SPRINT 1

DATE	8 NOVEMBER 2022
TEAM ID	PNT2022TMID10129
PROJECT TITLE	CRUDE OIL PRICE PREDICTION

```
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
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
```

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]:

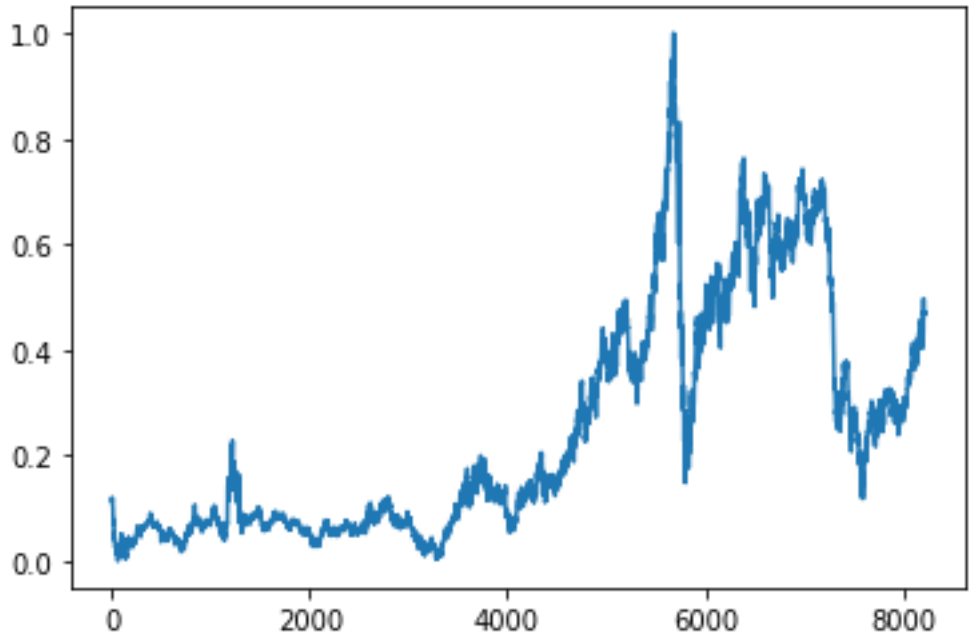
```
array([[0.11335703],       [0.11661484],
       [0.12053902],
       ...,
       [0.46497853],
       [0.47038353],
       [0.47149415]])
```

In [10]:

```
plt.plot(data_oil)
```

Out[10]:

```
[]
```



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(data_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, ..., 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)
```