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In [1]: 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             0
dtype: int64

In [7]: data_oil=data.reset_index()['Closing Value']
data_oil

Out[7]: 0      25.56
1      26.00

```

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Out[7]: 0      25.56
1      26.00
2      26.53
3      25.85
4      25.87
...
8211    73.89
8212    74.19
8213    73.05
8214    73.78
8215    73.93
Name: Closing Value, Length: 8216, dtype: float64

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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],
 [0.47036353],
 [0.47149415]])

```

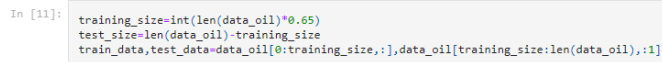
```

In [10]: plt.plot(data_oil)

```



Out[10]: []



Out[12]: (5340, 2876)

```
Out[13]: (5340, 1)
```

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IBM
IBM-Project-4182-1658723214/IBM-Project-4182-1658723214/blob/main/Model%20Building/Initializing_the_Model.ipynb
github.com/IBM-EPBL/IBM-Project-4182-1658723214/blob/main/Model%20Building/Initializing_the_Model.ipynb
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],
                 ...,
                 ...])
```

IBM Project-4182-1658723214/

github.com/IBM-EPBL/IBM-Project-4182-1658723214/blob/main/Model%20Building/Initializing\_the\_Model.ipynb

```
(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, ..., 0.37042796, 0.37042796,
0.37879461],
[0.36080261, 0.35354657, 0.35295424, ..., 0.37042796, 0.37879461,
0.37916482]])

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)

In [20]: from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense
from tensorflow.keras.layers import LSTM

In [22]: model=Sequential()
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12-Nov-22