - loss: 6.7559 - mae: 1.8309 - mse: 6.7559 - mape: 7.7127 - val_loss: 6.0734 - val_mae: 1.8334 - val_mse: 6.0734 - val_mape: 7.6256
Epoch 147/600
8/8 [=====] - 0s 11ms/step - loss: 6.6620 - mae: 1.8251 - mse: 6.6620 - mape: 7.8466 - val_loss: 6.0990 - val_mae: 1.8470 - val_mse: 6.0990 - val_mape: 7.6136
Epoch 148/600
8/8 [=====] - 0s 9ms/step - loss: 6.4746 - mae: 1.7885 - mse: 6.4746 - mape: 7.6069 - val_loss: 6.1056 - val_mae: 1.8361 - val_mse: 6.1056 - val_mape: 7.5325
Epoch 149/600
8/8 [=====] - 0s 8ms/step - loss: 6.5125 - mae: 1.8027 - mse: 6.5125 - mape: 7.6131 - val_loss: 6.2158 - val_mae: 1.8298 - val_mse: 6.2158 - val_mape: 7.6090
Epoch 150/600
8/8 [=====] - 0s 12ms/step - loss: 6.6141 - mae: 1.7974 - mse: 6.6141 - mape: 7.7126 - val_loss: 6.1945 - val_mae: 1.8180 - val_mse: 6.1945 - val_mape: 7.4826
Epoch 151/600
8/8 [=====] - 0s 9ms/step - loss: 6.4608 - mae: 1.8077 - mse: 6.4608 - mape: 7.7245 - val_loss: 6.0805 - val_mae: 1.8194 - val_mse: 6.0805 - val_mape: 7.4991
Epoch 152/600
8/8 [=====] - 0s 9ms/step - loss: 6.6369 - mae: 1.8372 - mse: 6.6369 - mape: 7.8534 - val_loss: 6.1130 - val_mae: 1.8415 - val_mse: 6.1130 - val_mape: 7.7014
Epoch 153/600
8/8 [=====] - 0s 8ms/step - loss: 6.6131 - mae: 1.7942 - mse: 6.6131 - mape: 7.6622 - val_loss: 6.0693 - val_mae: 1.8242 - val_mse: 6.0693 - val_mape: 7.4771
Epoch 154/600
8/8 [=====] - 0s 9ms/step - loss: 6.3016 - mae: 1.7527 - mse: 6.3016 - mape: 7.4355 - val_loss: 6.3904 - val_mae: 1.8457 - val_mse: 6.3904 - val_mape: 7.5669
Epoch 155/600
8/8 [=====] - 0s 9ms/step - loss: 6.4792 - mae: 1.8159 - mse: 6.4792 - mape: 7.7500 - val_loss: 6.0337 - val_mae: 1.8189 - val_mse: 6.0337 - val_mape: 7.4869
Epoch 156/600
8/8 [=====] - 0s 10ms/step - loss: 6.5392 - mae: 1.8200 - mse: 6.5392 - mape: 7.7536 - val_loss: 6.0025 - val_mae: 1.8315 - val_mse: 6.0025 - val_mape: 7.7198
Epoch 157/600
8/8 [=====] - 0s 9ms/step - loss: 6.3680 - mae: 1.7804 - mse: 6.3680 - mape: 7.6043 - val_loss: 6.0879 - val_mae: 1.8149 - val_mse: 6.0879 - val_mape: 7.4716
Epoch 158/600
8/8 [=====] - 0s 9ms/step - loss: 6.4200 - mae: 1.7901 - mse: 6.4200 - mape: 7.6142 - val_loss: 6.6490 - val_mae: 1.8566 - val_mse: 6.6490 - val_mape: 7.6264
Epoch 159/600
8/8 [=====] - 0s 9ms/step - loss: 6.6179 - mae: 1.8269 - mse: 6.6179 - mape: 7.7699 - val_loss: 6.0709 - val_mae: 1.8142 - val_mse: 6.0709 - val_mape: 7.4920
Epoch 160/600
8/8 [=====] - 0s 9ms/step - loss: 6.3038 - mae: 1.7588 - mse: 6.3038 - mape: 7.4439 - val_loss:

ss: 6.0875 - val_mae: 1.8203 - val_mse: 6.0875 - val_mape: 7.5800
Epoch 161/600
8/8 [=====] - 0s 10ms/step - loss: 6.5508 - mae: 1.8162 - mse: 6.5508 - mape: 7.7073 - val_loss: 6.0778 - val_mae: 1.8323 - val_mse: 6.0778 - val_mape: 7.6842
Epoch 162/600
8/8 [=====] - 0s 9ms/step - loss: 6.3044 - mae: 1.7638 - mse: 6.3044 - mape: 7.5415 - val_loss: 6.0456 - val_mae: 1.8068 - val_mse: 6.0456 - val_mape: 7.4123
Epoch 163/600
8/8 [=====] - 0s 8ms/step - loss: 6.4194 - mae: 1.8005 - mse: 6.4194 - mape: 7.6061 - val_loss: 6.0653 - val_mae: 1.8483 - val_mse: 6.0653 - val_mape: 7.8769
Epoch 164/600
8/8 [=====] - 0s 10ms/step - loss: 6.3655 - mae: 1.7644 - mse: 6.3655 - mape: 7.4695 - val_loss: 6.3528 - val_mae: 1.8425 - val_mse: 6.3528 - val_mape: 7.6491
Epoch 165/600
8/8 [=====] - 0s 10ms/step - loss: 6.4449 - mae: 1.7522 - mse: 6.4449 - mape: 7.4975 - val_loss: 6.1705 - val_mae: 1.8441 - val_mse: 6.1705 - val_mape: 7.5550
Epoch 166/600
8/8 [=====] - 0s 8ms/step - loss: 6.2928 - mae: 1.7710 - mse: 6.2928 - mape: 7.5239 - val_loss: 5.9669 - val_mae: 1.8055 - val_mse: 5.9669 - val_mape: 7.4033
Epoch 167/600
8/8 [=====] - 0s 9ms/step - loss: 6.2995 - mae: 1.7738 - mse: 6.2995 - mape: 7.4964 - val_loss: 6.2293 - val_mae: 1.8329 - val_mse: 6.2293 - val_mape: 7.5003
Epoch 168/600
8/8 [=====] - 0s 9ms/step - loss: 6.4019 - mae: 1.7872 - mse: 6.4019 - mape: 7.6047 - val_loss: 5.9850 - val_mae: 1.8017 - val_mse: 5.9850 - val_mape: 7.4268
Epoch 169/600
8/8 [=====] - 0s 8ms/step - loss: 6.2285 - mae: 1.7614 - mse: 6.2285 - mape: 7.4981 - val_loss: 7.0800 - val_mae: 1.9246 - val_mse: 7.0800 - val_mape: 7.8352
Epoch 170/600
8/8 [=====] - 0s 9ms/step - loss: 6.4274 - mae: 1.8064 - mse: 6.4274 - mape: 7.7381 - val_loss: 6.0235 - val_mae: 1.8167 - val_mse: 6.0235 - val_mape: 7.5964
Epoch 171/600
8/8 [=====] - 0s 9ms/step - loss: 6.3044 - mae: 1.7849 - mse: 6.3044 - mape: 7.5963 - val_loss: 6.1098 - val_mae: 1.8093 - val_mse: 6.1098 - val_mape: 7.4651
Epoch 172/600
8/8 [=====] - 0s 8ms/step - loss: 6.2752 - mae: 1.7900 - mse: 6.2752 - mape: 7.6358 - val_loss: 6.2196 - val_mae: 1.8256 - val_mse: 6.2196 - val_mape: 7.5060
Epoch 173/600
8/8 [=====] - 0s 9ms/step - loss: 6.1826 - mae: 1.7676 - mse: 6.1826 - mape: 7.4653 - val_loss: 6.1143 - val_mae: 1.8336 - val_mse: 6.1143 - val_mape: 7.5209
Epoch 174/600
8/8 [=====] - 0s 9ms/step - loss: 6.3252 - mae: 1.7658 - mse: 6.3252 - mape: 7.4779 - val_loss: 6.5725 - val_mae: 1.9116 - val_mse: 6.5725 - val_mape: 8.2227
Epoch 175/600
8/8 [=====] - 0s 10ms/step - loss: 6.2664 - mae: 1.7857 - mse: 6.2664 - mape: 7.6428 - val_loss: 6.0875 - val_mae: 1.8203 - val_mse: 6.0875 - val_mape: 7.5800

oss: 5.9759 - val_mae: 1.8052 - val_mse: 5.9759 - val_mape: 7.3799
Epoch 176/600
8/8 [=====] - 0s 8ms/step - loss: 6.1916 - mae: 1.7704 - mse: 6.1916 - mape: 7.5212 - val_loss: 6.1413 - val_mae: 1.8381 - val_mse: 6.1413 - val_mape: 7.6506
Epoch 177/600
8/8 [=====] - 0s 9ms/step - loss: 6.2083 - mae: 1.7657 - mse: 6.2083 - mape: 7.5832 - val_loss: 6.1180 - val_mae: 1.8143 - val_mse: 6.1180 - val_mape: 7.4494
Epoch 178/600
8/8 [=====] - 0s 9ms/step - loss: 6.4530 - mae: 1.8249 - mse: 6.4530 - mape: 7.7314 - val_loss: 6.0415 - val_mae: 1.8073 - val_mse: 6.0415 - val_mape: 7.3881
Epoch 179/600
8/8 [=====] - 0s 9ms/step - loss: 6.1206 - mae: 1.7662 - mse: 6.1206 - mape: 7.4843 - val_loss: 6.0717 - val_mae: 1.8421 - val_mse: 6.0717 - val_mape: 7.5623
Epoch 180/600
8/8 [=====] - 0s 8ms/step - loss: 6.2376 - mae: 1.7975 - mse: 6.2376 - mape: 7.6720 - val_loss: 6.0762 - val_mae: 1.8560 - val_mse: 6.0762 - val_mape: 7.6652
Epoch 181/600
8/8 [=====] - 0s 9ms/step - loss: 6.2911 - mae: 1.7611 - mse: 6.2911 - mape: 7.4421 - val_loss: 5.9063 - val_mae: 1.7894 - val_mse: 5.9063 - val_mape: 7.3189
Epoch 182/600
8/8 [=====] - 0s 8ms/step - loss: 5.9786 - mae: 1.7418 - mse: 5.9786 - mape: 7.4017 - val_loss: 6.3071 - val_mae: 1.8282 - val_mse: 6.3071 - val_mape: 7.5828
Epoch 183/600
8/8 [=====] - 0s 9ms/step - loss: 6.3518 - mae: 1.7706 - mse: 6.3518 - mape: 7.5192 - val_loss: 6.0087 - val_mae: 1.8318 - val_mse: 6.0087 - val_mape: 7.5236
Epoch 184/600
8/8 [=====] - 0s 8ms/step - loss: 6.2227 - mae: 1.7788 - mse: 6.2227 - mape: 7.5716 - val_loss: 5.9948 - val_mae: 1.8343 - val_mse: 5.9948 - val_mape: 7.7027
Epoch 185/600
8/8 [=====] - 0s 10ms/step - loss: 6.2911 - mae: 1.7714 - mse: 6.2911 - mape: 7.5252 - val_loss: 5.9564 - val_mae: 1.7978 - val_mse: 5.9564 - val_mape: 7.3668
Epoch 186/600
8/8 [=====] - 0s 9ms/step - loss: 6.1097 - mae: 1.7747 - mse: 6.1097 - mape: 7.5492 - val_loss: 6.2992 - val_mae: 1.8335 - val_mse: 6.2992 - val_mape: 7.6065
Epoch 187/600
8/8 [=====] - 0s 9ms/step - loss: 6.1331 - mae: 1.7449 - mse: 6.1331 - mape: 7.3929 - val_loss: 5.9304 - val_mae: 1.8079 - val_mse: 5.9304 - val_mape: 7.5283
Epoch 188/600
8/8 [=====] - 0s 9ms/step - loss: 6.1150 - mae: 1.7616 - mse: 6.1150 - mape: 7.5457 - val_loss: 5.9836 - val_mae: 1.7972 - val_mse: 5.9836 - val_mape: 7.3566
Epoch 189/600
8/8 [=====] - 0s 8ms/step - loss: 6.1927 - mae: 1.7480 - mse: 6.1927 - mape: 7.3840 - val_loss: 6.0936 - val_mae: 1.8178 - val_mse: 6.0936 - val_mape: 7.4254
Epoch 190/600
8/8 [=====] - 0s 10ms/step - loss: 6.2172 - mae: 1.7807 - mse: 6.2172 - mape: 7.5988 - val_l

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oss: 6.2686 - val_mae: 1.8528 - val_mse: 6.2686 - val_mape: 7.7626
Epoch 191/600
8/8 [=====] - 0s 9ms/step - loss: 6.0487 - mae: 1.7406 - mse: 6.0487 - mape: 7.3819 - val_loss: 5.9847 - val_mae: 1.7985 - val_mse: 5.9847 - val_mape: 7.3423
Epoch 192/600
8/8 [=====] - 0s 9ms/step - loss: 6.0138 - mae: 1.7321 - mse: 6.0138 - mape: 7.3256 - val_loss: 6.7256 - val_mae: 1.9061 - val_mse: 6.7256 - val_mape: 8.0340
Epoch 193/600
8/8 [=====] - 0s 9ms/step - loss: 6.3196 - mae: 1.8067 - mse: 6.3196 - mape: 7.6938 - val_loss: 6.2286 - val_mae: 1.8514 - val_mse: 6.2286 - val_mape: 7.7579
Epoch 194/600
8/8 [=====] - 0s 8ms/step - loss: 6.1419 - mae: 1.7487 - mse: 6.1419 - mape: 7.4268 - val_loss: 6.4558 - val_mae: 1.8388 - val_mse: 6.4558 - val_mape: 7.5256
Epoch 195/600
8/8 [=====] - 0s 9ms/step - loss: 6.1852 - mae: 1.7388 - mse: 6.1852 - mape: 7.3604 - val_loss: 5.9598 - val_mae: 1.7879 - val_mse: 5.9598 - val_mape: 7.2916
Epoch 196/600
8/8 [=====] - 0s 9ms/step - loss: 5.9285 - mae: 1.7338 - mse: 5.9285 - mape: 7.3944 - val_loss: 6.0030 - val_mae: 1.7889 - val_mse: 6.0030 - val_mape: 7.3119
Epoch 197/600
8/8 [=====] - 0s 8ms/step - loss: 5.9812 - mae: 1.7848 - mse: 5.9812 - mape: 7.5556 - val_loss: 5.9468 - val_mae: 1.7902 - val_mse: 5.9468 - val_mape: 7.3085
Epoch 198/600
8/8 [=====] - 0s 9ms/step - loss: 6.0510 - mae: 1.7350 - mse: 6.0510 - mape: 7.3790 - val_loss: 6.1861 - val_mae: 1.8633 - val_mse: 6.1861 - val_mape: 7.6916
Epoch 199/600
8/8 [=====] - 0s 9ms/step - loss: 6.1538 - mae: 1.7531 - mse: 6.1538 - mape: 7.3601 - val_loss: 6.5707 - val_mae: 1.8458 - val_mse: 6.5707 - val_mape: 7.5069
Epoch 200/600
8/8 [=====] - 0s 9ms/step - loss: 6.0122 - mae: 1.7609 - mse: 6.0122 - mape: 7.4834 - val_loss: 6.0136 - val_mae: 1.7936 - val_mse: 6.0136 - val_mape: 7.3594
Epoch 201/600
8/8 [=====] - 0s 11ms/step - loss: 6.0276 - mae: 1.7515 - mse: 6.0276 - mape: 7.4985 - val_loss: 5.9706 - val_mae: 1.8276 - val_mse: 5.9706 - val_mape: 7.5255

Epoch 202/600
8/8 [=====] - 0s 10ms/step - loss: 5.9103 - mae: 1.7289 - mse: 5.9103 - mape: 7.3736 - val_loss: 5.9173 - val_mae: 1.7876 - val_mse: 5.9173 - val_mape: 7.3561
Epoch 203/600
8/8 [=====] - 0s 8ms/step - loss: 5.9731 - mae: 1.7275 - mse: 5.9731 - mape: 7.3464 - val_loss: 5.9876 - val_mae: 1.8143 - val_mse: 5.9876 - val_mape: 7.4285
Epoch 204/600
8/8 [=====] - 0s 11ms/step - loss: 5.9349 - mae: 1.7313 - mse: 5.9349 - mape: 7.4108 - val_loss: 6.0970 - val_mae: 1.7939 - val_mse: 6.0970 - val_mape: 7.3079
Epoch 205/600

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8/8 [=====] - 0s 11ms/step - loss: 5.9133 - mae: 1.7367 - mse: 5.9133 - mape: 7.3535 - val_loss: 6.4077 - val_mae: 1.8244 - val_mse: 6.4077 - val_mape: 7.4184
Epoch 206/600
8/8 [=====] - 0s 10ms/step - loss: 6.1359 - mae: 1.7862 - mse: 6.1359 - mape: 7.5606 - val_loss: 5.9926 - val_mae: 1.7845 - val_mse: 5.9926 - val_mape: 7.3122
Epoch 207/600
8/8 [=====] - 0s 10ms/step - loss: 5.9017 - mae: 1.7459 - mse: 5.9017 - mape: 7.4371 - val_loss: 5.8764 - val_mae: 1.7993 - val_mse: 5.8764 - val_mape: 7.3485
Epoch 208/600
8/8 [=====] - 0s 8ms/step - loss: 6.1880 - mae: 1.7512 - mse: 6.1880 - mape: 7.3693 - val_loss: 5.9923 - val_mae: 1.8203 - val_mse: 5.9923 - val_mape: 7.6742
Epoch 209/600
8/8 [=====] - 0s 9ms/step - loss: 5.9164 - mae: 1.7299 - mse: 5.9164 - mape: 7.3854 - val_loss: 5.9151 - val_mae: 1.7936 - val_mse: 5.9151 - val_mape: 7.3245
Epoch 210/600
8/8 [=====] - 0s 8ms/step - loss: 5.9187 - mae: 1.7590 - mse: 5.9187 - mape: 7.4450 - val_loss: 6.0440 - val_mae: 1.7977 - val_mse: 6.0440 - val_mape: 7.4408
Epoch 211/600
8/8 [=====] - 0s 10ms/step - loss: 6.2044 - mae: 1.7670 - mse: 6.2044 - mape: 7.4754 - val_loss: 5.8593 - val_mae: 1.7677 - val_mse: 5.8593 - val_mape: 7.2243
Epoch 212/600
8/8 [=====] - 0s 8ms/step - loss: 5.8505 - mae: 1.7267 - mse: 5.8505 - mape: 7.3286 - val_loss: 6.1133 - val_mae: 1.8172 - val_mse: 6.1133 - val_mape: 7.5465
Epoch 213/600
8/8 [=====] - 0s 9ms/step - loss: 5.8449 - mae: 1.7393 - mse: 5.8449 - mape: 7.3545 - val_loss: 5.9456 - val_mae: 1.7885 - val_mse: 5.9456 - val_mape: 7.3625
Epoch 214/600
8/8 [=====] - 0s 9ms/step - loss: 5.8488 - mae: 1.7084 - mse: 5.8488 - mape: 7.3151 - val_loss: 6.0529 - val_mae: 1.8126 - val_mse: 6.0529 - val_mape: 7.5285
Epoch 215/600
8/8 [=====] - 0s 10ms/step - loss: 5.9057 - mae: 1.7156 - mse: 5.9057 - mape: 7.2646 - val_loss: 5.9167 - val_mae: 1.7819 - val_mse: 5.9167 - val_mape: 7.2714
Epoch 216/600
8/8 [=====] - 0s 8ms/step - loss: 5.7844 - mae: 1.7393 - mse: 5.7844 - mape: 7.4467 - val_loss: 5.9062 - val_mae: 1.7672 - val_mse: 5.9062 - val_mape: 7.1980
Epoch 217/600
8/8 [=====] - 0s 9ms/step - loss: 5.9068 - mae: 1.7463 - mse: 5.9068 - mape: 7.3928 - val_loss: 6.0300 - val_mae: 1.8065 - val_mse: 6.0300 - val_mape: 7.3723
Epoch 218/600
8/8 [=====] - 0s 9ms/step - loss: 5.7953 - mae: 1.7025 - mse: 5.7953 - mape: 7.2427 - val_loss: 5.8991 - val_mae: 1.7562 - val_mse: 5.8991 - val_mape: 7.1617
Epoch 219/600
8/8 [=====] - 0s 11ms/step - loss: 5.9126 - mae: 1.7286 - mse: 5.9126 - mape: 7.4095 - val_loss: 5.8682 - val_mae: 1.7765 - val_mse: 5.8682 - val_mape: 7.2358
Epoch 220/600

8/8 [=====] - 0s 9ms/step - loss: 5.9400 - mae: 1.7279 - mse: 5.9400 - mape: 7.3668 - val_loss: 5.9569 - val_mae: 1.7908 - val_mse: 5.9569 - val_mape: 7.4299
Epoch 221/600
8/8 [=====] - 0s 10ms/step - loss: 5.6999 - mae: 1.7024 - mse: 5.6999 - mape: 7.2379 - val_loss: 5.8942 - val_mae: 1.7815 - val_mse: 5.8942 - val_mape: 7.2615
Epoch 222/600
8/8 [=====] - 0s 10ms/step - loss: 5.8718 - mae: 1.6892 - mse: 5.8718 - mape: 7.1775 - val_loss: 6.0286 - val_mae: 1.7864 - val_mse: 6.0286 - val_mape: 7.2866
Epoch 223/600
8/8 [=====] - 0s 8ms/step - loss: 5.8599 - mae: 1.7011 - mse: 5.8599 - mape: 7.2460 - val_loss: 6.0497 - val_mae: 1.7914 - val_mse: 6.0497 - val_mape: 7.3204
Epoch 224/600
8/8 [=====] - 0s 8ms/step - loss: 5.9013 - mae: 1.7237 - mse: 5.9013 - mape: 7.3368 - val_loss: 6.0647 - val_mae: 1.7945 - val_mse: 6.0647 - val_mape: 7.3395
Epoch 225/600
8/8 [=====] - 0s 9ms/step - loss: 5.7239 - mae: 1.6932 - mse: 5.7239 - mape: 7.1873 - val_loss: 5.9982 - val_mae: 1.7982 - val_mse: 5.9982 - val_mape: 7.3356
Epoch 226/600
8/8 [=====] - 0s 10ms/step - loss: 5.8170 - mae: 1.7176 - mse: 5.8170 - mape: 7.2459 - val_loss: 6.2660 - val_mae: 1.8585 - val_mse: 6.2660 - val_mape: 7.8277
Epoch 227/600
8/8 [=====] - 0s 9ms/step - loss: 5.7411 - mae: 1.7193 - mse: 5.7411 - mape: 7.3603 - val_loss: 6.4203 - val_mae: 1.8544 - val_mse: 6.4203 - val_mape: 7.7552
Epoch 228/600
8/8 [=====] - 0s 10ms/step - loss: 5.7266 - mae: 1.7262 - mse: 5.7266 - mape: 7.3029 - val_loss: 6.0168 - val_mae: 1.8212 - val_mse: 6.0168 - val_mape: 7.7067
Epoch 229/600
8/8 [=====] - 0s 8ms/step - loss: 5.6817 - mae: 1.6831 - mse: 5.6817 - mape: 7.1549 - val_loss: 6.0776 - val_mae: 1.8322 - val_mse: 6.0776 - val_mape: 7.5288
Epoch 230/600
8/8 [=====] - 0s 9ms/step - loss: 5.7864 - mae: 1.6951 - mse: 5.7864 - mape: 7.1900 - val_loss: 6.2439 - val_mae: 1.8350 - val_mse: 6.2439 - val_mape: 7.4955
Epoch 231/600
8/8 [=====] - 0s 10ms/step - loss: 5.9126 - mae: 1.7295 - mse: 5.9126 - mape: 7.3786 - val_loss: 6.0031 - val_mae: 1.7815 - val_mse: 6.0031 - val_mape: 7.2741
Epoch 232/600
8/8 [=====] - 0s 9ms/step - loss: 5.6236 - mae: 1.6941 - mse: 5.6236 - mape: 7.2469 - val_loss: 6.3648 - val_mae: 1.8089 - val_mse: 6.3648 - val_mape: 7.3395
Epoch 233/600
8/8 [=====] - 0s 9ms/step - loss: 5.8396 - mae: 1.7219 - mse: 5.8396 - mape: 7.2814 - val_loss: 5.9152 - val_mae: 1.7855 - val_mse: 5.9152 - val_mape: 7.2765
Epoch 234/600
8/8 [=====] - 0s 9ms/step - loss: 5.8829 - mae: 1.7432 - mse: 5.8829 - mape: 7.3454 - val_loss: 6.0067 - val_mae: 1.7962 - val_mse: 6.0067 - val_mape: 7.3132
Epoch 235/600

8/8 [=====] - 0s 10ms/step - loss: 5.7174 - mae: 1.7317 - mse: 5.7174 - mape: 7.4129 - val_loss: 5.9252 - val_mae: 1.8075 - val_mse: 5.9252 - val_mape: 7.4093
Epoch 236/600
8/8 [=====] - 0s 9ms/step - loss: 5.8324 - mae: 1.7217 - mse: 5.8324 - mape: 7.3381 - val_loss: 5.8819 - val_mae: 1.7723 - val_mse: 5.8819 - val_mape: 7.3228
Epoch 237/600
8/8 [=====] - 0s 8ms/step - loss: 5.5679 - mae: 1.6587 - mse: 5.5679 - mape: 7.0751 - val_loss: 6.1101 - val_mae: 1.7795 - val_mse: 6.1101 - val_mape: 7.2295
Epoch 238/600
8/8 [=====] - 0s 9ms/step - loss: 5.6931 - mae: 1.6878 - mse: 5.6931 - mape: 7.1331 - val_loss: 6.1209 - val_mae: 1.7901 - val_mse: 6.1209 - val_mape: 7.3252
Epoch 239/600
8/8 [=====] - 0s 9ms/step - loss: 5.6083 - mae: 1.6953 - mse: 5.6083 - mape: 7.2638 - val_loss: 5.8762 - val_mae: 1.7636 - val_mse: 5.8762 - val_mape: 7.1860
Epoch 240/600
8/8 [=====] - 0s 9ms/step - loss: 5.7087 - mae: 1.6793 - mse: 5.7087 - mape: 7.1880 - val_loss: 5.9052 - val_mae: 1.7814 - val_mse: 5.9052 - val_mape: 7.2499
Epoch 241/600
8/8 [=====] - 0s 9ms/step - loss: 5.6163 - mae: 1.6883 - mse: 5.6163 - mape: 7.1821 - val_loss: 6.1563 - val_mae: 1.7848 - val_mse: 6.1563 - val_mape: 7.3537
Epoch 242/600
8/8 [=====] - 0s 9ms/step - loss: 5.8252 - mae: 1.6904 - mse: 5.8252 - mape: 7.1118 - val_loss: 6.0609 - val_mae: 1.7956 - val_mse: 6.0609 - val_mape: 7.2929
Epoch 243/600
8/8 [=====] - 0s 9ms/step - loss: 5.6070 - mae: 1.7154 - mse: 5.6070 - mape: 7.2248 - val_loss: 6.0874 - val_mae: 1.7750 - val_mse: 6.0874 - val_mape: 7.2621
Epoch 244/600
8/8 [=====] - 0s 10ms/step - loss: 5.6958 - mae: 1.6728 - mse: 5.6958 - mape: 7.0409 - val_loss: 5.7959 - val_mae: 1.7727 - val_mse: 5.7959 - val_mape: 7.2126
Epoch 245/600
8/8 [=====] - 0s 9ms/step - loss: 5.5497 - mae: 1.6798 - mse: 5.5497 - mape: 7.1151 - val_loss: 5.9403 - val_mae: 1.7685 - val_mse: 5.9403 - val_mape: 7.1861
Epoch 246/600
8/8 [=====] - 0s 8ms/step - loss: 5.5468 - mae: 1.6550 - mse: 5.5468 - mape: 7.0495 - val_loss: 5.8876 - val_mae: 1.7545 - val_mse: 5.8876 - val_mape: 7.1490
Epoch 247/600
8/8 [=====] - 0s 9ms/step - loss: 5.6425 - mae: 1.6885 - mse: 5.6425 - mape: 7.1666 - val_loss: 5.9502 - val_mae: 1.7915 - val_mse: 5.9502 - val_mape: 7.4159
Epoch 248/600
8/8 [=====] - 0s 9ms/step - loss: 5.8055 - mae: 1.6948 - mse: 5.8055 - mape: 7.1969 - val_loss: 5.8349 - val_mae: 1.7692 - val_mse: 5.8349 - val_mape: 7.2005
Epoch 249/600
8/8 [=====] - 0s 8ms/step - loss: 5.5573 - mae: 1.6646 - mse: 5.5573 - mape: 7.0401 - val_loss: 5.8999 - val_mae: 1.7618 - val_mse: 5.8999 - val_mape: 7.1577
Epoch 250/600

8/8 [=====] - 0s 9ms/step - loss: 5.5280 - mae: 1.6812 - mse: 5.5280 - mape: 7.1369 - val_loss: 5.9743 - val_mae: 1.7983 - val_mse: 5.9743 - val_mape: 7.3300
Epoch 251/600

8/8 [=====] - 0s 9ms/step - loss: 5.5991 - mae: 1.7075 - mse: 5.5991 - mape: 7.2557 - val_loss: 5.9593 - val_mae: 1.7569 - val_mse: 5.9593 - val_mape: 7.1361
Epoch 252/600

8/8 [=====] - 0s 9ms/step - loss: 5.5341 - mae: 1.6908 - mse: 5.5341 - mape: 7.1740 - val_loss: 5.8002 - val_mae: 1.7468 - val_mse: 5.8002 - val_mape: 7.1038
Epoch 253/600

8/8 [=====] - 0s 9ms/step - loss: 5.5980 - mae: 1.6747 - mse: 5.5980 - mape: 7.1286 - val_loss: 5.9922 - val_mae: 1.8136 - val_mse: 5.9922 - val_mape: 7.4200
Epoch 254/600

8/8 [=====] - 0s 10ms/step - loss: 5.6193 - mae: 1.6791 - mse: 5.6193 - mape: 7.0790 - val_loss: 5.8833 - val_mae: 1.7969 - val_mse: 5.8833 - val_mape: 7.5419
Epoch 255/600

8/8 [=====] - 0s 9ms/step - loss: 5.6192 - mae: 1.6794 - mse: 5.6192 - mape: 7.1854 - val_loss: 6.0231 - val_mae: 1.7772 - val_mse: 6.0231 - val_mape: 7.2921
Epoch 256/600

8/8 [=====] - 0s 9ms/step - loss: 5.5507 - mae: 1.6534 - mse: 5.5507 - mape: 7.0177 - val_loss: 5.9325 - val_mae: 1.7767 - val_mse: 5.9325 - val_mape: 7.1998
Epoch 257/600

8/8 [=====] - 0s 9ms/step - loss: 5.7400 - mae: 1.6704 - mse: 5.7400 - mape: 7.0453 - val_loss: 5.9362 - val_mae: 1.8046 - val_mse: 5.9362 - val_mape: 7.6419
Epoch 258/600

8/8 [=====] - 0s 9ms/step - loss: 5.4171 - mae: 1.6545 - mse: 5.4171 - mape: 7.0281 - val_loss: 5.9028 - val_mae: 1.7459 - val_mse: 5.9028 - val_mape: 7.0895
Epoch 259/600

8/8 [=====] - 0s 9ms/step - loss: 5.5410 - mae: 1.6808 - mse: 5.5410 - mape: 7.1175 - val_loss: 5.9943 - val_mae: 1.7658 - val_mse: 5.9943 - val_mape: 7.2143
Epoch 260/600

8/8 [=====] - 0s 10ms/step - loss: 5.7199 - mae: 1.6999 - mse: 5.7199 - mape: 7.1616 - val_loss: 5.9299 - val_mae: 1.8063 - val_mse: 5.9299 - val_mape: 7.5739
Epoch 261/600

8/8 [=====] - 0s 9ms/step - loss: 5.5786 - mae: 1.6950 - mse: 5.5786 - mape: 7.2258 - val_loss: 5.7818 - val_mae: 1.7397 - val_mse: 5.7818 - val_mape: 7.0520
Epoch 262/600

8/8 [=====] - 0s 9ms/step - loss: 5.5089 - mae: 1.6641 - mse: 5.5089 - mape: 7.0530 - val_loss: 5.8765 - val_mae: 1.7575 - val_mse: 5.8765 - val_mape: 7.1650
Epoch 263/600

8/8 [=====] - 0s 10ms/step - loss: 5.4483 - mae: 1.6750 - mse: 5.4483 - mape: 7.1038 - val_loss: 6.0387 - val_mae: 1.7830 - val_mse: 6.0387 - val_mape: 7.2065
Epoch 264/600

8/8 [=====] - 0s 10ms/step - loss: 5.5361 - mae: 1.6772 - mse: 5.5361 - mape: 7.0878 - val_loss: 5.8506 - val_mae: 1.7522 - val_mse: 5.8506 - val_mape: 7.1224
Epoch 265/600

8/8 [=====] - 0s 9ms/step - loss: 5.4419 - mae: 1.6608 - mse: 5.4419 - mape: 7.0607 - val_loss: 5.9404 - val_mae: 1.8019 - val_mse: 5.9404 - val_mape: 7.6353
Epoch 266/600
8/8 [=====] - 0s 11ms/step - loss: 5.6828 - mae: 1.6889 - mse: 5.6828 - mape: 7.2061 - val_loss: 5.8616 - val_mae: 1.7453 - val_mse: 5.8616 - val_mape: 7.0554
Epoch 267/600
8/8 [=====] - 0s 9ms/step - loss: 5.4674 - mae: 1.6669 - mse: 5.4674 - mape: 7.0672 - val_loss: 5.8868 - val_mae: 1.7639 - val_mse: 5.8868 - val_mape: 7.2711
Epoch 268/600
8/8 [=====] - 0s 9ms/step - loss: 5.5431 - mae: 1.6650 - mse: 5.5431 - mape: 7.0247 - val_loss: 6.0324 - val_mae: 1.8375 - val_mse: 6.0324 - val_mape: 7.5933
Epoch 269/600
8/8 [=====] - 0s 9ms/step - loss: 5.8399 - mae: 1.7122 - mse: 5.8399 - mape: 7.2582 - val_loss: 5.8756 - val_mae: 1.7514 - val_mse: 5.8756 - val_mape: 7.0736
Epoch 270/600
8/8 [=====] - 0s 9ms/step - loss: 5.5841 - mae: 1.6952 - mse: 5.5841 - mape: 7.1892 - val_loss: 5.8860 - val_mae: 1.7857 - val_mse: 5.8860 - val_mape: 7.4214
Epoch 271/600
8/8 [=====] - 0s 10ms/step - loss: 5.3723 - mae: 1.6488 - mse: 5.3723 - mape: 7.0224 - val_loss: 5.9091 - val_mae: 1.7569 - val_mse: 5.9091 - val_mape: 7.1414
Epoch 272/600
8/8 [=====] - 0s 9ms/step - loss: 5.3674 - mae: 1.6594 - mse: 5.3674 - mape: 7.0731 - val_loss: 6.2608 - val_mae: 1.7871 - val_mse: 6.2608 - val_mape: 7.2106
Epoch 273/600
8/8 [=====] - 0s 10ms/step - loss: 5.4268 - mae: 1.6715 - mse: 5.4268 - mape: 7.0486 - val_loss: 5.8822 - val_mae: 1.7803 - val_mse: 5.8822 - val_mape: 7.4481
Epoch 274/600
8/8 [=====] - 0s 10ms/step - loss: 5.7393 - mae: 1.6979 - mse: 5.7393 - mape: 7.2528 - val_loss: 5.8063 - val_mae: 1.7295 - val_mse: 5.8063 - val_mape: 7.0283
Epoch 275/600
8/8 [=====] - 0s 9ms/step - loss: 5.4049 - mae: 1.6567 - mse: 5.4049 - mape: 7.0382 - val_loss: 5.7522 - val_mae: 1.7349 - val_mse: 5.7522 - val_mape: 7.0619
Epoch 276/600
8/8 [=====] - 0s 9ms/step - loss: 5.4708 - mae: 1.6704 - mse: 5.4708 - mape: 6.9969 - val_loss: 5.8145 - val_mae: 1.7520 - val_mse: 5.8145 - val_mape: 7.0824
Epoch 277/600
8/8 [=====] - 0s 10ms/step - loss: 5.4767 - mae: 1.6754 - mse: 5.4767 - mape: 7.1358 - val_loss: 5.8104 - val_mae: 1.7331 - val_mse: 5.8104 - val_mape: 7.0370
Epoch 278/600
8/8 [=====] - 0s 8ms/step - loss: 5.4219 - mae: 1.6692 - mse: 5.4219 - mape: 7.0154 - val_loss: 5.8528 - val_mae: 1.7535 - val_mse: 5.8528 - val_mape: 7.2261
Epoch 279/600
8/8 [=====] - 0s 10ms/step - loss: 5.3814 - mae: 1.6764 - mse: 5.3814 - mape: 7.1183 - val_loss: 5.7503 - val_mae: 1.7210 - val_mse: 5.7503 - val_mape: 6.9667
Epoch 280/600

8/8 [=====] - 0s 9ms/step - loss: 5.3865 - mae: 1.6457 - mse: 5.3865 - mape: 7.0120 - val_loss: 5.7616 - val_mae: 1.7302 - val_mse: 5.7616 - val_mape: 6.9953
Epoch 281/600
8/8 [=====] - 0s 10ms/step - loss: 5.6757 - mae: 1.6857 - mse: 5.6757 - mape: 7.0695 - val_loss: 5.7363 - val_mae: 1.7326 - val_mse: 5.7363 - val_mape: 6.9819
Epoch 282/600
8/8 [=====] - 0s 10ms/step - loss: 5.6127 - mae: 1.6869 - mse: 5.6127 - mape: 7.1160 - val_loss: 5.8251 - val_mae: 1.7390 - val_mse: 5.8251 - val_mape: 7.0067
Epoch 283/600
8/8 [=====] - 0s 11ms/step - loss: 5.4674 - mae: 1.6739 - mse: 5.4674 - mape: 7.0827 - val_loss: 5.8161 - val_mae: 1.7435 - val_mse: 5.8161 - val_mape: 7.0407
Epoch 284/600
8/8 [=====] - 0s 12ms/step - loss: 5.2878 - mae: 1.6224 - mse: 5.2878 - mape: 6.8293 - val_loss: 5.8822 - val_mae: 1.7731 - val_mse: 5.8822 - val_mape: 7.2024
Epoch 285/600
8/8 [=====] - 0s 9ms/step - loss: 5.4330 - mae: 1.6453 - mse: 5.4330 - mape: 6.9317 - val_loss: 6.2025 - val_mae: 1.7943 - val_mse: 6.2025 - val_mape: 7.3704
Epoch 286/600
8/8 [=====] - 0s 10ms/step - loss: 5.4440 - mae: 1.6487 - mse: 5.4440 - mape: 6.9397 - val_loss: 6.2784 - val_mae: 1.8496 - val_mse: 6.2784 - val_mape: 7.8158
Epoch 287/600
8/8 [=====] - 0s 9ms/step - loss: 5.3815 - mae: 1.6689 - mse: 5.3815 - mape: 7.1985 - val_loss: 6.0478 - val_mae: 1.8272 - val_mse: 6.0478 - val_mape: 7.5893
Epoch 288/600
8/8 [=====] - 0s 9ms/step - loss: 5.4724 - mae: 1.6542 - mse: 5.4724 - mape: 7.0259 - val_loss: 5.8662 - val_mae: 1.7459 - val_mse: 5.8662 - val_mape: 7.1698
Epoch 289/600
8/8 [=====] - 0s 9ms/step - loss: 5.2591 - mae: 1.6378 - mse: 5.2591 - mape: 6.9513 - val_loss: 6.0213 - val_mae: 1.7573 - val_mse: 6.0213 - val_mape: 7.1408
Epoch 290/600
8/8 [=====] - 0s 9ms/step - loss: 5.5085 - mae: 1.6482 - mse: 5.5085 - mape: 7.0204 - val_loss: 5.9433 - val_mae: 1.7630 - val_mse: 5.9433 - val_mape: 7.1423
Epoch 291/600
8/8 [=====] - 0s 9ms/step - loss: 5.4650 - mae: 1.6872 - mse: 5.4650 - mape: 7.1990 - val_loss: 5.9895 - val_mae: 1.7878 - val_mse: 5.9895 - val_mape: 7.2764
Epoch 292/600
8/8 [=====] - 0s 8ms/step - loss: 5.2114 - mae: 1.6239 - mse: 5.2114 - mape: 6.8847 - val_loss: 5.9654 - val_mae: 1.7475 - val_mse: 5.9654 - val_mape: 7.0458
Epoch 293/600
8/8 [=====] - 0s 9ms/step - loss: 5.2153 - mae: 1.6160 - mse: 5.2153 - mape: 6.8161 - val_loss: 5.8663 - val_mae: 1.7594 - val_mse: 5.8663 - val_mape: 7.2945
Epoch 294/600
8/8 [=====] - 0s 10ms/step - loss: 5.4352 - mae: 1.6712 - mse: 5.4352 - mape: 7.1363 - val_loss: 6.0211 - val_mae: 1.7990 - val_mse: 6.0211 - val_mape: 7.3691
Epoch 295/600

8/8 [=====] - 0s 9ms/step - loss: 5.2785 - mae: 1.6182 - mse: 5.2785 - mape: 6.8243 - val_loss: 5.8498 - val_mae: 1.7143 - val_mse: 5.8498 - val_mape: 6.8760
Epoch 296/600
8/8 [=====] - 0s 8ms/step - loss: 5.4292 - mae: 1.6706 - mse: 5.4292 - mape: 7.0470 - val_loss: 5.8341 - val_mae: 1.7454 - val_mse: 5.8341 - val_mape: 7.1337
Epoch 297/600
8/8 [=====] - 0s 9ms/step - loss: 5.0874 - mae: 1.6308 - mse: 5.0874 - mape: 6.9550 - val_loss: 5.9247 - val_mae: 1.7785 - val_mse: 5.9247 - val_mape: 7.4503
Epoch 298/600
8/8 [=====] - 0s 9ms/step - loss: 5.2985 - mae: 1.6451 - mse: 5.2985 - mape: 7.0065 - val_loss: 6.5426 - val_mae: 1.8366 - val_mse: 6.5426 - val_mape: 7.5279
Epoch 299/600
8/8 [=====] - 0s 9ms/step - loss: 5.3401 - mae: 1.6758 - mse: 5.3401 - mape: 7.1674 - val_loss: 6.2282 - val_mae: 1.8159 - val_mse: 6.2282 - val_mape: 7.5601
Epoch 300/600
8/8 [=====] - 0s 10ms/step - loss: 5.2559 - mae: 1.6143 - mse: 5.2559 - mape: 6.7760 - val_loss: 5.9555 - val_mae: 1.7355 - val_mse: 5.9555 - val_mape: 6.9720
Epoch 301/600
8/8 [=====] - 0s 9ms/step - loss: 5.2971 - mae: 1.6075 - mse: 5.2971 - mape: 6.8197 - val_loss: 5.8879 - val_mae: 1.7231 - val_mse: 5.8879 - val_mape: 6.9232

.Epoch 302/600
8/8 [=====] - 0s 10ms/step - loss: 5.3293 - mae: 1.6465 - mse: 5.3293 - mape: 7.0050 - val_loss: 5.9128 - val_mae: 1.7337 - val_mse: 5.9128 - val_mape: 7.0327
Epoch 303/600
8/8 [=====] - 0s 10ms/step - loss: 5.4792 - mae: 1.6572 - mse: 5.4792 - mape: 6.9247 - val_loss: 5.8250 - val_mae: 1.7196 - val_mse: 5.8250 - val_mape: 6.9151
Epoch 304/600
8/8 [=====] - 0s 10ms/step - loss: 5.2847 - mae: 1.6366 - mse: 5.2847 - mape: 6.9711 - val_loss: 5.8351 - val_mae: 1.7482 - val_mse: 5.8351 - val_mape: 7.2671
Epoch 305/600
8/8 [=====] - 0s 10ms/step - loss: 5.3456 - mae: 1.6495 - mse: 5.3456 - mape: 7.0165 - val_loss: 5.8757 - val_mae: 1.7265 - val_mse: 5.8757 - val_mape: 6.9443
Epoch 306/600
8/8 [=====] - 0s 10ms/step - loss: 5.0681 - mae: 1.5839 - mse: 5.0681 - mape: 6.6588 - val_loss: 5.8228 - val_mae: 1.7180 - val_mse: 5.8228 - val_mape: 6.9128
Epoch 307/600
8/8 [=====] - 0s 8ms/step - loss: 5.2090 - mae: 1.6443 - mse: 5.2090 - mape: 7.0020 - val_loss: 5.9615 - val_mae: 1.7576 - val_mse: 5.9615 - val_mape: 7.2008
Epoch 308/600
8/8 [=====] - 0s 9ms/step - loss: 5.3702 - mae: 1.6233 - mse: 5.3702 - mape: 6.8905 - val_loss: 5.9202 - val_mae: 1.7497 - val_mse: 5.9202 - val_mape: 7.1610
Epoch 309/600
8/8 [=====] - 0s 10ms/step - loss: 5.1298 - mae: 1.6012 - mse: 5.1298 - mape: 6.7677 - val_loss: 5.7923 - val_mae: 1.7146 - val_mse: 5.7923 - val_mape: 6.9458

Epoch 310/600
8/8 [=====] - 0s 11ms/step - loss: 5.2674 - mae: 1.6505 - mse: 5.2674 - mape: 7.0401 - val_loss: 5.8540 - val_mae: 1.7467 - val_mse: 5.8540 - val_mape: 7.2502
Epoch 311/600
8/8 [=====] - 0s 9ms/step - loss: 5.2352 - mae: 1.6216 - mse: 5.2352 - mape: 6.8987 - val_loss: 6.0446 - val_mae: 1.7328 - val_mse: 6.0446 - val_mape: 6.9543
Epoch 312/600
8/8 [=====] - 0s 9ms/step - loss: 5.4818 - mae: 1.6611 - mse: 5.4818 - mape: 6.9971 - val_loss: 5.8117 - val_mae: 1.7134 - val_mse: 5.8117 - val_mape: 6.8794
Epoch 313/600
8/8 [=====] - 0s 11ms/step - loss: 5.1997 - mae: 1.6179 - mse: 5.1997 - mape: 6.7916 - val_loss: 6.0681 - val_mae: 1.8184 - val_mse: 6.0681 - val_mape: 7.7862
Epoch 314/600
8/8 [=====] - 0s 9ms/step - loss: 5.4199 - mae: 1.6382 - mse: 5.4199 - mape: 6.9740 - val_loss: 5.9220 - val_mae: 1.7431 - val_mse: 5.9220 - val_mape: 7.0657
Epoch 315/600
8/8 [=====] - 0s 9ms/step - loss: 5.3038 - mae: 1.6346 - mse: 5.3038 - mape: 6.9001 - val_loss: 5.8206 - val_mae: 1.7107 - val_mse: 5.8206 - val_mape: 6.8963
Epoch 316/600
8/8 [=====] - 0s 9ms/step - loss: 5.2028 - mae: 1.6101 - mse: 5.2028 - mape: 6.8179 - val_loss: 5.8872 - val_mae: 1.7619 - val_mse: 5.8872 - val_mape: 7.3206
Epoch 317/600
8/8 [=====] - 0s 10ms/step - loss: 5.1850 - mae: 1.6253 - mse: 5.1850 - mape: 6.8789 - val_loss: 6.3112 - val_mae: 1.7877 - val_mse: 6.3112 - val_mape: 7.2152
Epoch 318/600
8/8 [=====] - 0s 10ms/step - loss: 5.2314 - mae: 1.6318 - mse: 5.2314 - mape: 6.8959 - val_loss: 5.9336 - val_mae: 1.7758 - val_mse: 5.9336 - val_mape: 7.3744
Epoch 319/600
8/8 [=====] - 0s 10ms/step - loss: 5.1784 - mae: 1.6481 - mse: 5.1784 - mape: 7.0422 - val_loss: 5.8865 - val_mae: 1.7440 - val_mse: 5.8865 - val_mape: 7.1419
Epoch 320/600
8/8 [=====] - 0s 10ms/step - loss: 5.2070 - mae: 1.6271 - mse: 5.2070 - mape: 6.9059 - val_loss: 5.7629 - val_mae: 1.6988 - val_mse: 5.7629 - val_mape: 6.8200
Epoch 321/600
8/8 [=====] - 0s 9ms/step - loss: 5.1425 - mae: 1.5988 - mse: 5.1425 - mape: 6.7313 - val_loss: 5.8141 - val_mae: 1.7097 - val_mse: 5.8141 - val_mape: 6.8913
Epoch 322/600
8/8 [=====] - 0s 9ms/step - loss: 5.1003 - mae: 1.6079 - mse: 5.1003 - mape: 6.7535 - val_loss: 5.9839 - val_mae: 1.7704 - val_mse: 5.9839 - val_mape: 7.2909
Epoch 323/600
8/8 [=====] - 0s 10ms/step - loss: 5.2036 - mae: 1.6266 - mse: 5.2036 - mape: 6.9317 - val_loss: 6.0154 - val_mae: 1.7582 - val_mse: 6.0154 - val_mape: 7.2457
Epoch 324/600
8/8 [=====] - 0s 10ms/step - loss: 5.0536 - mae: 1.5892 - mse: 5.0536 - mape: 6.7593 - val_loss: 5.9763 - val_mae: 1.7985 - val_mse: 5.9763 - val_mape: 7.6345

Epoch 325/600
8/8 [=====] - 0s 10ms/step - loss: 5.2054 - mae: 1.6205 - mse: 5.2054 - mape: 6.8349 - val_loss: 5.9306 - val_mae: 1.7783 - val_mse: 5.9306 - val_mape: 7.4756
Epoch 326/600
8/8 [=====] - 0s 9ms/step - loss: 5.1834 - mae: 1.6233 - mse: 5.1834 - mape: 6.9106 - val_loss: 5.8180 - val_mae: 1.6963 - val_mse: 5.8180 - val_mape: 6.8115
Epoch 327/600
8/8 [=====] - 0s 9ms/step - loss: 5.3338 - mae: 1.6225 - mse: 5.3338 - mape: 6.8414 - val_loss: 5.8351 - val_mae: 1.7174 - val_mse: 5.8351 - val_mape: 6.9656
Epoch 328/600
8/8 [=====] - 0s 10ms/step - loss: 5.0137 - mae: 1.5839 - mse: 5.0137 - mape: 6.6533 - val_loss: 6.0936 - val_mae: 1.7373 - val_mse: 6.0936 - val_mape: 6.9765
Epoch 329/600
8/8 [=====] - 0s 9ms/step - loss: 5.1390 - mae: 1.6281 - mse: 5.1390 - mape: 6.8698 - val_loss: 5.8973 - val_mae: 1.7022 - val_mse: 5.8973 - val_mape: 6.7908
Epoch 330/600
8/8 [=====] - 0s 10ms/step - loss: 5.2664 - mae: 1.6648 - mse: 5.2664 - mape: 7.0391 - val_loss: 5.7899 - val_mae: 1.6994 - val_mse: 5.7899 - val_mape: 6.8492
Epoch 331/600
8/8 [=====] - 0s 10ms/step - loss: 4.9909 - mae: 1.5912 - mse: 4.9909 - mape: 6.6956 - val_loss: 6.3127 - val_mae: 1.7641 - val_mse: 6.3127 - val_mape: 7.0544
Epoch 332/600
8/8 [=====] - 0s 10ms/step - loss: 4.9922 - mae: 1.6025 - mse: 4.9922 - mape: 6.7415 - val_loss: 5.8323 - val_mae: 1.6976 - val_mse: 5.8323 - val_mape: 6.7744
Epoch 333/600
8/8 [=====] - 0s 11ms/step - loss: 5.0226 - mae: 1.5863 - mse: 5.0226 - mape: 6.6891 - val_loss: 5.9041 - val_mae: 1.7531 - val_mse: 5.9041 - val_mape: 7.2557
Epoch 334/600
8/8 [=====] - 0s 9ms/step - loss: 5.1860 - mae: 1.6288 - mse: 5.1860 - mape: 6.9570 - val_loss: 6.0286 - val_mae: 1.7371 - val_mse: 6.0286 - val_mape: 6.9312
Epoch 335/600
8/8 [=====] - 0s 9ms/step - loss: 5.2853 - mae: 1.6399 - mse: 5.2853 - mape: 6.8983 - val_loss: 5.8705 - val_mae: 1.7099 - val_mse: 5.8705 - val_mape: 6.9282
Epoch 336/600
8/8 [=====] - 0s 12ms/step - loss: 5.0910 - mae: 1.6245 - mse: 5.0910 - mape: 6.9381 - val_loss: 5.8136 - val_mae: 1.6911 - val_mse: 5.8136 - val_mape: 6.7486
Epoch 337/600
8/8 [=====] - 0s 10ms/step - loss: 4.9189 - mae: 1.5512 - mse: 4.9189 - mape: 6.5236 - val_loss: 5.9157 - val_mae: 1.7378 - val_mse: 5.9157 - val_mape: 7.1039
Epoch 338/600
8/8 [=====] - 0s 10ms/step - loss: 5.0576 - mae: 1.6212 - mse: 5.0576 - mape: 6.9232 - val_loss: 5.9899 - val_mae: 1.7267 - val_mse: 5.9899 - val_mape: 6.9768
Epoch 339/600
8/8 [=====] - 0s 9ms/step - loss: 5.1930 - mae: 1.6067 - mse: 5.1930 - mape: 6.7824 - val_loss: 5.8933 - val_mae: 1.7524 - val_mse: 5.8933 - val_mape: 7.2861

Epoch 340/600
8/8 [=====] - 0s 9ms/step - loss: 4.9490 - mae: 1.5729 - mse: 4.9490 - mape: 6.6276 - val_loss: 6.5544 - val_mae: 1.8608 - val_mse: 6.5544 - val_mape: 7.9750
Epoch 341/600
8/8 [=====] - 0s 9ms/step - loss: 5.1259 - mae: 1.6190 - mse: 5.1259 - mape: 6.8221 - val_loss: 6.1143 - val_mae: 1.7419 - val_mse: 6.1143 - val_mape: 7.0028
Epoch 342/600
8/8 [=====] - 0s 10ms/step - loss: 5.2251 - mae: 1.6359 - mse: 5.2251 - mape: 6.9429 - val_loss: 5.9934 - val_mae: 1.7263 - val_mse: 5.9934 - val_mape: 7.0008
Epoch 343/600
8/8 [=====] - 0s 9ms/step - loss: 4.9678 - mae: 1.6040 - mse: 4.9678 - mape: 6.7301 - val_loss: 5.8574 - val_mae: 1.6958 - val_mse: 5.8574 - val_mape: 6.7840
Epoch 344/600
8/8 [=====] - 0s 11ms/step - loss: 5.1591 - mae: 1.6073 - mse: 5.1591 - mape: 6.7256 - val_loss: 5.9634 - val_mae: 1.7145 - val_mse: 5.9634 - val_mape: 6.8605
Epoch 345/600
8/8 [=====] - 0s 9ms/step - loss: 5.0394 - mae: 1.5971 - mse: 5.0394 - mape: 6.7244 - val_loss: 5.9027 - val_mae: 1.7155 - val_mse: 5.9027 - val_mape: 6.9105
Epoch 346/600
8/8 [=====] - 0s 11ms/step - loss: 4.9127 - mae: 1.5994 - mse: 4.9127 - mape: 6.7925 - val_loss: 5.9787 - val_mae: 1.7063 - val_mse: 5.9787 - val_mape: 6.7756
Epoch 347/600
8/8 [=====] - 0s 10ms/step - loss: 4.9525 - mae: 1.6027 - mse: 4.9525 - mape: 6.8084 - val_loss: 6.0135 - val_mae: 1.7294 - val_mse: 6.0135 - val_mape: 6.8950
Epoch 348/600
8/8 [=====] - 0s 9ms/step - loss: 4.8318 - mae: 1.5868 - mse: 4.8318 - mape: 6.6389 - val_loss: 6.4075 - val_mae: 1.7918 - val_mse: 6.4075 - val_mape: 7.3019
Epoch 349/600
8/8 [=====] - 0s 9ms/step - loss: 5.0659 - mae: 1.5862 - mse: 5.0659 - mape: 6.7093 - val_loss: 5.9604 - val_mae: 1.7265 - val_mse: 5.9604 - val_mape: 6.9811
Epoch 350/600
8/8 [=====] - 0s 10ms/step - loss: 4.8825 - mae: 1.5782 - mse: 4.8825 - mape: 6.7820 - val_loss: 6.0694 - val_mae: 1.7546 - val_mse: 6.0694 - val_mape: 7.2730
Epoch 351/600
8/8 [=====] - 0s 9ms/step - loss: 4.8941 - mae: 1.5791 - mse: 4.8941 - mape: 6.6212 - val_loss: 5.8937 - val_mae: 1.7267 - val_mse: 5.8937 - val_mape: 7.0517
Epoch 352/600
8/8 [=====] - 0s 9ms/step - loss: 5.0478 - mae: 1.6211 - mse: 5.0478 - mape: 6.8663 - val_loss: 5.8923 - val_mae: 1.7085 - val_mse: 5.8923 - val_mape: 6.9182
Epoch 353/600
8/8 [=====] - 0s 9ms/step - loss: 5.0913 - mae: 1.6197 - mse: 5.0913 - mape: 6.8775 - val_loss: 5.8879 - val_mae: 1.7133 - val_mse: 5.8879 - val_mape: 6.8720
Epoch 354/600
8/8 [=====] - 0s 9ms/step - loss: 4.9369 - mae: 1.6043 - mse: 4.9369 - mape: 6.8030 - val_loss: 6.0061 - val_mae: 1.7035 - val_mse: 6.0061 - val_mape: 6.8045

Epoch 355/600
8/8 [=====] - 0s 10ms/step - loss: 4.9507 - mae: 1.5935 - mse: 4.9507 - mape: 6.7571 - val_loss: 6.0360 - val_mae: 1.7323 - val_mse: 6.0360 - val_mape: 6.9199
Epoch 356/600
8/8 [=====] - 0s 9ms/step - loss: 5.0173 - mae: 1.5931 - mse: 5.0173 - mape: 6.6495 - val_loss: 5.9021 - val_mae: 1.7142 - val_mse: 5.9021 - val_mape: 6.9355
Epoch 357/600
8/8 [=====] - 0s 10ms/step - loss: 4.9194 - mae: 1.5797 - mse: 4.9194 - mape: 6.7382 - val_loss: 6.0352 - val_mae: 1.7157 - val_mse: 6.0352 - val_mape: 6.8067
Epoch 358/600
8/8 [=====] - 0s 11ms/step - loss: 4.8288 - mae: 1.5587 - mse: 4.8288 - mape: 6.5790 - val_loss: 6.0499 - val_mae: 1.7628 - val_mse: 6.0499 - val_mape: 7.3333
Epoch 359/600
8/8 [=====] - 0s 11ms/step - loss: 5.0750 - mae: 1.6283 - mse: 5.0750 - mape: 6.9135 - val_loss: 6.1561 - val_mae: 1.7268 - val_mse: 6.1561 - val_mape: 6.9970
Epoch 360/600
8/8 [=====] - 0s 10ms/step - loss: 4.8176 - mae: 1.5814 - mse: 4.8176 - mape: 6.7142 - val_loss: 6.3074 - val_mae: 1.7827 - val_mse: 6.3074 - val_mape: 7.2932
Epoch 361/600
8/8 [=====] - 0s 9ms/step - loss: 5.0078 - mae: 1.5931 - mse: 5.0078 - mape: 6.7018 - val_loss: 6.2436 - val_mae: 1.8131 - val_mse: 6.2436 - val_mape: 7.7418
Epoch 362/600
8/8 [=====] - 0s 10ms/step - loss: 4.8321 - mae: 1.5729 - mse: 4.8321 - mape: 6.7079 - val_loss: 5.9884 - val_mae: 1.7104 - val_mse: 5.9884 - val_mape: 6.8767
Epoch 363/600
8/8 [=====] - 0s 9ms/step - loss: 4.9717 - mae: 1.5923 - mse: 4.9717 - mape: 6.6984 - val_loss: 5.9861 - val_mae: 1.7588 - val_mse: 5.9861 - val_mape: 7.3475
Epoch 364/600
8/8 [=====] - 0s 10ms/step - loss: 5.0913 - mae: 1.6061 - mse: 5.0913 - mape: 6.8112 - val_loss: 6.0643 - val_mae: 1.7399 - val_mse: 6.0643 - val_mape: 7.1442
Epoch 365/600
8/8 [=====] - 0s 11ms/step - loss: 5.0087 - mae: 1.6038 - mse: 5.0087 - mape: 6.7078 - val_loss: 5.9756 - val_mae: 1.7424 - val_mse: 5.9756 - val_mape: 7.1741
Epoch 366/600
8/8 [=====] - 0s 10ms/step - loss: 4.8905 - mae: 1.5881 - mse: 4.8905 - mape: 6.8088 - val_loss: 5.8945 - val_mae: 1.6804 - val_mse: 5.8945 - val_mape: 6.6635
Epoch 367/600
8/8 [=====] - 0s 10ms/step - loss: 4.9631 - mae: 1.5616 - mse: 4.9631 - mape: 6.5379 - val_loss: 6.2035 - val_mae: 1.7243 - val_mse: 6.2035 - val_mape: 6.9365
Epoch 368/600
8/8 [=====] - 0s 10ms/step - loss: 4.9501 - mae: 1.5777 - mse: 4.9501 - mape: 6.7524 - val_loss: 5.9049 - val_mae: 1.6901 - val_mse: 5.9049 - val_mape: 6.7364
Epoch 369/600
8/8 [=====] - 0s 10ms/step - loss: 5.0558 - mae: 1.5719 - mse: 5.0558 - mape: 6.5980 - val_loss: 5.9054 - val_mae: 1.7066 - val_mse: 5.9054 - val_mape: 6.9067

Epoch 370/600
8/8 [=====] - 0s 8ms/step - loss: 4.7618 - mae: 1.5402 - mse: 4.7618 - mape: 6.5243 - val_loss: 6.0290 - val_mae: 1.7717 - val_mse: 6.0290 - val_mape: 7.3902
Epoch 371/600
8/8 [=====] - 0s 9ms/step - loss: 4.9497 - mae: 1.5620 - mse: 4.9497 - mape: 6.6127 - val_loss: 6.0030 - val_mae: 1.6988 - val_mse: 6.0030 - val_mape: 6.7771
Epoch 372/600
8/8 [=====] - 0s 12ms/step - loss: 4.8312 - mae: 1.5661 - mse: 4.8312 - mape: 6.6357 - val_loss: 5.9377 - val_mae: 1.7007 - val_mse: 5.9377 - val_mape: 6.7680
Epoch 373/600
8/8 [=====] - 0s 9ms/step - loss: 4.9725 - mae: 1.5836 - mse: 4.9725 - mape: 6.6976 - val_loss: 5.9223 - val_mae: 1.7478 - val_mse: 5.9223 - val_mape: 7.2348
Epoch 374/600
8/8 [=====] - 0s 9ms/step - loss: 4.9153 - mae: 1.5871 - mse: 4.9153 - mape: 6.6791 - val_loss: 6.0737 - val_mae: 1.7109 - val_mse: 6.0737 - val_mape: 6.8186
Epoch 375/600
8/8 [=====] - 0s 10ms/step - loss: 4.7712 - mae: 1.5801 - mse: 4.7712 - mape: 6.7873 - val_loss: 6.2702 - val_mae: 1.7127 - val_mse: 6.2702 - val_mape: 6.7911
Epoch 376/600
8/8 [=====] - 0s 9ms/step - loss: 4.5875 - mae: 1.5577 - mse: 4.5875 - mape: 6.5514 - val_loss: 6.0342 - val_mae: 1.7027 - val_mse: 6.0342 - val_mape: 6.8674
Epoch 377/600
8/8 [=====] - 0s 9ms/step - loss: 4.9491 - mae: 1.5867 - mse: 4.9491 - mape: 6.6982 - val_loss: 6.7504 - val_mae: 1.7889 - val_mse: 6.7504 - val_mape: 7.1638
Epoch 378/600
8/8 [=====] - 0s 10ms/step - loss: 4.8882 - mae: 1.5754 - mse: 4.8882 - mape: 6.6845 - val_loss: 6.0470 - val_mae: 1.7049 - val_mse: 6.0470 - val_mape: 6.7459
Epoch 379/600
8/8 [=====] - 0s 9ms/step - loss: 4.7769 - mae: 1.5559 - mse: 4.7769 - mape: 6.5629 - val_loss: 5.9736 - val_mae: 1.6895 - val_mse: 5.9736 - val_mape: 6.7344
Epoch 380/600
8/8 [=====] - 0s 9ms/step - loss: 4.8689 - mae: 1.5779 - mse: 4.8689 - mape: 6.6695 - val_loss: 5.8304 - val_mae: 1.6673 - val_mse: 5.8304 - val_mape: 6.6152
Epoch 381/600
8/8 [=====] - 0s 10ms/step - loss: 4.7080 - mae: 1.5250 - mse: 4.7080 - mape: 6.4321 - val_loss: 5.9859 - val_mae: 1.6988 - val_mse: 5.9859 - val_mape: 6.7438
Epoch 382/600
8/8 [=====] - 0s 10ms/step - loss: 4.7924 - mae: 1.5413 - mse: 4.7924 - mape: 6.4904 - val_loss: 6.0178 - val_mae: 1.7324 - val_mse: 6.0178 - val_mape: 7.1087
Epoch 383/600
8/8 [=====] - 0s 9ms/step - loss: 5.0798 - mae: 1.5995 - mse: 5.0798 - mape: 6.6741 - val_loss: 6.3971 - val_mae: 1.7457 - val_mse: 6.3971 - val_mape: 6.9943
Epoch 384/600
8/8 [=====] - 0s 11ms/step - loss: 4.8080 - mae: 1.5637 - mse: 4.8080 - mape: 6.5869 - val_loss: 5.8940 - val_mae: 1.6725 - val_mse: 5.8940 - val_mape: 6.6161

Epoch 385/600
8/8 [=====] - 0s 11ms/step - loss: 4.7213 - mae: 1.5597 - mse: 4.7213 - mape: 6.6486 - val_loss: 5.9656 - val_mae: 1.6969 - val_mse: 5.9656 - val_mape: 6.8469
Epoch 386/600
8/8 [=====] - 0s 10ms/step - loss: 4.8498 - mae: 1.5894 - mse: 4.8498 - mape: 6.7586 - val_loss: 5.9642 - val_mae: 1.6865 - val_mse: 5.9642 - val_mape: 6.7276
Epoch 387/600
8/8 [=====] - 0s 10ms/step - loss: 4.9545 - mae: 1.5535 - mse: 4.9545 - mape: 6.4999 - val_loss: 5.8770 - val_mae: 1.6641 - val_mse: 5.8770 - val_mape: 6.5955
Epoch 388/600
8/8 [=====] - 0s 9ms/step - loss: 4.6702 - mae: 1.5332 - mse: 4.6702 - mape: 6.4987 - val_loss: 5.9779 - val_mae: 1.6881 - val_mse: 5.9779 - val_mape: 6.7309
Epoch 389/600
8/8 [=====] - 0s 9ms/step - loss: 4.6971 - mae: 1.5482 - mse: 4.6971 - mape: 6.5000 - val_loss: 5.9319 - val_mae: 1.7327 - val_mse: 5.9319 - val_mape: 7.1878
Epoch 390/600
8/8 [=====] - 0s 9ms/step - loss: 4.8002 - mae: 1.5795 - mse: 4.8002 - mape: 6.7299 - val_loss: 5.9448 - val_mae: 1.6733 - val_mse: 5.9448 - val_mape: 6.6089
Epoch 391/600
8/8 [=====] - 0s 10ms/step - loss: 4.9624 - mae: 1.6038 - mse: 4.9624 - mape: 6.8211 - val_loss: 5.9973 - val_mae: 1.6984 - val_mse: 5.9973 - val_mape: 6.8165
Epoch 392/600
8/8 [=====] - 0s 10ms/step - loss: 4.7021 - mae: 1.5552 - mse: 4.7021 - mape: 6.5381 - val_loss: 5.9612 - val_mae: 1.6767 - val_mse: 5.9612 - val_mape: 6.6328
Epoch 393/600
8/8 [=====] - 0s 9ms/step - loss: 4.6702 - mae: 1.5473 - mse: 4.6702 - mape: 6.6128 - val_loss: 6.2547 - val_mae: 1.7020 - val_mse: 6.2547 - val_mape: 6.7461
Epoch 394/600
8/8 [=====] - 0s 10ms/step - loss: 4.7032 - mae: 1.5641 - mse: 4.7032 - mape: 6.5786 - val_loss: 6.0959 - val_mae: 1.6996 - val_mse: 6.0959 - val_mape: 6.7410
Epoch 395/600
8/8 [=====] - 0s 10ms/step - loss: 4.8764 - mae: 1.5624 - mse: 4.8764 - mape: 6.5992 - val_loss: 5.9079 - val_mae: 1.6901 - val_mse: 5.9079 - val_mape: 6.7647
Epoch 396/600
8/8 [=====] - 0s 9ms/step - loss: 4.7120 - mae: 1.5468 - mse: 4.7120 - mape: 6.5293 - val_loss: 5.9630 - val_mae: 1.6792 - val_mse: 5.9630 - val_mape: 6.6360
Epoch 397/600
8/8 [=====] - 0s 10ms/step - loss: 4.8144 - mae: 1.5442 - mse: 4.8144 - mape: 6.5346 - val_loss: 5.8829 - val_mae: 1.6688 - val_mse: 5.8829 - val_mape: 6.6089
Epoch 398/600
8/8 [=====] - 0s 9ms/step - loss: 4.7140 - mae: 1.5461 - mse: 4.7140 - mape: 6.5447 - val_loss: 6.0937 - val_mae: 1.7202 - val_mse: 6.0937 - val_mape: 6.9329
Epoch 399/600
8/8 [=====] - 0s 9ms/step - loss: 4.7015 - mae: 1.5130 - mse: 4.7015 - mape: 6.3627 - val_loss: 6.0286 - val_mae: 1.7434 - val_mse: 6.0286 - val_mape: 7.2265

Epoch 400/600
8/8 [=====] - 0s 11ms/step - loss: 4.6313 - mae: 1.5583 - mse: 4.6313 - mape: 6.6001 - val_loss: 6.0362 - val_mae: 1.6791 - val_mse: 6.0362 - val_mape: 6.6716
Epoch 401/600
8/8 [=====] - 0s 10ms/step - loss: 4.5072 - mae: 1.4880 - mse: 4.5072 - mape: 6.2448 - val_loss: 6.6153 - val_mae: 1.7468 - val_mse: 6.6153 - val_mape: 6.9166

Epoch 402/600
8/8 [=====] - 0s 10ms/step - loss: 4.7757 - mae: 1.5375 - mse: 4.7757 - mape: 6.4578 - val_loss: 5.9748 - val_mae: 1.6841 - val_mse: 5.9748 - val_mape: 6.6883
Epoch 403/600
8/8 [=====] - 0s 9ms/step - loss: 4.7097 - mae: 1.5370 - mse: 4.7097 - mape: 6.4485 - val_loss: 6.2991 - val_mae: 1.7387 - val_mse: 6.2991 - val_mape: 6.9367
Epoch 404/600
8/8 [=====] - 0s 9ms/step - loss: 4.7224 - mae: 1.5507 - mse: 4.7224 - mape: 6.5458 - val_loss: 6.2763 - val_mae: 1.8261 - val_mse: 6.2763 - val_mape: 7.7997
Epoch 405/600
8/8 [=====] - 0s 11ms/step - loss: 4.7147 - mae: 1.5569 - mse: 4.7147 - mape: 6.6139 - val_loss: 6.0931 - val_mae: 1.7368 - val_mse: 6.0931 - val_mape: 7.1444
Epoch 406/600
8/8 [=====] - 0s 10ms/step - loss: 4.6684 - mae: 1.5337 - mse: 4.6684 - mape: 6.4804 - val_loss: 5.9195 - val_mae: 1.6757 - val_mse: 5.9195 - val_mape: 6.6930
Epoch 407/600
8/8 [=====] - 0s 10ms/step - loss: 4.5821 - mae: 1.5335 - mse: 4.5821 - mape: 6.5751 - val_loss: 5.8435 - val_mae: 1.6678 - val_mse: 5.8435 - val_mape: 6.6570
Epoch 408/600
8/8 [=====] - 0s 11ms/step - loss: 4.8123 - mae: 1.5476 - mse: 4.8123 - mape: 6.5765 - val_loss: 5.9667 - val_mae: 1.7056 - val_mse: 5.9667 - val_mape: 6.9562
Epoch 409/600
8/8 [=====] - 0s 9ms/step - loss: 4.5470 - mae: 1.5187 - mse: 4.5470 - mape: 6.4286 - val_loss: 5.8886 - val_mae: 1.6584 - val_mse: 5.8886 - val_mape: 6.5533
Epoch 410/600
8/8 [=====] - 0s 10ms/step - loss: 4.6100 - mae: 1.5286 - mse: 4.6100 - mape: 6.4728 - val_loss: 5.8971 - val_mae: 1.6536 - val_mse: 5.8971 - val_mape: 6.5299
Epoch 411/600
8/8 [=====] - 0s 10ms/step - loss: 4.8348 - mae: 1.5686 - mse: 4.8348 - mape: 6.6464 - val_loss: 6.0566 - val_mae: 1.7053 - val_mse: 6.0566 - val_mape: 6.8391
Epoch 412/600
8/8 [=====] - 0s 11ms/step - loss: 4.7698 - mae: 1.5635 - mse: 4.7698 - mape: 6.6158 - val_loss: 6.0471 - val_mae: 1.6797 - val_mse: 6.0471 - val_mape: 6.6387
Epoch 413/600
8/8 [=====] - 0s 10ms/step - loss: 4.7129 - mae: 1.5485 - mse: 4.7129 - mape: 6.4849 - val_loss: 6.0188 - val_mae: 1.6760 - val_mse: 6.0188 - val_mape: 6.6795
Epoch 414/600
8/8 [=====] - 0s 11ms/step - loss: 4.6371 - mae: 1.5115 - mse: 4.6371 - mape: 6.3406 - val_loss: 6.0188 - val_mae: 1.6760 - val_mse: 6.0188 - val_mape: 6.6795

oss: 5.9072 - val_mae: 1.6697 - val_mse: 5.9072 - val_mape: 6.6371
Epoch 415/600
8/8 [=====] - 0s 10ms/step - loss: 4.6996 - mae: 1.5670 - mse: 4.6996 - mape: 6.6777 - val_l
oss: 6.1705 - val_mae: 1.7359 - val_mse: 6.1705 - val_mape: 7.0788
Epoch 416/600
8/8 [=====] - 0s 9ms/step - loss: 4.7537 - mae: 1.5522 - mse: 4.7537 - mape: 6.5592 - val_lo
ss: 6.0025 - val_mae: 1.6656 - val_mse: 6.0025 - val_mape: 6.6213
Epoch 417/600
8/8 [=====] - 0s 10ms/step - loss: 4.6373 - mae: 1.5363 - mse: 4.6373 - mape: 6.4513 - val_l
oss: 5.9133 - val_mae: 1.6597 - val_mse: 5.9133 - val_mape: 6.5683
Epoch 418/600
8/8 [=====] - 0s 9ms/step - loss: 4.7534 - mae: 1.5422 - mse: 4.7534 - mape: 6.5410 - val_lo
ss: 6.1414 - val_mae: 1.6840 - val_mse: 6.1414 - val_mape: 6.6288
Epoch 419/600
8/8 [=====] - 0s 10ms/step - loss: 4.5171 - mae: 1.5113 - mse: 4.5171 - mape: 6.3387 - val_l
oss: 5.9751 - val_mae: 1.6761 - val_mse: 5.9751 - val_mape: 6.6952
Epoch 420/600
8/8 [=====] - 0s 9ms/step - loss: 4.6814 - mae: 1.5416 - mse: 4.6814 - mape: 6.5281 - val_lo
ss: 5.8748 - val_mae: 1.6570 - val_mse: 5.8748 - val_mape: 6.5975
Epoch 421/600
8/8 [=====] - 0s 9ms/step - loss: 4.5999 - mae: 1.5134 - mse: 4.5999 - mape: 6.3715 - val_lo
ss: 5.9252 - val_mae: 1.6617 - val_mse: 5.9252 - val_mape: 6.5523
Epoch 422/600
8/8 [=====] - 0s 10ms/step - loss: 4.5856 - mae: 1.5050 - mse: 4.5856 - mape: 6.3042 - val_l
oss: 6.0250 - val_mae: 1.7117 - val_mse: 6.0250 - val_mape: 6.9698
Epoch 423/600
8/8 [=====] - 0s 9ms/step - loss: 4.6536 - mae: 1.5321 - mse: 4.6536 - mape: 6.4663 - val_lo
ss: 6.1520 - val_mae: 1.6852 - val_mse: 6.1520 - val_mape: 6.7143
Epoch 424/600
8/8 [=====] - 0s 9ms/step - loss: 4.5850 - mae: 1.5244 - mse: 4.5850 - mape: 6.4065 - val_lo
ss: 6.3457 - val_mae: 1.7327 - val_mse: 6.3457 - val_mape: 7.0480
Epoch 425/600
8/8 [=====] - 0s 9ms/step - loss: 4.5421 - mae: 1.5226 - mse: 4.5421 - mape: 6.4674 - val_lo
ss: 5.9556 - val_mae: 1.6852 - val_mse: 5.9556 - val_mape: 6.7366
Epoch 426/600
8/8 [=====] - 0s 9ms/step - loss: 4.6158 - mae: 1.5418 - mse: 4.6158 - mape: 6.5180 - val_lo
ss: 5.9902 - val_mae: 1.6625 - val_mse: 5.9902 - val_mape: 6.5721
Epoch 427/600
8/8 [=====] - 0s 11ms/step - loss: 4.7519 - mae: 1.5717 - mse: 4.7519 - mape: 6.5285 - val_l
oss: 5.9459 - val_mae: 1.6563 - val_mse: 5.9459 - val_mape: 6.5267
Epoch 428/600
8/8 [=====] - 0s 10ms/step - loss: 4.7028 - mae: 1.5232 - mse: 4.7028 - mape: 6.4076 - val_l
oss: 5.9842 - val_mae: 1.6741 - val_mse: 5.9842 - val_mape: 6.6185
Epoch 429/600
8/8 [=====] - 0s 10ms/step - loss: 4.4331 - mae: 1.4758 - mse: 4.4331 - mape: 6.2307 - val_l

oss: 5.9928 - val_mae: 1.6684 - val_mse: 5.9928 - val_mape: 6.5763
Epoch 430/600
8/8 [=====] - 0s 10ms/step - loss: 4.5305 - mae: 1.5012 - mse: 4.5305 - mape: 6.3127 - val_l
oss: 5.9449 - val_mae: 1.6518 - val_mse: 5.9449 - val_mape: 6.4995
Epoch 431/600
8/8 [=====] - 0s 10ms/step - loss: 4.6197 - mae: 1.5059 - mse: 4.6197 - mape: 6.3660 - val_l
oss: 6.0587 - val_mae: 1.6701 - val_mse: 6.0587 - val_mape: 6.5893
Epoch 432/600
8/8 [=====] - 0s 9ms/step - loss: 4.5843 - mae: 1.5060 - mse: 4.5843 - mape: 6.3401 - val_lo
ss: 5.9080 - val_mae: 1.6593 - val_mse: 5.9080 - val_mape: 6.5824
Epoch 433/600
8/8 [=====] - 0s 10ms/step - loss: 4.6354 - mae: 1.5261 - mse: 4.6354 - mape: 6.4026 - val_l
oss: 5.8468 - val_mae: 1.6563 - val_mse: 5.8468 - val_mape: 6.5704
Epoch 434/600
8/8 [=====] - 0s 9ms/step - loss: 4.6910 - mae: 1.5581 - mse: 4.6910 - mape: 6.6141 - val_lo
ss: 5.9744 - val_mae: 1.6818 - val_mse: 5.9744 - val_mape: 6.7624
Epoch 435/600
8/8 [=====] - 0s 11ms/step - loss: 4.5019 - mae: 1.4867 - mse: 4.5019 - mape: 6.2551 - val_l
oss: 6.0840 - val_mae: 1.7082 - val_mse: 6.0840 - val_mape: 6.9175
Epoch 436/600
8/8 [=====] - 0s 9ms/step - loss: 4.4622 - mae: 1.5003 - mse: 4.4622 - mape: 6.2975 - val_lo
ss: 6.0969 - val_mae: 1.6587 - val_mse: 6.0969 - val_mape: 6.5297
Epoch 437/600
8/8 [=====] - 0s 10ms/step - loss: 4.4481 - mae: 1.4567 - mse: 4.4481 - mape: 6.1047 - val_l
oss: 5.9445 - val_mae: 1.6801 - val_mse: 5.9445 - val_mape: 6.7346
Epoch 438/600
8/8 [=====] - 0s 9ms/step - loss: 4.5675 - mae: 1.5180 - mse: 4.5675 - mape: 6.3143 - val_lo
ss: 6.1893 - val_mae: 1.7927 - val_mse: 6.1893 - val_mape: 7.5331
Epoch 439/600
8/8 [=====] - 0s 10ms/step - loss: 4.4952 - mae: 1.4967 - mse: 4.4952 - mape: 6.3141 - val_l
oss: 6.0339 - val_mae: 1.6593 - val_mse: 6.0339 - val_mape: 6.5167
Epoch 440/600
8/8 [=====] - 0s 9ms/step - loss: 4.4786 - mae: 1.4950 - mse: 4.4786 - mape: 6.3350 - val_lo
ss: 6.6098 - val_mae: 1.7371 - val_mse: 6.6098 - val_mape: 6.9720
Epoch 441/600
8/8 [=====] - 0s 10ms/step - loss: 4.5184 - mae: 1.5220 - mse: 4.5184 - mape: 6.3893 - val_l
oss: 6.0483 - val_mae: 1.7157 - val_mse: 6.0483 - val_mape: 6.9893
Epoch 442/600
8/8 [=====] - 0s 9ms/step - loss: 4.6721 - mae: 1.5300 - mse: 4.6721 - mape: 6.5067 - val_lo
ss: 6.1725 - val_mae: 1.7263 - val_mse: 6.1725 - val_mape: 6.9540
Epoch 443/600
8/8 [=====] - 0s 10ms/step - loss: 4.5605 - mae: 1.5128 - mse: 4.5605 - mape: 6.3624 - val_l
oss: 6.0469 - val_mae: 1.7118 - val_mse: 6.0469 - val_mape: 6.9981
Epoch 444/600
8/8 [=====] - 0s 11ms/step - loss: 4.4887 - mae: 1.4799 - mse: 4.4887 - mape: 6.1797 - val_l

oss: 5.8849 - val_mae: 1.6513 - val_mse: 5.8849 - val_mape: 6.5445
Epoch 445/600
8/8 [=====] - 0s 10ms/step - loss: 4.4733 - mae: 1.5048 - mse: 4.4733 - mape: 6.3488 - val_l
oss: 6.0569 - val_mae: 1.7472 - val_mse: 6.0569 - val_mape: 7.2947
Epoch 446/600
8/8 [=====] - 0s 11ms/step - loss: 4.5025 - mae: 1.5233 - mse: 4.5025 - mape: 6.4848 - val_l
oss: 6.2176 - val_mae: 1.6865 - val_mse: 6.2176 - val_mape: 6.6949
Epoch 447/600
8/8 [=====] - 0s 11ms/step - loss: 4.4935 - mae: 1.4972 - mse: 4.4935 - mape: 6.2853 - val_l
oss: 6.5099 - val_mae: 1.7660 - val_mse: 6.5099 - val_mape: 7.2046
Epoch 448/600
8/8 [=====] - 0s 11ms/step - loss: 4.3545 - mae: 1.4809 - mse: 4.3545 - mape: 6.2464 - val_l
oss: 6.2241 - val_mae: 1.7677 - val_mse: 6.2241 - val_mape: 7.3902
Epoch 449/600
8/8 [=====] - 0s 10ms/step - loss: 4.4528 - mae: 1.4940 - mse: 4.4528 - mape: 6.2979 - val_l
oss: 6.0540 - val_mae: 1.6564 - val_mse: 6.0540 - val_mape: 6.5034
Epoch 450/600
8/8 [=====] - 0s 12ms/step - loss: 4.4682 - mae: 1.5009 - mse: 4.4682 - mape: 6.2852 - val_l
oss: 6.4206 - val_mae: 1.8043 - val_mse: 6.4206 - val_mape: 7.6314
Epoch 451/600
8/8 [=====] - 0s 9ms/step - loss: 4.4957 - mae: 1.5022 - mse: 4.4957 - mape: 6.3248 - val_lo
ss: 5.9917 - val_mae: 1.6579 - val_mse: 5.9917 - val_mape: 6.5321
Epoch 452/600
8/8 [=====] - 0s 10ms/step - loss: 4.4762 - mae: 1.5043 - mse: 4.4762 - mape: 6.2719 - val_l
oss: 6.0157 - val_mae: 1.6671 - val_mse: 6.0157 - val_mape: 6.5914
Epoch 453/600
8/8 [=====] - 0s 9ms/step - loss: 4.5584 - mae: 1.5112 - mse: 4.5584 - mape: 6.3939 - val_lo
ss: 6.2284 - val_mae: 1.7520 - val_mse: 6.2284 - val_mape: 7.3018
Epoch 454/600
8/8 [=====] - 0s 10ms/step - loss: 4.5438 - mae: 1.4981 - mse: 4.5438 - mape: 6.2986 - val_l
oss: 6.0693 - val_mae: 1.6663 - val_mse: 6.0693 - val_mape: 6.5396
Epoch 455/600
8/8 [=====] - 0s 10ms/step - loss: 4.4157 - mae: 1.4961 - mse: 4.4157 - mape: 6.3192 - val_l
oss: 6.5846 - val_mae: 1.7506 - val_mse: 6.5846 - val_mape: 7.0086
Epoch 456/600
8/8 [=====] - 0s 10ms/step - loss: 4.4756 - mae: 1.4980 - mse: 4.4756 - mape: 6.2962 - val_l
oss: 5.9987 - val_mae: 1.7309 - val_mse: 5.9987 - val_mape: 7.1853
Epoch 457/600
8/8 [=====] - 0s 9ms/step - loss: 4.3842 - mae: 1.5263 - mse: 4.3842 - mape: 6.5103 - val_lo
ss: 6.0571 - val_mae: 1.6821 - val_mse: 6.0571 - val_mape: 6.7392
Epoch 458/600
8/8 [=====] - 0s 10ms/step - loss: 4.3187 - mae: 1.4689 - mse: 4.3187 - mape: 6.1281 - val_l
oss: 6.5490 - val_mae: 1.7410 - val_mse: 6.5490 - val_mape: 7.0272
Epoch 459/600
8/8 [=====] - 0s 10ms/step - loss: 4.6255 - mae: 1.4991 - mse: 4.6255 - mape: 6.2191 - val_l

oss: 6.3658 - val_mae: 1.7290 - val_mse: 6.3658 - val_mape: 6.9823
Epoch 460/600
8/8 [=====] - 0s 11ms/step - loss: 4.3452 - mae: 1.4849 - mse: 4.3452 - mape: 6.2885 - val_l
oss: 5.9167 - val_mae: 1.6520 - val_mse: 5.9167 - val_mape: 6.5026
Epoch 461/600
8/8 [=====] - 0s 10ms/step - loss: 4.4845 - mae: 1.4877 - mse: 4.4845 - mape: 6.2599 - val_l
oss: 6.0263 - val_mae: 1.6457 - val_mse: 6.0263 - val_mape: 6.4702
Epoch 462/600
8/8 [=====] - 0s 11ms/step - loss: 4.3552 - mae: 1.4439 - mse: 4.3552 - mape: 6.0400 - val_l
oss: 6.0308 - val_mae: 1.7225 - val_mse: 6.0308 - val_mape: 7.0867
Epoch 463/600
8/8 [=====] - 0s 11ms/step - loss: 4.3484 - mae: 1.4934 - mse: 4.3484 - mape: 6.3955 - val_l
oss: 6.0623 - val_mae: 1.6699 - val_mse: 6.0623 - val_mape: 6.6503
Epoch 464/600
8/8 [=====] - 0s 10ms/step - loss: 4.4890 - mae: 1.4791 - mse: 4.4890 - mape: 6.2504 - val_l
oss: 6.3828 - val_mae: 1.7370 - val_mse: 6.3828 - val_mape: 7.0764
Epoch 465/600
8/8 [=====] - 0s 9ms/step - loss: 4.3420 - mae: 1.4846 - mse: 4.3420 - mape: 6.2571 - val_lo
ss: 6.1889 - val_mae: 1.7036 - val_mse: 6.1889 - val_mape: 6.8703
Epoch 466/600
8/8 [=====] - 0s 11ms/step - loss: 4.2669 - mae: 1.4190 - mse: 4.2669 - mape: 5.9302 - val_l
oss: 6.3400 - val_mae: 1.7774 - val_mse: 6.3400 - val_mape: 7.4176
Epoch 467/600
8/8 [=====] - 0s 10ms/step - loss: 4.3601 - mae: 1.4882 - mse: 4.3601 - mape: 6.2748 - val_l
oss: 6.0831 - val_mae: 1.6502 - val_mse: 6.0831 - val_mape: 6.4912
Epoch 468/600
8/8 [=====] - 0s 10ms/step - loss: 4.3711 - mae: 1.4921 - mse: 4.3711 - mape: 6.2931 - val_l
oss: 6.1145 - val_mae: 1.6594 - val_mse: 6.1145 - val_mape: 6.5307
Epoch 469/600
8/8 [=====] - 0s 9ms/step - loss: 4.2568 - mae: 1.4567 - mse: 4.2568 - mape: 6.1305 - val_lo
ss: 6.8983 - val_mae: 1.7743 - val_mse: 6.8983 - val_mape: 6.9905
Epoch 470/600
8/8 [=====] - 0s 9ms/step - loss: 4.7311 - mae: 1.5100 - mse: 4.7311 - mape: 6.3550 - val_lo
ss: 6.0999 - val_mae: 1.6603 - val_mse: 6.0999 - val_mape: 6.5006
Epoch 471/600
8/8 [=====] - 0s 9ms/step - loss: 4.3520 - mae: 1.4687 - mse: 4.3520 - mape: 6.1334 - val_lo
ss: 6.6910 - val_mae: 1.8235 - val_mse: 6.6910 - val_mape: 7.5096
Epoch 472/600
8/8 [=====] - 0s 10ms/step - loss: 4.3628 - mae: 1.4731 - mse: 4.3628 - mape: 6.1820 - val_l
oss: 6.0903 - val_mae: 1.7394 - val_mse: 6.0903 - val_mape: 7.2457
Epoch 473/600
8/8 [=====] - 0s 12ms/step - loss: 4.2973 - mae: 1.4572 - mse: 4.2973 - mape: 6.1439 - val_l
oss: 6.1205 - val_mae: 1.6918 - val_mse: 6.1205 - val_mape: 6.7343
Epoch 474/600
8/8 [=====] - 0s 9ms/step - loss: 4.3805 - mae: 1.5145 - mse: 4.3805 - mape: 6.4355 - val_lo

ss: 5.9867 - val_mae: 1.6974 - val_mse: 5.9867 - val_mape: 6.9092
Epoch 475/600
8/8 [=====] - 0s 9ms/step - loss: 4.4054 - mae: 1.4793 - mse: 4.4054 - mape: 6.3064 - val_loss: 6.2165 - val_mae: 1.7029 - val_mse: 6.2165 - val_mape: 6.7799
Epoch 476/600
8/8 [=====] - 0s 10ms/step - loss: 4.6399 - mae: 1.5252 - mse: 4.6399 - mape: 6.4688 - val_loss: 6.1005 - val_mae: 1.7247 - val_mse: 6.1005 - val_mape: 7.1036
Epoch 477/600
8/8 [=====] - 0s 9ms/step - loss: 4.2275 - mae: 1.4608 - mse: 4.2275 - mape: 6.1586 - val_loss: 6.1561 - val_mae: 1.6835 - val_mse: 6.1561 - val_mape: 6.7457
Epoch 478/600
8/8 [=====] - 0s 10ms/step - loss: 4.4561 - mae: 1.4978 - mse: 4.4561 - mape: 6.2557 - val_loss: 6.1413 - val_mae: 1.7069 - val_mse: 6.1413 - val_mape: 6.9262
Epoch 479/600
8/8 [=====] - 0s 9ms/step - loss: 4.3906 - mae: 1.4751 - mse: 4.3906 - mape: 6.2151 - val_loss: 6.0209 - val_mae: 1.6858 - val_mse: 6.0209 - val_mape: 6.7925
Epoch 480/600
8/8 [=====] - 0s 10ms/step - loss: 4.2389 - mae: 1.4593 - mse: 4.2389 - mape: 6.1481 - val_loss: 6.0169 - val_mae: 1.6320 - val_mse: 6.0169 - val_mape: 6.3923
Epoch 481/600
8/8 [=====] - 0s 9ms/step - loss: 4.4483 - mae: 1.4748 - mse: 4.4483 - mape: 6.1799 - val_loss: 6.2563 - val_mae: 1.7209 - val_mse: 6.2563 - val_mape: 6.9640
Epoch 482/600
8/8 [=====] - 0s 9ms/step - loss: 4.3605 - mae: 1.5144 - mse: 4.3605 - mape: 6.4115 - val_loss: 6.0800 - val_mae: 1.6417 - val_mse: 6.0800 - val_mape: 6.4246
Epoch 483/600
8/8 [=====] - 0s 10ms/step - loss: 4.3886 - mae: 1.4816 - mse: 4.3886 - mape: 6.2297 - val_loss: 6.0322 - val_mae: 1.6957 - val_mse: 6.0322 - val_mape: 6.9028
Epoch 484/600
8/8 [=====] - 0s 11ms/step - loss: 4.3323 - mae: 1.4653 - mse: 4.3323 - mape: 6.1338 - val_loss: 5.9817 - val_mae: 1.6387 - val_mse: 5.9817 - val_mape: 6.4391
Epoch 485/600
8/8 [=====] - 0s 12ms/step - loss: 4.3475 - mae: 1.4746 - mse: 4.3475 - mape: 6.1744 - val_loss: 6.0465 - val_mae: 1.6558 - val_mse: 6.0465 - val_mape: 6.5541
Epoch 486/600
8/8 [=====] - 0s 9ms/step - loss: 4.2584 - mae: 1.4543 - mse: 4.2584 - mape: 6.1305 - val_loss: 6.1874 - val_mae: 1.6851 - val_mse: 6.1874 - val_mape: 6.7398
Epoch 487/600
8/8 [=====] - 0s 10ms/step - loss: 4.2116 - mae: 1.4579 - mse: 4.2116 - mape: 6.1343 - val_loss: 6.0071 - val_mae: 1.6384 - val_mse: 6.0071 - val_mape: 6.4293
Epoch 488/600
8/8 [=====] - 0s 11ms/step - loss: 4.4237 - mae: 1.4987 - mse: 4.4237 - mape: 6.3619 - val_loss: 6.0480 - val_mae: 1.6835 - val_mse: 6.0480 - val_mape: 6.7564
Epoch 489/600
8/8 [=====] - 0s 10ms/step - loss: 4.2129 - mae: 1.4465 - mse: 4.2129 - mape: 6.0262 - val_loss:

oss: 7.2130 - val_mae: 1.8829 - val_mse: 7.2130 - val_mape: 7.7651
Epoch 490/600
8/8 [=====] - 0s 9ms/step - loss: 4.5123 - mae: 1.5040 - mse: 4.5123 - mape: 6.3487 - val_loss: 6.1664 - val_mae: 1.6914 - val_mse: 6.1664 - val_mape: 6.7289
Epoch 491/600
8/8 [=====] - 0s 12ms/step - loss: 4.2533 - mae: 1.4615 - mse: 4.2533 - mape: 6.1820 - val_loss: 6.2479 - val_mae: 1.8002 - val_mse: 6.2479 - val_mape: 7.7034
Epoch 492/600
8/8 [=====] - 0s 11ms/step - loss: 4.2780 - mae: 1.4583 - mse: 4.2780 - mape: 6.1584 - val_loss: 6.0065 - val_mae: 1.6432 - val_mse: 6.0065 - val_mape: 6.4677
Epoch 493/600
8/8 [=====] - 0s 11ms/step - loss: 4.2814 - mae: 1.4690 - mse: 4.2814 - mape: 6.2316 - val_loss: 6.4537 - val_mae: 1.7018 - val_mse: 6.4537 - val_mape: 6.7789
Epoch 494/600
8/8 [=====] - 0s 9ms/step - loss: 4.3321 - mae: 1.4794 - mse: 4.3321 - mape: 6.2469 - val_loss: 6.4582 - val_mae: 1.6879 - val_mse: 6.4582 - val_mape: 6.6348
Epoch 495/600
8/8 [=====] - 0s 12ms/step - loss: 4.4377 - mae: 1.4951 - mse: 4.4377 - mape: 6.3861 - val_loss: 6.0638 - val_mae: 1.7001 - val_mse: 6.0638 - val_mape: 6.9007
Epoch 496/600
8/8 [=====] - 0s 10ms/step - loss: 4.2272 - mae: 1.4611 - mse: 4.2272 - mape: 6.1806 - val_loss: 6.2487 - val_mae: 1.6681 - val_mse: 6.2487 - val_mape: 6.5238
Epoch 497/600
8/8 [=====] - 0s 11ms/step - loss: 4.3139 - mae: 1.4671 - mse: 4.3139 - mape: 6.1010 - val_loss: 6.7271 - val_mae: 1.7356 - val_mse: 6.7271 - val_mape: 6.8666
Epoch 498/600
8/8 [=====] - 0s 10ms/step - loss: 4.2084 - mae: 1.4782 - mse: 4.2084 - mape: 6.2660 - val_loss: 6.2272 - val_mae: 1.6732 - val_mse: 6.2272 - val_mape: 6.6609
Epoch 499/600
8/8 [=====] - 0s 10ms/step - loss: 4.2878 - mae: 1.4997 - mse: 4.2878 - mape: 6.3828 - val_loss: 5.9972 - val_mae: 1.6569 - val_mse: 5.9972 - val_mape: 6.6009
Epoch 500/600
8/8 [=====] - 0s 9ms/step - loss: 4.0773 - mae: 1.4401 - mse: 4.0773 - mape: 6.0711 - val_loss: 6.1287 - val_mae: 1.6535 - val_mse: 6.1287 - val_mape: 6.4799
Epoch 501/600
8/8 [=====] - 0s 10ms/step - loss: 4.3567 - mae: 1.4421 - mse: 4.3567 - mape: 6.0021 - val_loss: 6.2457 - val_mae: 1.6707 - val_mse: 6.2457 - val_mape: 6.5608

.Epoch 502/600
8/8 [=====] - 0s 11ms/step - loss: 4.4472 - mae: 1.4961 - mse: 4.4472 - mape: 6.2277 - val_loss: 6.2647 - val_mae: 1.7970 - val_mse: 6.2647 - val_mape: 7.6603
Epoch 503/600
8/8 [=====] - 0s 10ms/step - loss: 4.2204 - mae: 1.4376 - mse: 4.2204 - mape: 6.0763 - val_loss: 6.1211 - val_mae: 1.7051 - val_mse: 6.1211 - val_mape: 6.9223
Epoch 504/600

8/8 [=====] - 0s 10ms/step - loss: 4.2728 - mae: 1.4551 - mse: 4.2728 - mape: 6.1292 - val_loss: 6.2740 - val_mae: 1.7477 - val_mse: 6.2740 - val_mape: 7.1859
Epoch 505/600
8/8 [=====] - 0s 11ms/step - loss: 4.2429 - mae: 1.4773 - mse: 4.2429 - mape: 6.2243 - val_loss: 6.2660 - val_mae: 1.6602 - val_mse: 6.2660 - val_mape: 6.5166
Epoch 506/600
8/8 [=====] - 0s 10ms/step - loss: 4.2435 - mae: 1.4589 - mse: 4.2435 - mape: 6.1907 - val_loss: 6.0770 - val_mae: 1.6608 - val_mse: 6.0770 - val_mape: 6.5508
Epoch 507/600
8/8 [=====] - 0s 10ms/step - loss: 4.2354 - mae: 1.4228 - mse: 4.2354 - mape: 5.9678 - val_loss: 6.1529 - val_mae: 1.6548 - val_mse: 6.1529 - val_mape: 6.4995
Epoch 508/600
8/8 [=====] - 0s 10ms/step - loss: 4.3762 - mae: 1.4660 - mse: 4.3762 - mape: 6.1691 - val_loss: 7.0002 - val_mae: 1.8644 - val_mse: 7.0002 - val_mape: 7.7034
Epoch 509/600
8/8 [=====] - 0s 10ms/step - loss: 4.1103 - mae: 1.4319 - mse: 4.1103 - mape: 6.0654 - val_loss: 6.1102 - val_mae: 1.6631 - val_mse: 6.1102 - val_mape: 6.6020
Epoch 510/600
8/8 [=====] - 0s 11ms/step - loss: 4.2747 - mae: 1.4766 - mse: 4.2747 - mape: 6.2191 - val_loss: 6.4156 - val_mae: 1.7382 - val_mse: 6.4156 - val_mape: 7.1210
Epoch 511/600
8/8 [=====] - 0s 10ms/step - loss: 4.1762 - mae: 1.4272 - mse: 4.1762 - mape: 6.0135 - val_loss: 6.3959 - val_mae: 1.6793 - val_mse: 6.3959 - val_mape: 6.5895
Epoch 512/600
8/8 [=====] - 0s 9ms/step - loss: 4.1759 - mae: 1.4265 - mse: 4.1759 - mape: 5.9575 - val_loss: 6.2054 - val_mae: 1.6549 - val_mse: 6.2054 - val_mape: 6.5098
Epoch 513/600
8/8 [=====] - 0s 10ms/step - loss: 4.1065 - mae: 1.4329 - mse: 4.1065 - mape: 6.0539 - val_loss: 6.2077 - val_mae: 1.6579 - val_mse: 6.2077 - val_mape: 6.5058
Epoch 514/600
8/8 [=====] - 0s 10ms/step - loss: 4.0969 - mae: 1.4377 - mse: 4.0969 - mape: 6.1045 - val_loss: 6.2525 - val_mae: 1.6800 - val_mse: 6.2525 - val_mape: 6.6135
Epoch 515/600
8/8 [=====] - 0s 9ms/step - loss: 4.2749 - mae: 1.4469 - mse: 4.2749 - mape: 6.0997 - val_loss: 6.1708 - val_mae: 1.6692 - val_mse: 6.1708 - val_mape: 6.5916
Epoch 516/600
8/8 [=====] - 0s 9ms/step - loss: 4.1225 - mae: 1.4329 - mse: 4.1225 - mape: 5.9756 - val_loss: 6.2473 - val_mae: 1.6822 - val_mse: 6.2473 - val_mape: 6.7093
Epoch 517/600
8/8 [=====] - 0s 9ms/step - loss: 4.3481 - mae: 1.4453 - mse: 4.3481 - mape: 6.0234 - val_loss: 6.0493 - val_mae: 1.6908 - val_mse: 6.0493 - val_mape: 6.8418
Epoch 518/600
8/8 [=====] - 0s 10ms/step - loss: 4.1846 - mae: 1.4497 - mse: 4.1846 - mape: 6.1238 - val_loss: 6.1526 - val_mae: 1.6714 - val_mse: 6.1526 - val_mape: 6.6200
Epoch 519/600

8/8 [=====] - 0s 9ms/step - loss: 4.1836 - mae: 1.4360 - mse: 4.1836 - mape: 6.0471 - val_loss: 6.0929 - val_mae: 1.6494 - val_mse: 6.0929 - val_mape: 6.5146
Epoch 520/600

8/8 [=====] - 0s 9ms/step - loss: 4.3224 - mae: 1.4594 - mse: 4.3224 - mape: 6.0867 - val_loss: 6.2151 - val_mae: 1.7405 - val_mse: 6.2151 - val_mape: 7.1869
Epoch 521/600

8/8 [=====] - 0s 9ms/step - loss: 4.2116 - mae: 1.4292 - mse: 4.2116 - mape: 5.9986 - val_loss: 6.0269 - val_mae: 1.6381 - val_mse: 6.0269 - val_mape: 6.4279
Epoch 522/600

8/8 [=====] - 0s 9ms/step - loss: 4.1866 - mae: 1.4214 - mse: 4.1866 - mape: 6.0029 - val_loss: 6.3836 - val_mae: 1.6757 - val_mse: 6.3836 - val_mape: 6.5688
Epoch 523/600

8/8 [=====] - 0s 11ms/step - loss: 4.2697 - mae: 1.4658 - mse: 4.2697 - mape: 6.2007 - val_loss: 6.1915 - val_mae: 1.6806 - val_mse: 6.1915 - val_mape: 6.7210
Epoch 524/600

8/8 [=====] - 0s 10ms/step - loss: 4.1722 - mae: 1.4824 - mse: 4.1722 - mape: 6.2449 - val_loss: 6.1184 - val_mae: 1.6741 - val_mse: 6.1184 - val_mape: 6.6928
Epoch 525/600

8/8 [=====] - 0s 9ms/step - loss: 4.4150 - mae: 1.4703 - mse: 4.4150 - mape: 6.1467 - val_loss: 6.3203 - val_mae: 1.7600 - val_mse: 6.3203 - val_mape: 7.3174
Epoch 526/600

8/8 [=====] - 0s 9ms/step - loss: 4.2051 - mae: 1.4814 - mse: 4.2051 - mape: 6.2630 - val_loss: 6.0205 - val_mae: 1.6547 - val_mse: 6.0205 - val_mape: 6.5277
Epoch 527/600

8/8 [=====] - 0s 10ms/step - loss: 4.1570 - mae: 1.4629 - mse: 4.1570 - mape: 6.1212 - val_loss: 6.1460 - val_mae: 1.7193 - val_mse: 6.1460 - val_mape: 7.0467
Epoch 528/600

8/8 [=====] - 0s 9ms/step - loss: 4.1310 - mae: 1.4318 - mse: 4.1310 - mape: 6.1009 - val_loss: 6.1392 - val_mae: 1.7583 - val_mse: 6.1392 - val_mape: 7.3792
Epoch 529/600

8/8 [=====] - 0s 10ms/step - loss: 4.1063 - mae: 1.3840 - mse: 4.1063 - mape: 5.7988 - val_loss: 6.2390 - val_mae: 1.6662 - val_mse: 6.2390 - val_mape: 6.5838
Epoch 530/600

8/8 [=====] - 0s 9ms/step - loss: 4.0741 - mae: 1.4191 - mse: 4.0741 - mape: 5.9566 - val_loss: 6.4596 - val_mae: 1.6812 - val_mse: 6.4596 - val_mape: 6.5905
Epoch 531/600

8/8 [=====] - 0s 9ms/step - loss: 4.5430 - mae: 1.5043 - mse: 4.5430 - mape: 6.3715 - val_loss: 6.3431 - val_mae: 1.6867 - val_mse: 6.3431 - val_mape: 6.6860
Epoch 532/600

8/8 [=====] - 0s 9ms/step - loss: 4.2425 - mae: 1.4430 - mse: 4.2425 - mape: 6.0524 - val_loss: 6.1044 - val_mae: 1.6557 - val_mse: 6.1044 - val_mape: 6.4863
Epoch 533/600

8/8 [=====] - 0s 10ms/step - loss: 4.0558 - mae: 1.4265 - mse: 4.0558 - mape: 6.0763 - val_loss: 6.2304 - val_mae: 1.6670 - val_mse: 6.2304 - val_mape: 6.5908
Epoch 534/600

8/8 [=====] - 0s 13ms/step - loss: 4.2114 - mae: 1.4546 - mse: 4.2114 - mape: 6.1603 - val_loss: 6.2995 - val_mae: 1.7604 - val_mse: 6.2995 - val_mape: 7.3180
Epoch 535/600
8/8 [=====] - 0s 10ms/step - loss: 4.2070 - mae: 1.4280 - mse: 4.2070 - mape: 5.9558 - val_loss: 6.0834 - val_mae: 1.6715 - val_mse: 6.0834 - val_mape: 6.6433
Epoch 536/600
8/8 [=====] - 0s 11ms/step - loss: 4.0774 - mae: 1.4270 - mse: 4.0774 - mape: 6.0164 - val_loss: 6.1203 - val_mae: 1.6685 - val_mse: 6.1203 - val_mape: 6.6299
Epoch 537/600
8/8 [=====] - 0s 9ms/step - loss: 4.1834 - mae: 1.4338 - mse: 4.1834 - mape: 6.0361 - val_loss: 6.1788 - val_mae: 1.6596 - val_mse: 6.1788 - val_mape: 6.5103
Epoch 538/600
8/8 [=====] - 0s 9ms/step - loss: 4.3779 - mae: 1.4709 - mse: 4.3779 - mape: 6.1567 - val_loss: 6.0787 - val_mae: 1.6544 - val_mse: 6.0787 - val_mape: 6.5364
Epoch 539/600
8/8 [=====] - 0s 9ms/step - loss: 4.0324 - mae: 1.4320 - mse: 4.0324 - mape: 6.0898 - val_loss: 6.1230 - val_mae: 1.6614 - val_mse: 6.1230 - val_mape: 6.5620
Epoch 540/600
8/8 [=====] - 0s 11ms/step - loss: 4.2191 - mae: 1.4506 - mse: 4.2191 - mape: 6.0187 - val_loss: 7.0651 - val_mae: 1.7838 - val_mse: 7.0651 - val_mape: 7.0167
Epoch 541/600
8/8 [=====] - 0s 10ms/step - loss: 4.1258 - mae: 1.3920 - mse: 4.1258 - mape: 5.8377 - val_loss: 6.9428 - val_mae: 1.8041 - val_mse: 6.9428 - val_mape: 7.2654
Epoch 542/600
8/8 [=====] - 0s 9ms/step - loss: 4.1169 - mae: 1.4303 - mse: 4.1169 - mape: 5.9661 - val_loss: 6.0869 - val_mae: 1.6777 - val_mse: 6.0869 - val_mape: 6.7379
Epoch 543/600
8/8 [=====] - 0s 10ms/step - loss: 4.1735 - mae: 1.4345 - mse: 4.1735 - mape: 6.0549 - val_loss: 6.0652 - val_mae: 1.6752 - val_mse: 6.0652 - val_mape: 6.7210
Epoch 544/600
8/8 [=====] - 0s 9ms/step - loss: 4.0839 - mae: 1.4112 - mse: 4.0839 - mape: 5.9493 - val_loss: 6.3275 - val_mae: 1.7101 - val_mse: 6.3275 - val_mape: 6.8927
Epoch 545/600
8/8 [=====] - 0s 10ms/step - loss: 4.0114 - mae: 1.4147 - mse: 4.0114 - mape: 6.0047 - val_loss: 6.2237 - val_mae: 1.6985 - val_mse: 6.2237 - val_mape: 6.7737
Epoch 546/600
8/8 [=====] - 0s 9ms/step - loss: 4.2663 - mae: 1.4161 - mse: 4.2663 - mape: 5.9566 - val_loss: 6.0885 - val_mae: 1.6976 - val_mse: 6.0885 - val_mape: 6.8948
Epoch 547/600
8/8 [=====] - 0s 9ms/step - loss: 4.1132 - mae: 1.4241 - mse: 4.1132 - mape: 5.9973 - val_loss: 6.4624 - val_mae: 1.7320 - val_mse: 6.4624 - val_mape: 6.9783
Epoch 548/600
8/8 [=====] - 0s 13ms/step - loss: 3.9520 - mae: 1.3985 - mse: 3.9520 - mape: 5.8519 - val_loss: 6.5040 - val_mae: 1.6782 - val_mse: 6.5040 - val_mape: 6.5309
Epoch 549/600

8/8 [=====] - 0s 10ms/step - loss: 4.2106 - mae: 1.4210 - mse: 4.2106 - mape: 5.8336 - val_loss: 6.0890 - val_mae: 1.7265 - val_mse: 6.0890 - val_mape: 7.1597
Epoch 550/600
8/8 [=====] - 0s 9ms/step - loss: 3.9901 - mae: 1.4057 - mse: 3.9901 - mape: 5.9190 - val_loss: 6.3461 - val_mae: 1.7061 - val_mse: 6.3461 - val_mape: 6.7699
Epoch 551/600
8/8 [=====] - 0s 9ms/step - loss: 4.0735 - mae: 1.4390 - mse: 4.0735 - mape: 6.0739 - val_loss: 6.1011 - val_mae: 1.6519 - val_mse: 6.1011 - val_mape: 6.5317
Epoch 552/600
8/8 [=====] - 0s 9ms/step - loss: 4.1870 - mae: 1.4645 - mse: 4.1870 - mape: 6.1345 - val_loss: 6.2315 - val_mae: 1.6792 - val_mse: 6.2315 - val_mape: 6.7010
Epoch 553/600
8/8 [=====] - 0s 10ms/step - loss: 4.1252 - mae: 1.4058 - mse: 4.1252 - mape: 5.8953 - val_loss: 6.3456 - val_mae: 1.7265 - val_mse: 6.3456 - val_mape: 7.0873
Epoch 554/600
8/8 [=====] - 0s 9ms/step - loss: 4.1559 - mae: 1.4492 - mse: 4.1559 - mape: 6.0776 - val_loss: 6.1751 - val_mae: 1.6781 - val_mse: 6.1751 - val_mape: 6.7146
Epoch 555/600
8/8 [=====] - 0s 10ms/step - loss: 4.1360 - mae: 1.4412 - mse: 4.1360 - mape: 6.0721 - val_loss: 6.0726 - val_mae: 1.6939 - val_mse: 6.0726 - val_mape: 6.8933
Epoch 556/600
8/8 [=====] - 0s 9ms/step - loss: 4.0652 - mae: 1.4654 - mse: 4.0652 - mape: 6.2119 - val_loss: 6.1442 - val_mae: 1.7062 - val_mse: 6.1442 - val_mape: 6.9638
Epoch 557/600
8/8 [=====] - 0s 10ms/step - loss: 4.2037 - mae: 1.4394 - mse: 4.2037 - mape: 6.0585 - val_loss: 6.3628 - val_mae: 1.6757 - val_mse: 6.3628 - val_mape: 6.6021
Epoch 558/600
8/8 [=====] - 0s 10ms/step - loss: 4.1409 - mae: 1.3960 - mse: 4.1409 - mape: 5.8895 - val_loss: 6.1452 - val_mae: 1.6959 - val_mse: 6.1452 - val_mape: 6.8569
Epoch 559/600
8/8 [=====] - 0s 10ms/step - loss: 4.0612 - mae: 1.3874 - mse: 4.0612 - mape: 5.7649 - val_loss: 6.9479 - val_mae: 1.7819 - val_mse: 6.9479 - val_mape: 7.0919
Epoch 560/600
8/8 [=====] - 0s 9ms/step - loss: 4.0910 - mae: 1.4179 - mse: 4.0910 - mape: 5.9747 - val_loss: 6.3737 - val_mae: 1.7156 - val_mse: 6.3737 - val_mape: 6.8584
Epoch 561/600
8/8 [=====] - 0s 12ms/step - loss: 4.2786 - mae: 1.4587 - mse: 4.2786 - mape: 6.1481 - val_loss: 6.1923 - val_mae: 1.6705 - val_mse: 6.1923 - val_mape: 6.6233
Epoch 562/600
8/8 [=====] - 0s 10ms/step - loss: 4.0507 - mae: 1.4190 - mse: 4.0507 - mape: 5.9918 - val_loss: 6.4298 - val_mae: 1.7374 - val_mse: 6.4298 - val_mape: 7.0741
Epoch 563/600
8/8 [=====] - 0s 11ms/step - loss: 4.2438 - mae: 1.4068 - mse: 4.2438 - mape: 5.8933 - val_loss: 6.1479 - val_mae: 1.6714 - val_mse: 6.1479 - val_mape: 6.6134
Epoch 564/600

8/8 [=====] - 0s 9ms/step - loss: 4.0674 - mae: 1.4080 - mse: 4.0674 - mape: 5.9424 - val_loss: 6.2001 - val_mae: 1.6987 - val_mse: 6.2001 - val_mape: 6.8762
Epoch 565/600
8/8 [=====] - 0s 10ms/step - loss: 4.0322 - mae: 1.4098 - mse: 4.0322 - mape: 5.9958 - val_loss: 6.0557 - val_mae: 1.6478 - val_mse: 6.0557 - val_mape: 6.4927
Epoch 566/600
8/8 [=====] - 0s 9ms/step - loss: 3.9821 - mae: 1.3963 - mse: 3.9821 - mape: 5.8226 - val_loss: 6.2826 - val_mae: 1.6655 - val_mse: 6.2826 - val_mape: 6.5508
Epoch 567/600
8/8 [=====] - 0s 10ms/step - loss: 4.1475 - mae: 1.4304 - mse: 4.1475 - mape: 6.0076 - val_loss: 6.4451 - val_mae: 1.8342 - val_mse: 6.4451 - val_mape: 7.8182
Epoch 568/600
8/8 [=====] - 0s 9ms/step - loss: 3.9874 - mae: 1.3828 - mse: 3.9874 - mape: 5.7746 - val_loss: 6.0533 - val_mae: 1.6571 - val_mse: 6.0533 - val_mape: 6.5282
Epoch 569/600
8/8 [=====] - 0s 13ms/step - loss: 4.1055 - mae: 1.4231 - mse: 4.1055 - mape: 5.9351 - val_loss: 6.3111 - val_mae: 1.7797 - val_mse: 6.3111 - val_mape: 7.4611
Epoch 570/600
8/8 [=====] - 0s 10ms/step - loss: 4.0293 - mae: 1.4028 - mse: 4.0293 - mape: 5.8724 - val_loss: 6.2698 - val_mae: 1.6780 - val_mse: 6.2698 - val_mape: 6.5633
Epoch 571/600
8/8 [=====] - 0s 10ms/step - loss: 4.0282 - mae: 1.4147 - mse: 4.0282 - mape: 5.9996 - val_loss: 6.5332 - val_mae: 1.7132 - val_mse: 6.5332 - val_mape: 6.7602
Epoch 572/600
8/8 [=====] - 0s 9ms/step - loss: 4.1863 - mae: 1.4117 - mse: 4.1863 - mape: 5.8576 - val_loss: 6.2631 - val_mae: 1.6611 - val_mse: 6.2631 - val_mape: 6.5058
Epoch 573/600
8/8 [=====] - 0s 10ms/step - loss: 3.9249 - mae: 1.3727 - mse: 3.9249 - mape: 5.7126 - val_loss: 6.2513 - val_mae: 1.6562 - val_mse: 6.2513 - val_mape: 6.4827
Epoch 574/600
8/8 [=====] - 0s 10ms/step - loss: 3.9293 - mae: 1.4096 - mse: 3.9293 - mape: 5.9788 - val_loss: 6.7844 - val_mae: 1.8101 - val_mse: 6.7844 - val_mape: 7.3589
Epoch 575/600
8/8 [=====] - 0s 10ms/step - loss: 4.0848 - mae: 1.4027 - mse: 4.0848 - mape: 5.8005 - val_loss: 6.3852 - val_mae: 1.6844 - val_mse: 6.3852 - val_mape: 6.6619
Epoch 576/600
8/8 [=====] - 0s 9ms/step - loss: 4.2873 - mae: 1.4653 - mse: 4.2873 - mape: 6.1944 - val_loss: 6.3075 - val_mae: 1.6918 - val_mse: 6.3075 - val_mape: 6.8072
Epoch 577/600
8/8 [=====] - 0s 9ms/step - loss: 3.8471 - mae: 1.3565 - mse: 3.8471 - mape: 5.6668 - val_loss: 6.5183 - val_mae: 1.7195 - val_mse: 6.5183 - val_mape: 6.8787
Epoch 578/600
8/8 [=====] - 0s 12ms/step - loss: 4.0368 - mae: 1.3831 - mse: 4.0368 - mape: 5.8545 - val_loss: 6.2292 - val_mae: 1.7120 - val_mse: 6.2292 - val_mape: 6.9525
Epoch 579/600

8/8 [=====] - 0s 10ms/step - loss: 4.2819 - mae: 1.4425 - mse: 4.2819 - mape: 5.9534 - val_loss: 6.3131 - val_mae: 1.7891 - val_mse: 6.3131 - val_mape: 7.5693
Epoch 580/600
8/8 [=====] - 0s 10ms/step - loss: 4.0406 - mae: 1.4133 - mse: 4.0406 - mape: 5.9047 - val_loss: 6.0332 - val_mae: 1.6518 - val_mse: 6.0332 - val_mape: 6.5821
Epoch 581/600
8/8 [=====] - 0s 11ms/step - loss: 4.1155 - mae: 1.4145 - mse: 4.1155 - mape: 5.9086 - val_loss: 6.1211 - val_mae: 1.6572 - val_mse: 6.1211 - val_mape: 6.5178
Epoch 582/600
8/8 [=====] - 0s 10ms/step - loss: 4.0098 - mae: 1.3875 - mse: 4.0098 - mape: 5.7536 - val_loss: 6.5177 - val_mae: 1.7718 - val_mse: 6.5177 - val_mape: 7.3202
Epoch 583/600
8/8 [=====] - 0s 11ms/step - loss: 4.0369 - mae: 1.4443 - mse: 4.0369 - mape: 6.1017 - val_loss: 6.4810 - val_mae: 1.7060 - val_mse: 6.4810 - val_mape: 6.7692
Epoch 584/600
8/8 [=====] - 0s 10ms/step - loss: 4.1271 - mae: 1.3967 - mse: 4.1271 - mape: 5.8384 - val_loss: 6.8532 - val_mae: 1.7801 - val_mse: 6.8532 - val_mape: 7.0988
Epoch 585/600
8/8 [=====] - 0s 10ms/step - loss: 3.9140 - mae: 1.3772 - mse: 3.9140 - mape: 5.7687 - val_loss: 6.3110 - val_mae: 1.6698 - val_mse: 6.3110 - val_mape: 6.5588
Epoch 586/600
8/8 [=====] - 0s 10ms/step - loss: 4.0735 - mae: 1.4723 - mse: 4.0735 - mape: 6.2020 - val_loss: 6.4505 - val_mae: 1.7720 - val_mse: 6.4505 - val_mape: 7.3618
Epoch 587/600
8/8 [=====] - 0s 9ms/step - loss: 3.8094 - mae: 1.3568 - mse: 3.8094 - mape: 5.6939 - val_loss: 6.7882 - val_mae: 1.8525 - val_mse: 6.7882 - val_mape: 7.8160
Epoch 588/600
8/8 [=====] - 0s 10ms/step - loss: 4.0953 - mae: 1.4384 - mse: 4.0953 - mape: 6.1062 - val_loss: 6.3211 - val_mae: 1.6808 - val_mse: 6.3211 - val_mape: 6.6616
Epoch 589/600
8/8 [=====] - 0s 12ms/step - loss: 3.8838 - mae: 1.3743 - mse: 3.8838 - mape: 5.7315 - val_loss: 6.3978 - val_mae: 1.7912 - val_mse: 6.3978 - val_mape: 7.5524
Epoch 590/600
8/8 [=====] - 0s 11ms/step - loss: 4.0248 - mae: 1.4059 - mse: 4.0248 - mape: 5.8703 - val_loss: 6.3830 - val_mae: 1.6889 - val_mse: 6.3830 - val_mape: 6.6845
Epoch 591/600
8/8 [=====] - 0s 10ms/step - loss: 3.9026 - mae: 1.3811 - mse: 3.9026 - mape: 5.7805 - val_loss: 6.2430 - val_mae: 1.6732 - val_mse: 6.2430 - val_mape: 6.5843
Epoch 592/600
8/8 [=====] - 0s 10ms/step - loss: 3.9330 - mae: 1.3914 - mse: 3.9330 - mape: 5.8404 - val_loss: 6.2064 - val_mae: 1.6684 - val_mse: 6.2064 - val_mape: 6.6495
Epoch 593/600
8/8 [=====] - 0s 10ms/step - loss: 3.9195 - mae: 1.3781 - mse: 3.9195 - mape: 5.6960 - val_loss: 6.2261 - val_mae: 1.6764 - val_mse: 6.2261 - val_mape: 6.6626
Epoch 594/600

```

8/8 [=====] - 0s 10ms/step - loss: 3.9791 - mae: 1.4026 - mse: 3.9791 - mape: 5.8717 - val_l
oss: 6.2424 - val_mae: 1.6663 - val_mse: 6.2424 - val_mape: 6.5844
Epoch 595/600
8/8 [=====] - 0s 11ms/step - loss: 4.0725 - mae: 1.4115 - mse: 4.0725 - mape: 5.9227 - val_l
oss: 6.3061 - val_mae: 1.7609 - val_mse: 6.3061 - val_mape: 7.3833
Epoch 596/600
8/8 [=====] - 0s 9ms/step - loss: 3.9539 - mae: 1.4042 - mse: 3.9539 - mape: 5.9873 - val_lo
ss: 6.6463 - val_mae: 1.7127 - val_mse: 6.6463 - val_mape: 6.7147
Epoch 597/600
8/8 [=====] - 0s 10ms/step - loss: 3.8920 - mae: 1.3606 - mse: 3.8920 - mape: 5.6772 - val_l
oss: 6.8712 - val_mae: 1.7898 - val_mse: 6.8712 - val_mape: 7.1384
Epoch 598/600
8/8 [=====] - 0s 12ms/step - loss: 4.2075 - mae: 1.3812 - mse: 4.2075 - mape: 5.6975 - val_l
oss: 6.2755 - val_mae: 1.6730 - val_mse: 6.2755 - val_mape: 6.6177
Epoch 599/600
8/8 [=====] - 0s 10ms/step - loss: 3.8232 - mae: 1.4040 - mse: 3.8232 - mape: 5.9476 - val_l
oss: 6.1844 - val_mae: 1.6923 - val_mse: 6.1844 - val_mape: 6.8118
Epoch 600/600
8/8 [=====] - 0s 11ms/step - loss: 3.9848 - mae: 1.3915 - mse: 3.9848 - mape: 5.8794 - val_l
oss: 6.4882 - val_mae: 1.6927 - val_mse: 6.4882 - val_mape: 6.6779

```

we can see that loss is not consistant and sometime increasing and sometime decreasing(Oscilation). There seems case of overfitting. we need to generalize the model and for that we will use early stopping method

```

In [68]: hist = pd.DataFrame(history.history)
hist['epoch'] = history.epoch
hist.tail()

```

```

Out[68]:

```

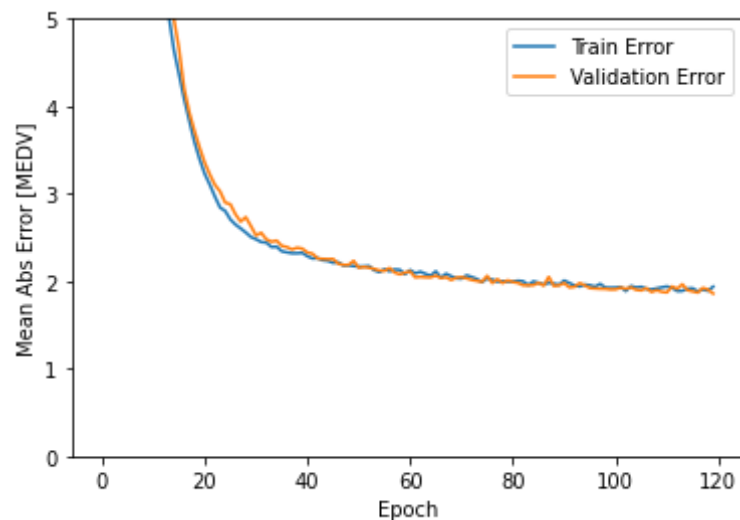
	loss	mae	mse	mape	val_loss	val_mae	val_mse	val_mape	epoch
115	7.161538	1.919300	7.161538	8.185040	6.647604	1.883849	6.647604	8.035868	115
116	7.035513	1.884454	7.035513	8.042021	6.592421	1.870236	6.592421	7.884484	116
117	7.151187	1.905528	7.151187	8.088844	6.722917	1.923659	6.722917	8.150846	117
118	7.260903	1.889878	7.260903	8.007275	6.607469	1.904806	6.607469	8.035210	118
119	7.315001	1.937440	7.315001	8.150073	6.584230	1.858380	6.584230	7.840547	119

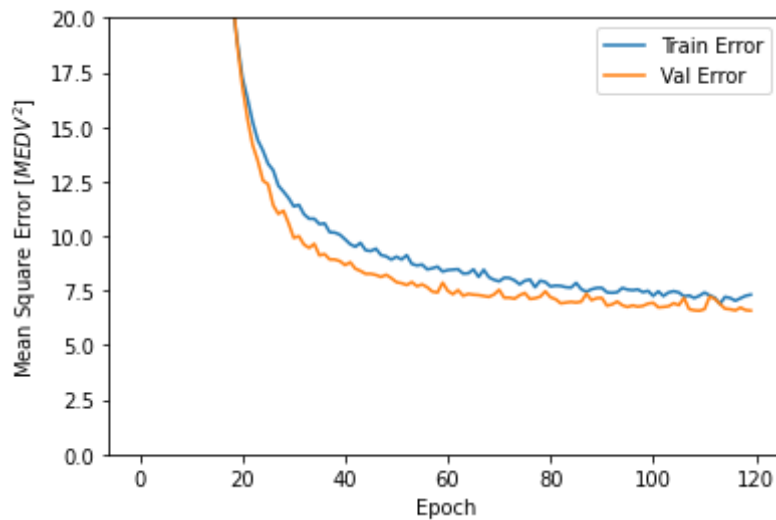
```
In [69]: def plot_history(history):
hist = pd.DataFrame(history.history)
hist['epoch'] = history.epoch

plt.figure()
plt.xlabel('Epoch')
plt.ylabel('Mean Abs Error [MEDV]')
plt.plot(hist['epoch'], hist['mae'], label = 'Train Error')
plt.plot(hist['epoch'], hist['val_mae'], label = 'Validation Error')
plt.ylim([0,5])
plt.legend()

plt.figure()
plt.xlabel('Epoch')
plt.ylabel('Mean Square Error [$MEDV^2$]')
plt.plot(hist['epoch'], hist['mse'], label = 'Train Error')
plt.plot(hist['epoch'], hist['val_mse'], label = 'Val Error')
plt.ylim([0,20])
plt.legend()
plt.show()

plot_history(history)
```





From graphical representation we can assume that the max epoch need to be restricted near about 200. For that we will use earlystopping method. in early stopping patience parameter is to check the loss at each epoch and if loss is not improving significantly then iteration will be stopped after given patience number

In [70]:

```
model = build_model()

early_stop = keras.callbacks.EarlyStopping(monitor = 'val_loss', patience= 10)

history = model.fit(normed_train_data, train_labels, epochs = EPOCHS,
                    validation_split = 0.2, verbose =1, callbacks = [early_stop, printDot()])
```

Epoch 1/600

8/8 [=====] - 1s 35ms/step - loss: 580.9569 - mae: 22.8294 - mse: 580.9569 - mape: 97.7037 - val_loss: 574.1785 - val_mae: 22.6286 - val_mse: 574.1785 - val_mape: 93.9988

.Epoch 2/600

8/8 [=====] - 0s 9ms/step - loss: 566.4305 - mae: 22.2421 - mse: 566.4305 - mape: 92.3253 - val_loss: 537.6763 - val_mae: 21.7307 - val_mse: 537.6763 - val_mape: 89.4103

Epoch 3/600

8/8 [=====] - 0s 8ms/step - loss: 523.5906 - mae: 21.2367 - mse: 523.5906 - mape: 87.4495 - val_loss: 497.2059 - val_mae: 20.7077 - val_mse: 497.2059 - val_mape: 84.2979

Epoch 4/600

8/8 [=====] - 0s 8ms/step - loss: 485.6182 - mae: 20.2504 - mse: 485.6182 - mape: 81.8334 -

val_loss: 452.6924 - val_mae: 19.5405 - val_mse: 452.6924 - val_mape: 78.5826
Epoch 5/600
8/8 [=====] - 0s 8ms/step - loss: 448.5965 - mae: 19.2259 - mse: 448.5965 - mape: 76.3192 -
val_loss: 404.7521 - val_mae: 18.2423 - val_mse: 404.7521 - val_mape: 72.4131
Epoch 6/600
8/8 [=====] - 0s 10ms/step - loss: 390.8214 - mae: 17.7362 - mse: 390.8214 - mape: 69.2830 -
val_loss: 353.6472 - val_mae: 16.8816 - val_mse: 353.6472 - val_mape: 66.4386
Epoch 7/600
8/8 [=====] - 0s 8ms/step - loss: 339.1942 - mae: 16.3014 - mse: 339.1942 - mape: 63.2432 -
val_loss: 300.3452 - val_mae: 15.4732 - val_mse: 300.3452 - val_mape: 60.7762
Epoch 8/600
8/8 [=====] - 0s 8ms/step - loss: 257.5611 - mae: 14.0777 - mse: 257.5611 - mape: 55.6310 -
val_loss: 246.3842 - val_mae: 14.0337 - val_mse: 246.3842 - val_mape: 55.5566
Epoch 9/600
8/8 [=====] - 0s 8ms/step - loss: 234.7440 - mae: 13.3963 - mse: 234.7440 - mape: 52.0365 -
val_loss: 195.1036 - val_mae: 12.4719 - val_mse: 195.1036 - val_mape: 49.8581
Epoch 10/600
8/8 [=====] - 0s 8ms/step - loss: 170.6166 - mae: 11.3944 - mse: 170.6166 - mape: 45.8072 -
val_loss: 147.4359 - val_mae: 10.7806 - val_mse: 147.4359 - val_mape: 43.6859
Epoch 11/600
8/8 [=====] - 0s 8ms/step - loss: 125.5716 - mae: 9.5672 - mse: 125.5716 - mape: 38.9483 - v
al_loss: 106.4177 - val_mae: 9.1295 - val_mse: 106.4177 - val_mape: 37.9603
Epoch 12/600
8/8 [=====] - 0s 8ms/step - loss: 86.8303 - mae: 8.0070 - mse: 86.8303 - mape: 33.0640 - val
_loss: 75.3542 - val_mae: 7.6200 - val_mse: 75.3542 - val_mape: 32.5882
Epoch 13/600
8/8 [=====] - 0s 8ms/step - loss: 61.0233 - mae: 6.5265 - mse: 61.0233 - mape: 28.0295 - val
_loss: 54.1293 - val_mae: 6.3171 - val_mse: 54.1293 - val_mape: 27.8488
Epoch 14/600
8/8 [=====] - 0s 8ms/step - loss: 49.9481 - mae: 5.6656 - mse: 49.9481 - mape: 24.9197 - val
_loss: 41.3847 - val_mae: 5.4534 - val_mse: 41.3847 - val_mape: 24.6189
Epoch 15/600
8/8 [=====] - 0s 8ms/step - loss: 36.8301 - mae: 4.9125 - mse: 36.8301 - mape: 22.0064 - val
_loss: 34.4662 - val_mae: 4.9166 - val_mse: 34.4662 - val_mape: 22.6439
Epoch 16/600
8/8 [=====] - 0s 9ms/step - loss: 30.8218 - mae: 4.4688 - mse: 30.8218 - mape: 19.7779 - val
_loss: 29.9434 - val_mae: 4.5249 - val_mse: 29.9434 - val_mape: 20.9232
Epoch 17/600
8/8 [=====] - 0s 8ms/step - loss: 30.4945 - mae: 4.3676 - mse: 30.4945 - mape: 20.3804 - val
_loss: 26.0473 - val_mae: 4.2089 - val_mse: 26.0473 - val_mape: 19.7396
Epoch 18/600
8/8 [=====] - 0s 8ms/step - loss: 22.5835 - mae: 3.7383 - mse: 22.5835 - mape: 17.1194 - val
_loss: 23.0274 - val_mae: 3.9627 - val_mse: 23.0274 - val_mape: 18.5531
Epoch 19/600
8/8 [=====] - 0s 8ms/step - loss: 20.2346 - mae: 3.5694 - mse: 20.2346 - mape: 17.1249 - val

```
_loss: 20.6235 - val_mae: 3.7774 - val_mse: 20.6235 - val_mape: 17.7523
Epoch 20/600
8/8 [=====] - 0s 9ms/step - loss: 19.2700 - mae: 3.4175 - mse: 19.2700 - mape: 16.1000 - val
_loss: 18.5462 - val_mae: 3.5882 - val_mse: 18.5462 - val_mape: 16.7554
Epoch 21/600
8/8 [=====] - 0s 8ms/step - loss: 16.8440 - mae: 3.1309 - mse: 16.8440 - mape: 14.7275 - val
_loss: 16.6165 - val_mae: 3.4135 - val_mse: 16.6165 - val_mape: 16.0149
Epoch 22/600
8/8 [=====] - 0s 8ms/step - loss: 17.5221 - mae: 3.2141 - mse: 17.5221 - mape: 14.6102 - val
_loss: 15.1261 - val_mae: 3.2468 - val_mse: 15.1261 - val_mape: 15.0209
Epoch 23/600
8/8 [=====] - 0s 8ms/step - loss: 13.0194 - mae: 2.7309 - mse: 13.0194 - mape: 12.3569 - val
_loss: 13.7803 - val_mae: 3.0955 - val_mse: 13.7803 - val_mape: 14.3388
Epoch 24/600
8/8 [=====] - 0s 9ms/step - loss: 13.6190 - mae: 2.7731 - mse: 13.6190 - mape: 12.6087 - val
_loss: 13.0150 - val_mae: 2.9979 - val_mse: 13.0150 - val_mape: 13.9226
Epoch 25/600
8/8 [=====] - 0s 8ms/step - loss: 11.8277 - mae: 2.5488 - mse: 11.8277 - mape: 11.8188 - val
_loss: 12.1422 - val_mae: 2.9093 - val_mse: 12.1422 - val_mape: 13.4834
Epoch 26/600
8/8 [=====] - 0s 8ms/step - loss: 12.0923 - mae: 2.6030 - mse: 12.0923 - mape: 11.4733 - val
_loss: 11.4922 - val_mae: 2.7826 - val_mse: 11.4922 - val_mape: 12.7254
Epoch 27/600
8/8 [=====] - 0s 9ms/step - loss: 13.9320 - mae: 2.6742 - mse: 13.9320 - mape: 11.3382 - val
_loss: 11.0464 - val_mae: 2.7256 - val_mse: 11.0464 - val_mape: 12.3441
Epoch 28/600
8/8 [=====] - 0s 9ms/step - loss: 8.4599 - mae: 2.1460 - mse: 8.4599 - mape: 9.7684 - val_lo
ss: 10.7240 - val_mae: 2.6674 - val_mse: 10.7240 - val_mape: 12.1840
Epoch 29/600
8/8 [=====] - 0s 9ms/step - loss: 11.8823 - mae: 2.4838 - mse: 11.8823 - mape: 10.9475 - val
_loss: 10.4182 - val_mae: 2.6003 - val_mse: 10.4182 - val_mape: 11.7833
Epoch 30/600
8/8 [=====] - 0s 9ms/step - loss: 9.5258 - mae: 2.2448 - mse: 9.5258 - mape: 9.7429 - val_lo
ss: 10.1241 - val_mae: 2.5888 - val_mse: 10.1241 - val_mape: 11.6904
Epoch 31/600
8/8 [=====] - 0s 8ms/step - loss: 8.7061 - mae: 2.1417 - mse: 8.7061 - mape: 9.5460 - val_lo
ss: 9.8405 - val_mae: 2.5019 - val_mse: 9.8405 - val_mape: 11.1517
Epoch 32/600
8/8 [=====] - 0s 8ms/step - loss: 9.8975 - mae: 2.3067 - mse: 9.8975 - mape: 10.1411 - val_l
oss: 9.8237 - val_mae: 2.5142 - val_mse: 9.8237 - val_mape: 11.3742
Epoch 33/600
8/8 [=====] - 0s 8ms/step - loss: 10.1494 - mae: 2.3805 - mse: 10.1494 - mape: 10.4657 - val
_loss: 9.5006 - val_mae: 2.4630 - val_mse: 9.5006 - val_mape: 10.8883
Epoch 34/600
8/8 [=====] - 0s 8ms/step - loss: 8.7451 - mae: 2.1832 - mse: 8.7451 - mape: 9.5046 - val_lo
```

ss: 9.3437 - val_mae: 2.4389 - val_mse: 9.3437 - val_mape: 10.7544
Epoch 35/600
8/8 [=====] - 0s 8ms/step - loss: 10.4427 - mae: 2.4344 - mse: 10.4427 - mape: 10.5139 - val_loss: 9.3000 - val_mae: 2.4370 - val_mse: 9.3000 - val_mape: 10.8670
Epoch 36/600
8/8 [=====] - 0s 9ms/step - loss: 9.7601 - mae: 2.3181 - mse: 9.7601 - mape: 10.4220 - val_loss: 9.3559 - val_mae: 2.4352 - val_mse: 9.3559 - val_mape: 11.0272
Epoch 37/600
8/8 [=====] - 0s 9ms/step - loss: 9.2731 - mae: 2.2988 - mse: 9.2731 - mape: 10.2598 - val_loss: 9.1175 - val_mae: 2.4177 - val_mse: 9.1175 - val_mape: 10.7962
Epoch 38/600
8/8 [=====] - 0s 8ms/step - loss: 10.0844 - mae: 2.3716 - mse: 10.0844 - mape: 10.2470 - val_loss: 8.9409 - val_mae: 2.3434 - val_mse: 8.9409 - val_mape: 10.3024
Epoch 39/600
8/8 [=====] - 0s 8ms/step - loss: 8.4733 - mae: 2.1623 - mse: 8.4733 - mape: 9.4442 - val_loss: 8.9405 - val_mae: 2.3993 - val_mse: 8.9405 - val_mape: 10.7622
Epoch 40/600
8/8 [=====] - 0s 8ms/step - loss: 10.2059 - mae: 2.3705 - mse: 10.2059 - mape: 10.3033 - val_loss: 8.8807 - val_mae: 2.3364 - val_mse: 8.8807 - val_mape: 10.4338
Epoch 41/600
8/8 [=====] - 0s 8ms/step - loss: 8.4418 - mae: 2.1325 - mse: 8.4418 - mape: 9.5565 - val_loss: 8.7525 - val_mae: 2.3612 - val_mse: 8.7525 - val_mape: 10.4746
Epoch 42/600
8/8 [=====] - 0s 9ms/step - loss: 8.3394 - mae: 2.1078 - mse: 8.3394 - mape: 8.9208 - val_loss: 8.7605 - val_mae: 2.3069 - val_mse: 8.7605 - val_mape: 10.2345
Epoch 43/600
8/8 [=====] - 0s 9ms/step - loss: 8.4602 - mae: 2.1335 - mse: 8.4602 - mape: 9.3747 - val_loss: 8.6846 - val_mae: 2.2627 - val_mse: 8.6846 - val_mape: 9.8835
Epoch 44/600
8/8 [=====] - 0s 9ms/step - loss: 9.2051 - mae: 2.1383 - mse: 9.2051 - mape: 9.4865 - val_loss: 8.7660 - val_mae: 2.2628 - val_mse: 8.7660 - val_mape: 9.8404
Epoch 45/600
8/8 [=====] - 0s 9ms/step - loss: 9.4491 - mae: 2.3035 - mse: 9.4491 - mape: 9.9448 - val_loss: 8.6032 - val_mae: 2.3351 - val_mse: 8.6032 - val_mape: 10.1666
Epoch 46/600
8/8 [=====] - 0s 9ms/step - loss: 9.3649 - mae: 2.2887 - mse: 9.3649 - mape: 9.8200 - val_loss: 8.4143 - val_mae: 2.2617 - val_mse: 8.4143 - val_mape: 10.0874
Epoch 47/600
8/8 [=====] - 0s 9ms/step - loss: 9.0651 - mae: 2.2132 - mse: 9.0651 - mape: 9.5597 - val_loss: 8.2002 - val_mae: 2.2247 - val_mse: 8.2002 - val_mape: 9.5882
Epoch 48/600
8/8 [=====] - 0s 8ms/step - loss: 8.3300 - mae: 2.0971 - mse: 8.3300 - mape: 9.0659 - val_loss: 8.2418 - val_mae: 2.2502 - val_mse: 8.2418 - val_mape: 9.9845
Epoch 49/600
8/8 [=====] - 0s 8ms/step - loss: 9.7130 - mae: 2.1959 - mse: 9.7130 - mape: 9.2519 - val_loss:

ss: 8.2191 - val_mae: 2.1623 - val_mse: 8.2191 - val_mape: 9.3273
Epoch 50/600
8/8 [=====] - 0s 8ms/step - loss: 7.8304 - mae: 2.0580 - mse: 7.8304 - mape: 8.8220 - val_lo
ss: 8.0568 - val_mae: 2.2266 - val_mse: 8.0568 - val_mape: 9.7460
Epoch 51/600
8/8 [=====] - 0s 9ms/step - loss: 9.3873 - mae: 2.2328 - mse: 9.3873 - mape: 9.5386 - val_lo
ss: 7.9732 - val_mae: 2.2079 - val_mse: 7.9732 - val_mape: 9.6153
Epoch 52/600
8/8 [=====] - 0s 8ms/step - loss: 9.3573 - mae: 2.2212 - mse: 9.3573 - mape: 9.3077 - val_lo
ss: 7.9413 - val_mae: 2.1734 - val_mse: 7.9413 - val_mape: 9.5366
Epoch 53/600
8/8 [=====] - 0s 8ms/step - loss: 8.9988 - mae: 2.1845 - mse: 8.9988 - mape: 9.3547 - val_lo
ss: 7.9638 - val_mae: 2.1479 - val_mse: 7.9638 - val_mape: 9.3865
Epoch 54/600
8/8 [=====] - 0s 8ms/step - loss: 7.7655 - mae: 2.0430 - mse: 7.7655 - mape: 8.4461 - val_lo
ss: 7.8465 - val_mae: 2.1564 - val_mse: 7.8465 - val_mape: 9.4300
Epoch 55/600
8/8 [=====] - 0s 9ms/step - loss: 7.4461 - mae: 2.0535 - mse: 7.4461 - mape: 9.1704 - val_lo
ss: 7.9817 - val_mae: 2.1231 - val_mse: 7.9817 - val_mape: 9.2043
Epoch 56/600
8/8 [=====] - 0s 8ms/step - loss: 7.7875 - mae: 2.0692 - mse: 7.7875 - mape: 9.1298 - val_lo
ss: 7.8680 - val_mae: 2.2013 - val_mse: 7.8680 - val_mape: 9.4927
Epoch 57/600
8/8 [=====] - 0s 9ms/step - loss: 8.0649 - mae: 2.0321 - mse: 8.0649 - mape: 8.8930 - val_lo
ss: 7.8268 - val_mae: 2.0975 - val_mse: 7.8268 - val_mape: 9.1248
Epoch 58/600
8/8 [=====] - 0s 7ms/step - loss: 8.0993 - mae: 2.0783 - mse: 8.0993 - mape: 9.2495 - val_lo
ss: 7.6599 - val_mae: 2.0996 - val_mse: 7.6599 - val_mape: 9.1790
Epoch 59/600
8/8 [=====] - 0s 9ms/step - loss: 8.1611 - mae: 2.0626 - mse: 8.1611 - mape: 9.1735 - val_lo
ss: 7.9055 - val_mae: 2.1249 - val_mse: 7.9055 - val_mape: 9.4080
Epoch 60/600
8/8 [=====] - 0s 9ms/step - loss: 8.9585 - mae: 2.1687 - mse: 8.9585 - mape: 9.3575 - val_lo
ss: 7.4851 - val_mae: 2.1123 - val_mse: 7.4851 - val_mape: 9.1493
Epoch 61/600
8/8 [=====] - 0s 8ms/step - loss: 8.4932 - mae: 2.1035 - mse: 8.4932 - mape: 9.1119 - val_lo
ss: 7.4601 - val_mae: 2.1111 - val_mse: 7.4601 - val_mape: 9.0213
Epoch 62/600
8/8 [=====] - 0s 8ms/step - loss: 9.4573 - mae: 2.2757 - mse: 9.4573 - mape: 9.6620 - val_lo
ss: 7.4347 - val_mae: 2.0806 - val_mse: 7.4347 - val_mape: 9.0074
Epoch 63/600
8/8 [=====] - 0s 8ms/step - loss: 7.6719 - mae: 2.0518 - mse: 7.6719 - mape: 8.8378 - val_lo
ss: 7.5000 - val_mae: 2.1047 - val_mse: 7.5000 - val_mape: 9.2494
Epoch 64/600
8/8 [=====] - 0s 9ms/step - loss: 8.5082 - mae: 2.1290 - mse: 8.5082 - mape: 9.4425 - val_lo

ss: 7.5412 - val_mae: 2.0524 - val_mse: 7.5412 - val_mape: 8.9444
Epoch 65/600
8/8 [=====] - 0s 9ms/step - loss: 7.9013 - mae: 2.0509 - mse: 7.9013 - mape: 8.7013 - val_lo
ss: 7.5192 - val_mae: 2.0338 - val_mse: 7.5192 - val_mape: 8.8168
Epoch 66/600
8/8 [=====] - 0s 9ms/step - loss: 6.8028 - mae: 1.9093 - mse: 6.8028 - mape: 8.2470 - val_lo
ss: 7.3279 - val_mae: 2.0833 - val_mse: 7.3279 - val_mape: 8.8296
Epoch 67/600
8/8 [=====] - 0s 8ms/step - loss: 8.1183 - mae: 2.0083 - mse: 8.1183 - mape: 8.4635 - val_lo
ss: 7.3382 - val_mae: 2.0899 - val_mse: 7.3382 - val_mape: 8.9273
Epoch 68/600
8/8 [=====] - 0s 9ms/step - loss: 6.6250 - mae: 1.8899 - mse: 6.6250 - mape: 8.3388 - val_lo
ss: 7.3826 - val_mae: 2.0152 - val_mse: 7.3826 - val_mape: 8.7062
Epoch 69/600
8/8 [=====] - 0s 8ms/step - loss: 7.1525 - mae: 1.9607 - mse: 7.1525 - mape: 8.9050 - val_lo
ss: 7.3211 - val_mae: 2.0053 - val_mse: 7.3211 - val_mape: 8.6703
Epoch 70/600
8/8 [=====] - 0s 8ms/step - loss: 7.0075 - mae: 1.9230 - mse: 7.0075 - mape: 8.6241 - val_lo
ss: 7.1843 - val_mae: 2.0056 - val_mse: 7.1843 - val_mape: 8.5186
Epoch 71/600
8/8 [=====] - 0s 9ms/step - loss: 6.8131 - mae: 1.9060 - mse: 6.8131 - mape: 8.2412 - val_lo
ss: 7.6095 - val_mae: 2.1322 - val_mse: 7.6095 - val_mape: 8.8968
Epoch 72/600
8/8 [=====] - 0s 8ms/step - loss: 7.0085 - mae: 1.9016 - mse: 7.0085 - mape: 8.1149 - val_lo
ss: 7.0949 - val_mae: 2.0071 - val_mse: 7.0949 - val_mape: 8.6480
Epoch 73/600
8/8 [=====] - 0s 9ms/step - loss: 7.9222 - mae: 2.0626 - mse: 7.9222 - mape: 8.5399 - val_lo
ss: 7.4028 - val_mae: 2.1029 - val_mse: 7.4028 - val_mape: 8.9066
Epoch 74/600
8/8 [=====] - 0s 10ms/step - loss: 7.8738 - mae: 2.0018 - mse: 7.8738 - mape: 8.4690 - val_l
oss: 7.1052 - val_mae: 2.0100 - val_mse: 7.1052 - val_mape: 8.7505
Epoch 75/600
8/8 [=====] - 0s 8ms/step - loss: 7.4016 - mae: 1.9008 - mse: 7.4016 - mape: 8.0189 - val_lo
ss: 7.0109 - val_mae: 1.9836 - val_mse: 7.0109 - val_mape: 8.4764
Epoch 76/600
8/8 [=====] - 0s 8ms/step - loss: 6.9488 - mae: 1.8892 - mse: 6.9488 - mape: 8.0643 - val_lo
ss: 7.1046 - val_mae: 2.0242 - val_mse: 7.1046 - val_mape: 8.7592
Epoch 77/600
8/8 [=====] - 0s 8ms/step - loss: 7.9928 - mae: 2.0231 - mse: 7.9928 - mape: 8.4683 - val_lo
ss: 7.0319 - val_mae: 2.0009 - val_mse: 7.0319 - val_mape: 8.6092
Epoch 78/600
8/8 [=====] - 0s 9ms/step - loss: 7.0115 - mae: 1.9443 - mse: 7.0115 - mape: 8.3907 - val_lo
ss: 6.9765 - val_mae: 2.0118 - val_mse: 6.9765 - val_mape: 8.6735
Epoch 79/600
8/8 [=====] - 0s 9ms/step - loss: 6.4413 - mae: 1.8975 - mse: 6.4413 - mape: 8.1775 - val_lo

ss: 6.9581 - val_mae: 1.9759 - val_mse: 6.9581 - val_mape: 8.4529
Epoch 80/600
8/8 [=====] - 0s 9ms/step - loss: 7.8738 - mae: 1.9897 - mse: 7.8738 - mape: 8.4092 - val_lo
ss: 6.8324 - val_mae: 1.9788 - val_mse: 6.8324 - val_mape: 8.3535
Epoch 81/600
8/8 [=====] - 0s 8ms/step - loss: 6.4924 - mae: 1.8738 - mse: 6.4924 - mape: 8.1216 - val_lo
ss: 7.2372 - val_mae: 1.9750 - val_mse: 7.2372 - val_mape: 8.6664
Epoch 82/600
8/8 [=====] - 0s 9ms/step - loss: 8.0339 - mae: 2.0551 - mse: 8.0339 - mape: 8.9852 - val_lo
ss: 7.3011 - val_mae: 1.9526 - val_mse: 7.3011 - val_mape: 8.3396
Epoch 83/600
8/8 [=====] - 0s 9ms/step - loss: 7.5541 - mae: 2.0048 - mse: 7.5541 - mape: 8.5865 - val_lo
ss: 6.8424 - val_mae: 1.9334 - val_mse: 6.8424 - val_mape: 8.2409
Epoch 84/600
8/8 [=====] - 0s 9ms/step - loss: 6.4456 - mae: 1.8770 - mse: 6.4456 - mape: 8.1039 - val_lo
ss: 7.1240 - val_mae: 1.9878 - val_mse: 7.1240 - val_mape: 8.7527
Epoch 85/600
8/8 [=====] - 0s 9ms/step - loss: 5.7197 - mae: 1.7660 - mse: 5.7197 - mape: 8.0599 - val_lo
ss: 6.8047 - val_mae: 1.9606 - val_mse: 6.8047 - val_mape: 8.3129
Epoch 86/600
8/8 [=====] - 0s 9ms/step - loss: 6.9921 - mae: 1.9067 - mse: 6.9921 - mape: 8.2844 - val_lo
ss: 6.9846 - val_mae: 1.9529 - val_mse: 6.9846 - val_mape: 8.4958
Epoch 87/600
8/8 [=====] - 0s 9ms/step - loss: 7.4080 - mae: 1.9713 - mse: 7.4080 - mape: 8.7477 - val_lo
ss: 6.7571 - val_mae: 1.9010 - val_mse: 6.7571 - val_mape: 7.9578
Epoch 88/600
8/8 [=====] - 0s 8ms/step - loss: 7.1536 - mae: 1.9343 - mse: 7.1536 - mape: 8.2119 - val_lo
ss: 6.6795 - val_mae: 1.9279 - val_mse: 6.6795 - val_mape: 8.1814
Epoch 89/600
8/8 [=====] - 0s 9ms/step - loss: 8.3070 - mae: 2.0677 - mse: 8.3070 - mape: 8.7999 - val_lo
ss: 6.6813 - val_mae: 1.9366 - val_mse: 6.6813 - val_mape: 8.1976
Epoch 90/600
8/8 [=====] - 0s 8ms/step - loss: 7.8735 - mae: 2.0293 - mse: 7.8735 - mape: 8.6672 - val_lo
ss: 6.7520 - val_mae: 1.9658 - val_mse: 6.7520 - val_mape: 8.5074
Epoch 91/600
8/8 [=====] - 0s 8ms/step - loss: 6.4640 - mae: 1.8825 - mse: 6.4640 - mape: 8.0540 - val_lo
ss: 6.7669 - val_mae: 1.9622 - val_mse: 6.7669 - val_mape: 8.5079
Epoch 92/600
8/8 [=====] - 0s 9ms/step - loss: 7.2822 - mae: 1.9302 - mse: 7.2822 - mape: 8.3488 - val_lo
ss: 6.8997 - val_mae: 2.0080 - val_mse: 6.8997 - val_mape: 8.6666
Epoch 93/600
8/8 [=====] - 0s 9ms/step - loss: 6.8278 - mae: 1.9000 - mse: 6.8278 - mape: 8.2955 - val_lo
ss: 6.7944 - val_mae: 1.9624 - val_mse: 6.7944 - val_mape: 8.1785
Epoch 94/600
8/8 [=====] - 0s 10ms/step - loss: 5.8517 - mae: 1.8081 - mse: 5.8517 - mape: 7.7650 - val_l

oss: 6.7691 - val_mae: 1.9038 - val_mse: 6.7691 - val_mape: 7.9620
Epoch 95/600
8/8 [=====] - 0s 8ms/step - loss: 6.1265 - mae: 1.8345 - mse: 6.1265 - mape: 7.8942 - val_loss: 6.9767 - val_mae: 1.9407 - val_mse: 6.9767 - val_mape: 8.4864
Epoch 96/600
8/8 [=====] - 0s 9ms/step - loss: 6.4960 - mae: 1.8750 - mse: 6.4960 - mape: 8.2650 - val_loss: 6.6849 - val_mae: 1.9007 - val_mse: 6.6849 - val_mape: 8.1007
Epoch 97/600
8/8 [=====] - 0s 9ms/step - loss: 7.6131 - mae: 1.9412 - mse: 7.6131 - mape: 8.1804 - val_loss: 6.6164 - val_mae: 1.8726 - val_mse: 6.6164 - val_mape: 7.8892
Epoch 98/600
8/8 [=====] - 0s 9ms/step - loss: 8.0467 - mae: 2.0311 - mse: 8.0467 - mape: 8.4899 - val_loss: 6.6872 - val_mae: 1.8846 - val_mse: 6.6872 - val_mape: 8.0383
Epoch 99/600
8/8 [=====] - 0s 8ms/step - loss: 7.1221 - mae: 1.9432 - mse: 7.1221 - mape: 8.0386 - val_loss: 6.7043 - val_mae: 1.8758 - val_mse: 6.7043 - val_mape: 7.9273
Epoch 100/600
8/8 [=====] - 0s 9ms/step - loss: 6.9803 - mae: 1.8880 - mse: 6.9803 - mape: 7.9802 - val_loss: 6.6542 - val_mae: 1.8720 - val_mse: 6.6542 - val_mape: 7.8925
Epoch 101/600
8/8 [=====] - 0s 8ms/step - loss: 5.8282 - mae: 1.7624 - mse: 5.8282 - mape: 7.7846 - val_loss: 6.5902 - val_mae: 1.8831 - val_mse: 6.5902 - val_mape: 7.9044

.Epoch 102/600
8/8 [=====] - 0s 10ms/step - loss: 7.8145 - mae: 1.9582 - mse: 7.8145 - mape: 8.3541 - val_loss: 6.6841 - val_mae: 1.9246 - val_mse: 6.6841 - val_mape: 8.4109
Epoch 103/600
8/8 [=====] - 0s 9ms/step - loss: 7.9493 - mae: 1.9988 - mse: 7.9493 - mape: 8.4306 - val_loss: 6.8409 - val_mae: 1.8501 - val_mse: 6.8409 - val_mape: 7.7918
Epoch 104/600
8/8 [=====] - 0s 8ms/step - loss: 7.6171 - mae: 1.9497 - mse: 7.6171 - mape: 8.2896 - val_loss: 6.6831 - val_mae: 1.8440 - val_mse: 6.6831 - val_mape: 7.7935
Epoch 105/600
8/8 [=====] - 0s 8ms/step - loss: 8.6017 - mae: 2.0977 - mse: 8.6017 - mape: 8.8375 - val_loss: 6.5704 - val_mae: 1.9130 - val_mse: 6.5704 - val_mape: 8.0321
Epoch 106/600
8/8 [=====] - 0s 9ms/step - loss: 7.2111 - mae: 1.9145 - mse: 7.2111 - mape: 8.4217 - val_loss: 6.5424 - val_mae: 1.8825 - val_mse: 6.5424 - val_mape: 7.9701
Epoch 107/600
8/8 [=====] - 0s 10ms/step - loss: 7.3800 - mae: 1.9107 - mse: 7.3800 - mape: 8.0493 - val_loss: 6.5801 - val_mae: 1.8499 - val_mse: 6.5801 - val_mape: 7.7273
Epoch 108/600
8/8 [=====] - 0s 10ms/step - loss: 5.6537 - mae: 1.7264 - mse: 5.6537 - mape: 7.3691 - val_loss: 6.7749 - val_mae: 1.8790 - val_mse: 6.7749 - val_mape: 8.0570
Epoch 109/600

8/8 [=====] - 0s 8ms/step - loss: 5.7402 - mae: 1.7194 - mse: 5.7402 - mape: 7.4743 - val_loss: 6.5603 - val_mae: 1.8415 - val_mse: 6.5603 - val_mape: 7.7702
Epoch 110/600
8/8 [=====] - 0s 8ms/step - loss: 7.2977 - mae: 1.9203 - mse: 7.2977 - mape: 7.9714 - val_loss: 6.7060 - val_mae: 1.8424 - val_mse: 6.7060 - val_mape: 7.6895
Epoch 111/600
8/8 [=====] - 0s 9ms/step - loss: 6.8497 - mae: 1.8957 - mse: 6.8497 - mape: 8.1289 - val_loss: 6.9439 - val_mae: 1.8499 - val_mse: 6.9439 - val_mape: 7.7134
Epoch 112/600
8/8 [=====] - 0s 9ms/step - loss: 6.5653 - mae: 1.8737 - mse: 6.5653 - mape: 8.1743 - val_loss: 6.6938 - val_mae: 1.8449 - val_mse: 6.6938 - val_mape: 7.8026
Epoch 113/600
8/8 [=====] - 0s 9ms/step - loss: 7.0337 - mae: 1.9778 - mse: 7.0337 - mape: 8.3768 - val_loss: 6.8987 - val_mae: 1.8484 - val_mse: 6.8987 - val_mape: 7.7661
Epoch 114/600
8/8 [=====] - 0s 8ms/step - loss: 6.6759 - mae: 1.9052 - mse: 6.6759 - mape: 8.1266 - val_loss: 6.6298 - val_mae: 1.8873 - val_mse: 6.6298 - val_mape: 8.1490
Epoch 115/600
8/8 [=====] - 0s 9ms/step - loss: 6.0932 - mae: 1.7606 - mse: 6.0932 - mape: 7.8227 - val_loss: 6.4301 - val_mae: 1.8234 - val_mse: 6.4301 - val_mape: 7.5775
Epoch 116/600
8/8 [=====] - 0s 9ms/step - loss: 6.5130 - mae: 1.8221 - mse: 6.5130 - mape: 7.8096 - val_loss: 6.4431 - val_mae: 1.8446 - val_mse: 6.4431 - val_mape: 7.7408
Epoch 117/600
8/8 [=====] - 0s 9ms/step - loss: 7.1157 - mae: 1.8884 - mse: 7.1157 - mape: 8.2888 - val_loss: 6.6562 - val_mae: 1.8356 - val_mse: 6.6562 - val_mape: 7.7477
Epoch 118/600
8/8 [=====] - 0s 8ms/step - loss: 6.5260 - mae: 1.8526 - mse: 6.5260 - mape: 8.0326 - val_loss: 6.4903 - val_mae: 1.8452 - val_mse: 6.4903 - val_mape: 7.7669
Epoch 119/600
8/8 [=====] - 0s 8ms/step - loss: 7.5313 - mae: 1.9583 - mse: 7.5313 - mape: 8.1073 - val_loss: 6.6320 - val_mae: 1.9285 - val_mse: 6.6320 - val_mape: 8.0909
Epoch 120/600
8/8 [=====] - 0s 8ms/step - loss: 8.6103 - mae: 1.9960 - mse: 8.6103 - mape: 8.0209 - val_loss: 6.4494 - val_mae: 1.8612 - val_mse: 6.4494 - val_mape: 7.8396
Epoch 121/600
8/8 [=====] - 0s 9ms/step - loss: 6.6891 - mae: 1.8284 - mse: 6.6891 - mape: 7.6047 - val_loss: 6.4463 - val_mae: 1.8298 - val_mse: 6.4463 - val_mape: 7.6466
Epoch 122/600
8/8 [=====] - 0s 8ms/step - loss: 7.6761 - mae: 2.0104 - mse: 7.6761 - mape: 8.7175 - val_loss: 6.5134 - val_mae: 1.8564 - val_mse: 6.5134 - val_mape: 7.9844
Epoch 123/600
8/8 [=====] - 0s 8ms/step - loss: 6.6445 - mae: 1.8272 - mse: 6.6445 - mape: 7.7616 - val_loss: 6.4726 - val_mae: 1.8651 - val_mse: 6.4726 - val_mape: 7.9764
Epoch 124/600

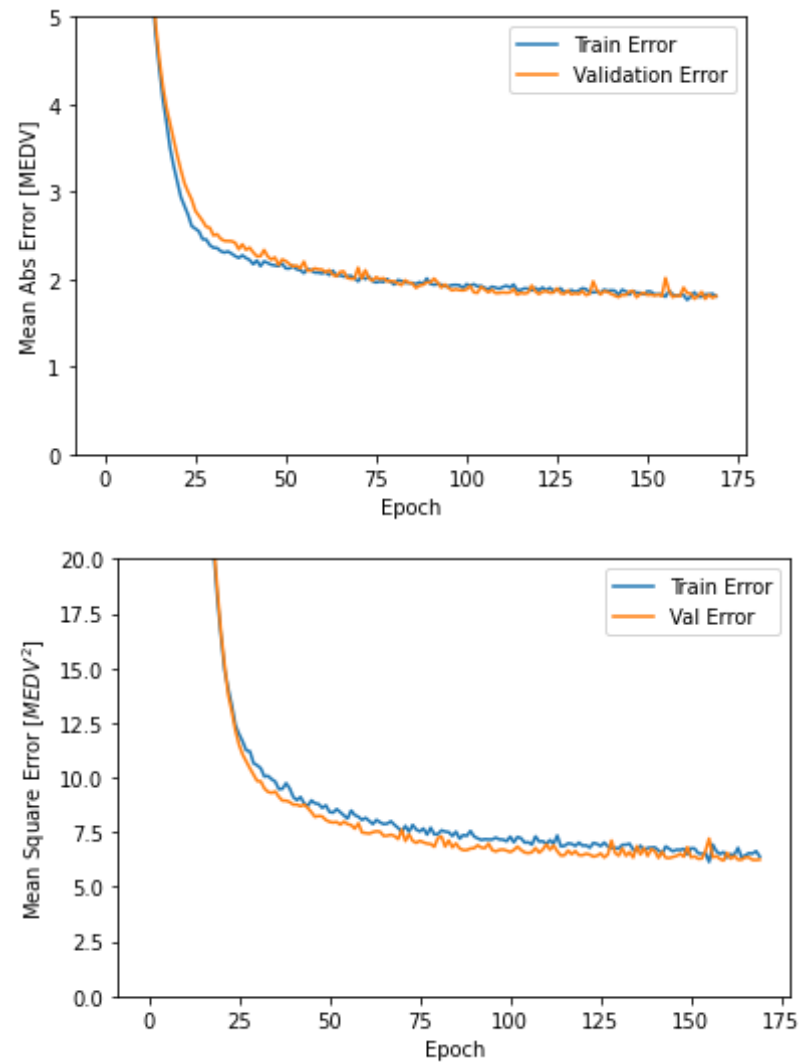
8/8 [=====] - 0s 8ms/step - loss: 7.5949 - mae: 1.9235 - mse: 7.5949 - mape: 8.1794 - val_loss: 6.3804 - val_mae: 1.8448 - val_mse: 6.3804 - val_mape: 7.7286
Epoch 125/600
8/8 [=====] - 0s 9ms/step - loss: 5.5333 - mae: 1.6721 - mse: 5.5333 - mape: 7.3913 - val_loss: 6.4221 - val_mae: 1.8466 - val_mse: 6.4221 - val_mape: 7.7441
Epoch 126/600
8/8 [=====] - 0s 8ms/step - loss: 6.4565 - mae: 1.7540 - mse: 6.4565 - mape: 7.3062 - val_loss: 6.5260 - val_mae: 1.8965 - val_mse: 6.5260 - val_mape: 7.8662
Epoch 127/600
8/8 [=====] - 0s 9ms/step - loss: 7.1771 - mae: 1.8877 - mse: 7.1771 - mape: 7.9786 - val_loss: 6.3443 - val_mae: 1.8405 - val_mse: 6.3443 - val_mape: 7.6445
Epoch 128/600
8/8 [=====] - 0s 8ms/step - loss: 7.6926 - mae: 1.8716 - mse: 7.6926 - mape: 7.8638 - val_loss: 6.4795 - val_mae: 1.8307 - val_mse: 6.4795 - val_mape: 7.7935
Epoch 129/600
8/8 [=====] - 0s 8ms/step - loss: 6.0454 - mae: 1.7768 - mse: 6.0454 - mape: 7.7563 - val_loss: 7.1172 - val_mae: 1.8717 - val_mse: 7.1172 - val_mape: 7.8569
Epoch 130/600
8/8 [=====] - 0s 10ms/step - loss: 6.7425 - mae: 1.8901 - mse: 6.7425 - mape: 8.0092 - val_loss: 6.5490 - val_mae: 1.8270 - val_mse: 6.5490 - val_mape: 7.7005
Epoch 131/600
8/8 [=====] - 0s 10ms/step - loss: 7.4831 - mae: 1.9751 - mse: 7.4831 - mape: 8.5239 - val_loss: 6.4254 - val_mae: 1.8401 - val_mse: 6.4254 - val_mape: 7.8543
Epoch 132/600
8/8 [=====] - 0s 9ms/step - loss: 7.7612 - mae: 1.9783 - mse: 7.7612 - mape: 8.3410 - val_loss: 6.7617 - val_mae: 1.8296 - val_mse: 6.7617 - val_mape: 7.6994
Epoch 133/600
8/8 [=====] - 0s 8ms/step - loss: 6.8901 - mae: 1.8482 - mse: 6.8901 - mape: 7.9623 - val_loss: 6.4153 - val_mae: 1.8660 - val_mse: 6.4153 - val_mape: 7.7684
Epoch 134/600
8/8 [=====] - 0s 9ms/step - loss: 6.8640 - mae: 1.8829 - mse: 6.8640 - mape: 7.8668 - val_loss: 6.5953 - val_mae: 1.8186 - val_mse: 6.5953 - val_mape: 7.6941
Epoch 135/600
8/8 [=====] - 0s 9ms/step - loss: 7.0648 - mae: 1.9319 - mse: 7.0648 - mape: 8.2268 - val_loss: 6.3397 - val_mae: 1.8318 - val_mse: 6.3397 - val_mape: 7.5700
Epoch 136/600
8/8 [=====] - 0s 8ms/step - loss: 6.4379 - mae: 1.8352 - mse: 6.4379 - mape: 7.6679 - val_loss: 6.8569 - val_mae: 1.9754 - val_mse: 6.8569 - val_mape: 8.2998
Epoch 137/600
8/8 [=====] - 0s 9ms/step - loss: 5.8878 - mae: 1.7628 - mse: 5.8878 - mape: 7.4877 - val_loss: 6.4761 - val_mae: 1.8784 - val_mse: 6.4761 - val_mape: 7.8723
Epoch 138/600
8/8 [=====] - 0s 8ms/step - loss: 5.7960 - mae: 1.7615 - mse: 5.7960 - mape: 7.7352 - val_loss: 6.7695 - val_mae: 1.8254 - val_mse: 6.7695 - val_mape: 7.6662
Epoch 139/600

8/8 [=====] - 0s 9ms/step - loss: 7.3166 - mae: 1.9839 - mse: 7.3166 - mape: 8.3489 - val_loss: 6.4116 - val_mae: 1.8625 - val_mse: 6.4116 - val_mape: 7.8634
Epoch 140/600
8/8 [=====] - 0s 9ms/step - loss: 6.6976 - mae: 1.9172 - mse: 6.6976 - mape: 8.0974 - val_loss: 6.7249 - val_mae: 1.8543 - val_mse: 6.7249 - val_mape: 7.9790
Epoch 141/600
8/8 [=====] - 0s 8ms/step - loss: 7.3941 - mae: 1.9237 - mse: 7.3941 - mape: 8.1490 - val_loss: 6.6254 - val_mae: 1.8323 - val_mse: 6.6254 - val_mape: 7.7562
Epoch 142/600
8/8 [=====] - 0s 8ms/step - loss: 7.5013 - mae: 1.9656 - mse: 7.5013 - mape: 8.0720 - val_loss: 6.3197 - val_mae: 1.8146 - val_mse: 6.3197 - val_mape: 7.5162
Epoch 143/600
8/8 [=====] - 0s 8ms/step - loss: 6.6458 - mae: 1.8858 - mse: 6.6458 - mape: 8.0789 - val_loss: 6.6053 - val_mae: 1.7952 - val_mse: 6.6053 - val_mape: 7.4657
Epoch 144/600
8/8 [=====] - 0s 8ms/step - loss: 7.8637 - mae: 2.0005 - mse: 7.8637 - mape: 8.4631 - val_loss: 6.3288 - val_mae: 1.8208 - val_mse: 6.3288 - val_mape: 7.7185
Epoch 145/600
8/8 [=====] - 0s 10ms/step - loss: 6.7179 - mae: 1.8526 - mse: 6.7179 - mape: 7.7417 - val_loss: 6.3170 - val_mae: 1.8182 - val_mse: 6.3170 - val_mape: 7.6004
Epoch 146/600
8/8 [=====] - 0s 9ms/step - loss: 6.8368 - mae: 1.8267 - mse: 6.8368 - mape: 7.3246 - val_loss: 6.3612 - val_mae: 1.8582 - val_mse: 6.3612 - val_mape: 7.7033
Epoch 147/600
8/8 [=====] - 0s 10ms/step - loss: 7.3100 - mae: 1.9516 - mse: 7.3100 - mape: 8.2772 - val_loss: 6.4123 - val_mae: 1.8663 - val_mse: 6.4123 - val_mape: 7.9141
Epoch 148/600
8/8 [=====] - 0s 9ms/step - loss: 7.0533 - mae: 1.8747 - mse: 7.0533 - mape: 7.8305 - val_loss: 6.5084 - val_mae: 1.7939 - val_mse: 6.5084 - val_mape: 7.4376
Epoch 149/600
8/8 [=====] - 0s 9ms/step - loss: 5.4509 - mae: 1.7171 - mse: 5.4509 - mape: 7.5995 - val_loss: 6.3797 - val_mae: 1.8288 - val_mse: 6.3797 - val_mape: 7.7598
Epoch 150/600
8/8 [=====] - 0s 8ms/step - loss: 6.0057 - mae: 1.7548 - mse: 6.0057 - mape: 7.4435 - val_loss: 6.8186 - val_mae: 1.8458 - val_mse: 6.8186 - val_mape: 7.8751
Epoch 151/600
8/8 [=====] - 0s 8ms/step - loss: 6.2125 - mae: 1.8116 - mse: 6.2125 - mape: 7.6676 - val_loss: 6.3466 - val_mae: 1.8196 - val_mse: 6.3466 - val_mape: 7.5798
Epoch 152/600
8/8 [=====] - 0s 9ms/step - loss: 6.5175 - mae: 1.7854 - mse: 6.5175 - mape: 7.4299 - val_loss: 6.3929 - val_mae: 1.8245 - val_mse: 6.3929 - val_mape: 7.6915
Epoch 153/600
8/8 [=====] - 0s 8ms/step - loss: 6.6414 - mae: 1.8900 - mse: 6.6414 - mape: 8.0105 - val_loss: 6.2827 - val_mae: 1.8129 - val_mse: 6.2827 - val_mape: 7.5261
Epoch 154/600

8/8 [=====] - 0s 8ms/step - loss: 6.3911 - mae: 1.8384 - mse: 6.3911 - mape: 7.9613 - val_loss: 6.2930 - val_mae: 1.8252 - val_mse: 6.2930 - val_mape: 7.5584
Epoch 155/600
8/8 [=====] - 0s 9ms/step - loss: 6.7650 - mae: 1.8783 - mse: 6.7650 - mape: 8.1131 - val_loss: 6.6360 - val_mae: 1.8056 - val_mse: 6.6360 - val_mape: 7.5312
Epoch 156/600
8/8 [=====] - 0s 9ms/step - loss: 7.6570 - mae: 1.9481 - mse: 7.6570 - mape: 8.0999 - val_loss: 7.2089 - val_mae: 2.0142 - val_mse: 7.2089 - val_mape: 8.2377
Epoch 157/600
8/8 [=====] - 0s 9ms/step - loss: 8.1495 - mae: 1.9905 - mse: 8.1495 - mape: 8.0487 - val_loss: 6.3483 - val_mae: 1.8662 - val_mse: 6.3483 - val_mape: 8.0083
Epoch 158/600
8/8 [=====] - 0s 8ms/step - loss: 5.1733 - mae: 1.6480 - mse: 5.1733 - mape: 6.9984 - val_loss: 6.4057 - val_mae: 1.7954 - val_mse: 6.4057 - val_mape: 7.5449
Epoch 159/600
8/8 [=====] - 0s 9ms/step - loss: 6.0311 - mae: 1.7647 - mse: 6.0311 - mape: 7.4881 - val_loss: 6.2766 - val_mae: 1.8148 - val_mse: 6.2766 - val_mape: 7.5669
Epoch 160/600
8/8 [=====] - 0s 11ms/step - loss: 6.3733 - mae: 1.7809 - mse: 6.3733 - mape: 7.6354 - val_loss: 6.2028 - val_mae: 1.8052 - val_mse: 6.2028 - val_mape: 7.6213
Epoch 161/600
8/8 [=====] - 0s 8ms/step - loss: 6.8946 - mae: 1.8440 - mse: 6.8946 - mape: 7.5753 - val_loss: 6.5603 - val_mae: 1.9048 - val_mse: 6.5603 - val_mape: 7.8776
Epoch 162/600
8/8 [=====] - 0s 8ms/step - loss: 7.7826 - mae: 1.8815 - mse: 7.7826 - mape: 7.7243 - val_loss: 6.2819 - val_mae: 1.8418 - val_mse: 6.2819 - val_mape: 7.6829
Epoch 163/600
8/8 [=====] - 0s 8ms/step - loss: 6.3843 - mae: 1.7779 - mse: 6.3843 - mape: 7.6678 - val_loss: 6.4117 - val_mae: 1.8358 - val_mse: 6.4117 - val_mape: 8.0020
Epoch 164/600
8/8 [=====] - 0s 9ms/step - loss: 6.6913 - mae: 1.9060 - mse: 6.6913 - mape: 8.2088 - val_loss: 6.2417 - val_mae: 1.7758 - val_mse: 6.2417 - val_mape: 7.4719
Epoch 165/600
8/8 [=====] - 0s 9ms/step - loss: 5.7053 - mae: 1.7061 - mse: 5.7053 - mape: 7.3933 - val_loss: 6.2414 - val_mae: 1.8100 - val_mse: 6.2414 - val_mape: 7.6592
Epoch 166/600
8/8 [=====] - 0s 8ms/step - loss: 6.9099 - mae: 1.8201 - mse: 6.9099 - mape: 7.6530 - val_loss: 6.3484 - val_mae: 1.8550 - val_mse: 6.3484 - val_mape: 7.6999
Epoch 167/600
8/8 [=====] - 0s 8ms/step - loss: 6.1753 - mae: 1.8027 - mse: 6.1753 - mape: 7.7650 - val_loss: 6.3490 - val_mae: 1.7750 - val_mse: 6.3490 - val_mape: 7.3490
Epoch 168/600
8/8 [=====] - 0s 9ms/step - loss: 6.2230 - mae: 1.8454 - mse: 6.2230 - mape: 7.7459 - val_loss: 6.2334 - val_mae: 1.8250 - val_mse: 6.2334 - val_mape: 7.6024
Epoch 169/600

```
8/8 [=====] - 0s 8ms/step - loss: 6.3152 - mae: 1.7944 - mse: 6.3152 - mape: 7.6323 - val_loss: 6.2286 - val_mae: 1.7869 - val_mse: 6.2286 - val_mape: 7.4424  
Epoch 170/600  
8/8 [=====] - 0s 8ms/step - loss: 5.9807 - mae: 1.7060 - mse: 5.9807 - mape: 7.3133 - val_loss: 6.2455 - val_mae: 1.8093 - val_mse: 6.2455 - val_mape: 7.5510
```

```
In [71]: plot_history(history)
```



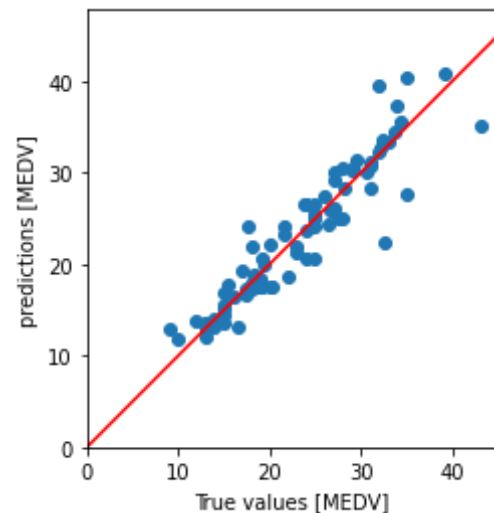
```
In [72]: mse = model.evaluate(normed_test_data, test_labels, verbose =0)
print("Testing set mean abs Error: ", mse)
```

Testing set mean abs Error: [7.518109321594238, 1.9162582159042358, 7.518109321594238, 8.456174850463867]

```
In [73]: # make predictions

test_predictions = model.predict(normed_test_data).flatten()
train_predictions = model.predict(normed_train_data).flatten()

plt.scatter(test_labels, test_predictions)
plt.xlabel('True values [MEDV]')
plt.ylabel('predictions [MEDV]')
plt.axis('equal')
plt.axis('square')
plt.xlim([0,plt.xlim()[1]])
plt.ylim([0,plt.ylim()[1]])
plt.plot([-100,100], [-100,100], color = 'red')
plt.show()
```



most of the data points are along the best fit line

In [67]: