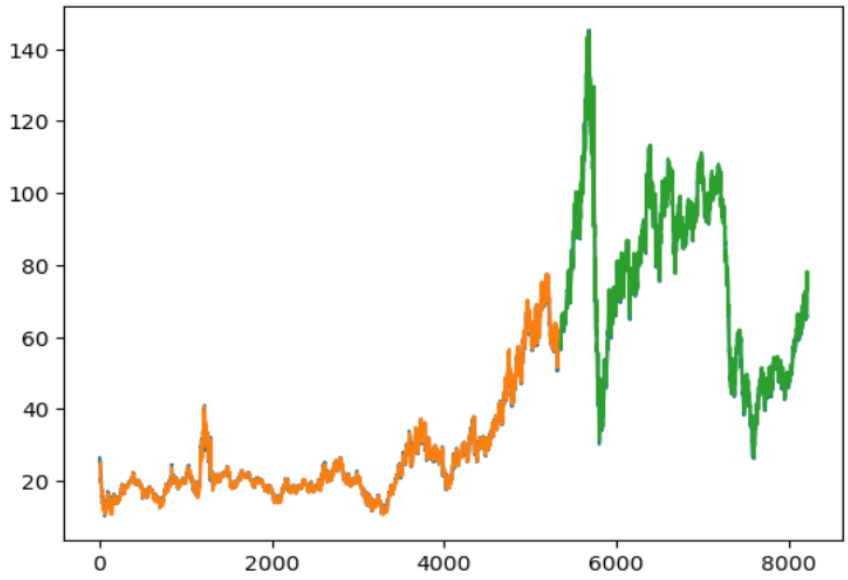
MODEL BUILDING

SAVE THE MODEL

Team ID	PNT2022TMID13501
Project Name	Crude Oil Price Prediction

Test The Model

```
#test the data
look_back=10
trainpredictplot=np.empty_like(data_oil)
trainpredictplot[:, :]=np.nan
trainpredictplot[look_back:len(train_predict)+look_back, :]=train_predict
testpredictplot=np.empty_like(data_oil)
testpredictplot[:, :]=np.nan
testpredictplot[len(train_predict)+(look_back*2)+1:len(data_oil)-1, :]=test_predict
plt.plot(scaler.inverse_transform(data_oil))
plt.plot(trainpredictplot)
plt.plot(testpredictplot)
plt.show()
```



```
len(test_data)
```

```
2876
```

```
x_input=test_data[2866:].reshape(1,-1)
x_input.shape
```

```
(1, 10)
```

```
temp_input=list(x_input)
temp_input=temp_input[0].tolist()
```

```
temp_input
```

```
[0.44172960165852215,
 0.48111950244335855,
 0.49726047682511476,
 0.4679401747371539,
 0.4729749740855915,
 0.47119798608026064,
 0.47341922108692425,
 0.4649785280616022,
 0.4703835332444839,
 0.47149415074781587]
```

```
lst_output=[]
n_steps=10
i=0
while (i<10):
    if(len(temp_input)>10):
        x_input=np.array(temp_input[1:])
        print("{} day input {}".format(i,x_input))
        x_input=x_input.reshape(1,-1)
        x_input=x_input.reshape(1,n_steps,1)
        yhat=model.predict(x_input,verbose=0)
        print("{} day output {}".format(i,yhat))
        temp_input.extend(yhat[0].tolist())
        temp_input=temp_input[1:]
        lst_output.extend(yhat.tolist())
        i=i+1
    else:
        x_input=x_input.reshape((1,n_steps,1))
        yhat=model.predict(x_input,verbose=0)
        print(yhat[0])
        temp_input.extend(yhat[0].tolist())
        print(len(temp_input))
        lst_output.extend(yhat.tolist())
        i=i+1
```

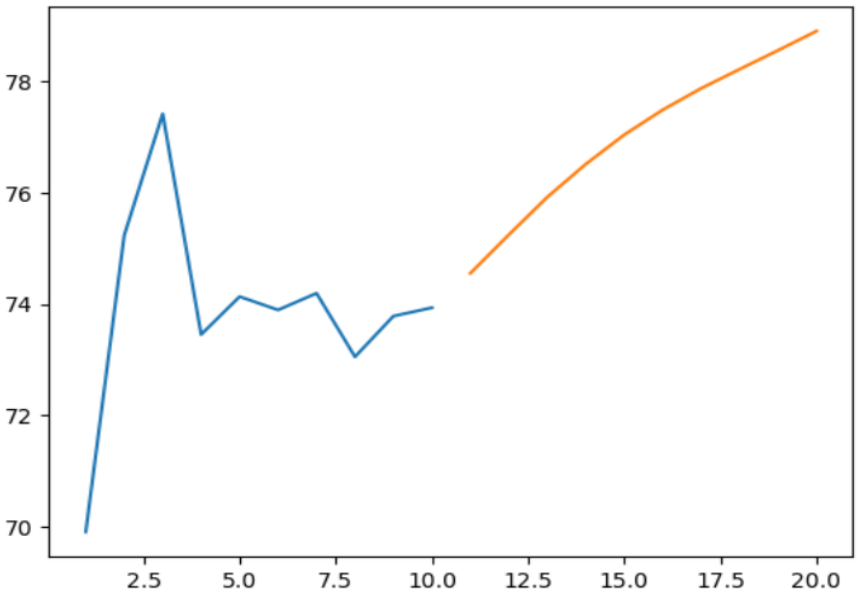
```
[0.47607496]
11
1 day input [0.4811195  0.49726048 0.46794017 0.47297497 0.47119799 0.47341922
 0.46497853 0.47038353 0.47149415 0.47607496]
1 day output [[0.48119003]]
2 day input [0.49726048 0.46794017 0.47297497 0.47119799 0.47341922 0.46497853
 0.47038353 0.47149415 0.47607496 0.48119003]
2 day output [[0.4861873]]
3 day input [0.46794017 0.47297497 0.47119799 0.47341922 0.46497853 0.47038353
 0.47149415 0.47607496 0.48119003 0.48618731]
3 day output [[0.49056533]]
4 day input [0.47297497 0.47119799 0.47341922 0.46497853 0.47038353 0.47149415
 0.47607496 0.48119003 0.48618731 0.49056533]
4 day output [[0.49446633]]
5 day input [0.47119799 0.47341922 0.46497853 0.47038353 0.47149415 0.47607496
```

```
 0.48119003 0.48618731 0.49056533 0.49446633]
5 day output [[0.49777645]]
6 day input [0.47341922 0.46497853 0.47038353 0.47149415 0.47607496 0.48119003
 0.48618731 0.49056533 0.49446633 0.49777645]
6 day output [[0.5006322]]
7 day input [0.46497853 0.47038353 0.47149415 0.47607496 0.48119003 0.48618731
 0.49056533 0.49446633 0.49777645 0.50063223]
7 day output [[0.50317526]]
8 day input [0.47038353 0.47149415 0.47607496 0.48119003 0.48618731 0.49056533
 0.49446633 0.49777645 0.50063223 0.50317526]
8 day output [[0.5056825]]
9 day input [0.47149415 0.47607496 0.48119003 0.48618731 0.49056533 0.49446633
 0.49777645 0.50063223 0.50317526 0.50568253]
9 day output [[0.50824463]]
```

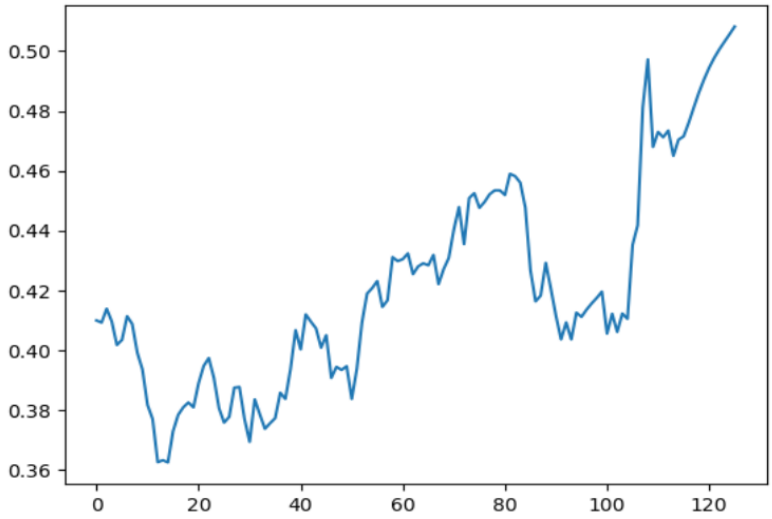
```
day_new=np.arange(1,11)
day_pred=np.arange(11,21)
len(data_oil)
```

```
8216
```

```
plt.plot(day_new,scaler.inverse_transform(data_oil[8206:]))
plt.plot(day_pred,scaler.inverse_transform(lst_output))
```




```
df3=data_oil.tolist()
df3.extend(lst_output)
plt.plot(df3[8100:])
```




```
df3=scaler.inverse_transform(df3).tolist()
```

```
plt.plot(df3)
```