BITCOIN PRICE PREDICTION

In [3]:
```
import numpy as np
import pandas as pd
from matplotlib import pyplot as plt
import warnings
warnings.filterwarnings('ignore')
df=pd.read_csv('BitcoinPrice (3).csv')
```

In [18]:
```
df.head(30)
```

Out[18]:

	Price	Prediction
0	6719.429231	6639.304167
1	6673.274167	6412.459167
2	6719.266154	6468.631667
3	7000.040000	6535.476667
4	7054.276429	6677.342500
5	6932.662500	6550.474167
6	6981.946154	6593.135000
7	7100.946667	6590.968333
8	7247.935385	6562.641667
9	7260.949231	6470.402500
10	7326.852500	6563.628333
11	7113.069231	6568.549167
12	6433.271667	6581.486667
13	6444.804167	6558.537500
14	6366.107500	6618.567692
15	6286.425833	6621.711667
16	6297.877692	6563.009167
17	6296.320833	6248.635833
18	6273.137500	6260.530833
19	6450.179231	6260.645833
20	6499.062500	6299.399167
21	6518.655000	6452.571667
22	6480.644167	6596.618333
23	6400.600833	6596.276154
24	6296.631667	6568.040769
25	6335.826667	6487.444167
26	6418.562667	6488.825833
27	6669.990833	6531.601667
28	6709.312500	6498.485833
29	6710.445000	6481.426000

In [17]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 365 entries, 0 to 364
Data columns (total 2 columns):
 #   Column      Non-Null Count  Dtype  
---  ------      --------------  -----  
 0   Price       365 non-null    float64
 1   Prediction  335 non-null    float64
dtypes: float64(2)
memory usage: 5.8 KB
```

In [6]:
```
df.drop(['Date'],1,inplace=True)
```

In [7]:
```
df.head()
```

Out[7]:

	Price
0	6719.429231
1	6673.274167
2	6719.266154
3	7000.040000
4	7054.276429

In [9]:
```
#predecting 30 days in future
```

In [10]:
```
p_days=30
df['Prediction']=df[['Price']].shift(-p_days)
```

In [11]:
```
df.head()
```

Out[11]:

	Price	Prediction
0	6719.429231	6639.304167
1	6673.274167	6412.459167
2	6719.266154	6468.631667
3	7000.040000	6535.476667
4	7054.276429	6677.342500

In [12]:
```
#seperate X and Y
```

In [13]:
```
X=np.array(df.drop(['Prediction'],1))
X=X[: len(df)- p_days]
```

In [15]:
```
X.shape
```

Out[15]:
```
(335, 1)
```

In [19]:
```
X
```

Out[19]:
```
array([[ 6719.42923077],
       [ 6673.27416667],
       [ 6719.26615385],
       [ 7000.04      ],
       [ 7054.27642857],
       [ 6932.6625    ],
       [ 6981.94615385],
       [ 7100.94666667],
       [ 7247.93538462],
       [ 7260.94923077],
       [ 7326.8525    ],
       [ 7113.06923077],
       [ 6433.27166667],
       [ 6444.80416667],
       [ 6366.1075    ],
       [ 6286.42583333],
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       [ 6478.0825    ],
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```

```
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       [10438.55416667],
       [10300.41166667],
       [ 9584.47583333],
       [10092.75166667],
       [10455.73      ],
       [10685.415     ],
       [10569.305     ],
       [10449.62666667],
       [10044.11333333],
       [ 9708.43583333],
       [10021.325     ]])
```

In [20]:
```
Y=np.array(df['Prediction'])
Y=Y[: -p_days]
```

In [21]:
```
Y.shape
```

Out[21]:
```
(335,)
```

In [24]:
```
from sklearn.model_selection  import train_test_split
X_train,X_test,Y_train,Y_test=train_test_split(X,Y,test_size=0.2,random_state=0)
```

In [25]:
```
P_days=np.array(df.drop(['Prediction'], 1))[-p_days :]
```

In [26]:
```
print(P_days)
```

```
[[ 9774.2575    ]
 [ 9725.4025    ]
 [ 9500.32416667]
 [ 9533.97933333]
 [ 9539.7125    ]
 [ 9873.81166667]
 [10088.8       ]
 [10478.90166667]
 [10790.63      ]
 [10826.275     ]
 [11713.16166667]
 [11759.01916667]
 [11703.73833333]
 [11803.88833333]
 [11816.9125    ]
 [11586.1725    ]
 [11377.80416667]
 [11397.80166667]
 [11144.38916667]
 [10450.81333333]
 [ 9988.9475    ]
 [10230.73333333]
 [10292.38333333]
 [10295.1175    ]
 [10605.82583333]
 [10746.50769231]
 [10169.09416667]
 [10030.74666667]
 [10255.9775    ]
 [10158.54083333]]
```

In [27]:
```
from sklearn.ensemble import RandomForestRegressor
```

In [28]:
```
Rf=RandomForestRegressor(n_estimators=1000, random_state=1)
```

In [29]:
```
Rf.fit(X_train,Y_train)
```

Out[29]:
```
RandomForestRegressor(n_estimators=1000, random_state=1)
```

In [31]:
```
print('Radom Forest Accuracy : {:.2f}%'.format(Rf.score(X_test,Y_test)*100))
```

```
Radom Forest Accuracy : 84.53%
```

In [32]:
```
#Prediction
```

In [33]:
```
Rf_PRed=Rf.predict(X_test)
```

In [34]:
```
print(Rf_PRed)
```

```
[ 3844.058445    3923.5143091   6536.58352032  5959.82303
  5025.86863192  8085.50636667  3662.20728     5560.70569
  6001.13330583 10891.82484833  3911.76156821  3844.526985
  6160.18134631  5893.25138988  5737.54435167  6386.4478975
  5782.8498175   7758.12254     3907.60712917  6383.97400179
  5687.44677436  5706.72989936 11550.46549367 10135.98147667
 10665.44429167  3824.90168833 11510.51017308  6311.47972917
  3801.28956     4665.94873667  3753.89245595  4056.96289417
  3787.18549481  6449.77226942 10305.86579     5223.99551167
  4119.399035    6170.70919833 10349.52911     3832.80111956
  4958.93275667  4485.12562833 11215.55460083  9796.44834135
  3834.90215962  8070.33645667  3692.56820128 11945.70010891
  3752.2379044   6733.90481583  6586.05458     5287.27678167
  5976.94604     4119.399035   11542.96928564  3974.371385
  4767.07265917  5226.58925083  4344.88050333 10937.3174575
  4091.10726872  4767.42452417  4487.34097737  8031.63353
  4667.41504083  4128.4111625   6563.64172949]
```

In [38]:
```
Rf_PRed_30=Rf.predict(P_days)
print(Rf_PRed)
```

```
[ 3844.058445    3923.5143091   6536.58352032  5959.82303
  5025.86863192  8085.50636667  3662.20728     5560.70569
  6001.13330583 10891.82484833  3911.76156821  3844.526985
  6160.18134631  5893.25138988  5737.54435167  6386.4478975
  5782.8498175   7758.12254     3907.60712917  6383.97400179
  5687.44677436  5706.72989936 11550.46549367 10135.98147667
 10665.44429167  3824.90168833 11510.51017308  6311.47972917
  3801.28956     4665.94873667  3753.89245595  4056.96289417
  3787.18549481  6449.77226942 10305.86579     5223.99551167
  4119.399035    6170.70919833 10349.52911     3832.80111956
  4958.93275667  4485.12562833 11215.55460083  9796.44834135
  3834.90215962  8070.33645667  3692.56820128 11945.70010891
  3752.2379044   6733.90481583  6586.05458     5287.27678167
  5976.94604     4119.399035   11542.96928564  3974.371385
  4767.07265917  5226.58925083  4344.88050333 10937.3174575
  4091.10726872  4767.42452417  4487.34097737  8031.63353
  4667.41504083  4128.4111625   6563.64172949]
```

In [39]:
```
print(Y_test)
```

```
[ 3919.56583333  3426.19        6621.71166667  5633.7475
  5042.51769231  7848.41583333  3896.71833333  4309.3375
  3405.64333333 11342.3175      3868.4875      5606.04416667
  6310.28416667  5615.18        3751.66833333  5558.24333333
  4116.7775      5863.52333333  3948.41166667  6401.93666667
  3528.80333333  6488.82583333  9774.2575     10158.54083333
 11560.6025      5310.17333333 11779.45083333  7152.48416667
  3634.77        3498.86833333  3881.37923077  3865.7975
  3888.70166667  3278.37416667 11759.01916667  3558.92416667
  4548.7975      3920.53666667 10230.73333333  3468.305
  5251.19        3822.62666667 11886.88615385  9791.0175
  3827.69083333  8342.77        3452.32833333 12668.62916667
  4008.65833333  6590.96833333  6593.135       4263.78333333
  5718.22916667  6596.61833333 11118.8875      5303.9425
  3832.92166667  6452.57166667  3867.13833333 11834.12416667
  4103.45384615  5277.88333333  3589.26083333  7756.9575
  6581.48666667  3458.06666667  6248.63583333]
```

In [42]:
```
df.head(30)
```

Out[42]:

	Price	Prediction
0	6719.429231	6639.304167
1	6673.274167	6412.459167
2	6719.266154	6468.631667
3	7000.040000	6535.476667
4	7054.276429	6677.342500
5	6932.662500	6550.474167
6	6981.946154	6593.135000
7	7100.946667	6590.968333
8	7247.935385	6562.641667
9	7260.949231	6470.402500
10	7326.852500	6563.628333
11	7113.069231	6568.549167
12	6433.271667	6581.486667
13	6444.804167	6558.537500
14	6366.107500	6618.567692
15	6286.425833	6621.711667
16	6297.877692	6563.009167
17	6296.320833	6248.635833
18	6273.137500	6260.530833
19	6450.179231	6260.645833
20	6499.062500	6299.399167
21	6518.655000	6452.571667
22	6480.644167	6596.618333
23	6400.600833	6596.276154
24	6296.631667	6568.040769
25	6335.826667	6487.444167
26	6418.562667	6488.825833
27	6669.990833	6531.601667
28	6709.312500	6498.485833
29	6710.445000	6481.426000
30	6639.304167	6508.310000
31	6412.459167	6478.082500
32	6468.631667	6473.753333
33	6535.476667	6465.917500
34	6677.342500	6448.221667

In [ ]: