```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
                                                                              In [2]:
data=pd.read excel("/content/Crude Oil Prices Daily.xlsx")
                                                                              In [3]:
data.isnull().any()
                                                                             Out[3]:
Date
                 False
Closing Value
                 True
dtype: bool
                                                                              In [4]:
data.isnull().sum()
                                                                            Out[4]:
Date
                  0
Closing Value
                  7
dtype: int64
                                                                              In [5]:
data.dropna(axis=0,inplace=True)
                                                                              In [6]:
data.isnull().sum()
                                                                            Out[6]:
Date
                  0
Closing Value
dtype: int64
                                                                              In [7]:
data oil=data.reset index()['Closing Value']
data oil
                                                                            Out[7]:
        25.56
1
        26.00
        26.53
2
3
        25.85
        25.87
        . . .
8211
      73.89
8212
       74.19
8213
        73.05
8214
       73.78
      73.93
8215
Name: Closing Value, Length: 8216, dtype: float64
                                                                              In [8]:
from sklearn.preprocessing import MinMaxScaler
scaler=MinMaxScaler(feature range=(0,1))
data oil=scaler.fit transform(np.array(data oil).reshape(-1,1))
                                                                              In [9]:
data oil
```

```
Out[9]:
array([[0.11335703],
       [0.11661484],
       [0.12053902],
       [0.46497853],
        [0.47038353],
       [0.47149415]])
                                                                               In [10]:
plt.plot(data oil)
                                                                              Out[10]:
[]
 1.0
 0.8
 0.6
 0.4
 0.2
 0.0
                   2000
                                 4000
                                              6000
                                                            8000
                                                                               In [11]:
training_size=int(len(data_oil)*0.65)
test_size=len(data_oil)-training_size
train_data,test_data=data_oil[0:training_size,:],data_oil[training_size:len(d
ata oil),:1]
                                                                               In [12]:
training_size,test_size
                                                                              Out[12]:
(5340, 2876)
                                                                               In [13]:
train data.shape
                                                                              Out[13]:
(5340, 1)
                                                                               In [14]:
def create dataset(dataset, time step=1):
  dataX, dataY=[],[]
  for i in range(len(dataset)-time_step-1):
```

```
a=dataset[i:(i+time step),0]
    dataX.append(a)
    dataY.append(dataset[i+time step,0])
  return np.array(dataX), np.array(dataY)
                                                                            In [15]:
time step=10
x train, y train=create dataset(train data, time step)
x test, y test=create dataset(test data, time step)
                                                                            In [16]:
print(x train.shape),print(y train.shape)
(5329, 10)
(5329,)
                                                                           Out[16]:
(None, None)
                                                                            In [17]:
print(x test.shape),print(y test.shape)
(2865, 10)
(2865,)
                                                                           Out[17]:
(None, None)
                                                                            In [18]:
x train
                                                                           Out[18]:
array([[0.11335703, 0.11661484, 0.12053902, ..., 0.10980305, 0.1089886,
        0.11054346],
       [0.11661484, 0.12053902, 0.11550422, ..., 0.1089886, 0.11054346,
        0.10165852],
       [0.12053902, 0.11550422, 0.1156523, ..., 0.11054346, 0.10165852,
        0.09906708],
       [0.36731823, 0.35176958, 0.36080261, ..., 0.36391234, 0.37042796,
        0.37042796],
       [0.35176958, 0.36080261, 0.35354657, \ldots, 0.37042796, 0.37042796,
        0.37879461],
       [0.36080261, 0.35354657, 0.35295424, \ldots, 0.37042796, 0.37879461,
        0.3791648211)
                                                                            In [19]:
x train=x train.reshape(x train.shape[0],x train.shape[1],1)
x test=x test.reshape(x test.shape[0],x test.shape[1],1)
```