```
import pandas as pd
import numpy as np
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt
```

```
df=pd.read_csv('/content/drive/MyDrive/BTC-USD.csv',parse_dates=['Date'],index_col='Date')
```

```
df.head()
```

	Open	High	Low	Close	Adj Close	Volume	Timestamp
Date							
2014-09-17	465.864014	468.174011	452.421997	457.334015	457.334015	21056800.0	1.410912e+09
2014-09-18	456.859985	456.859985	413.104004	424.440002	424.440002	34483200.0	1.410998e+09
2014-09-19	424.102997	427.834991	384.532013	394.795990	394.795990	37919700.0	1.411085e+09
2014-09-20	394.673004	423.295990	389.882996	408.903992	408.903992	36863600.0	1.411171e+09
2014-09-21	408.084991	412.425995	393.181000	398.821014	398.821014	26580100.0	1.411258e+09

```
df.tail()
```

	Open	High	Low	Close	Adj Close	Volume	Timestamp
Date							
2022-03-21	41246.13281	41454.41016	40668.04297	41077.99609	41077.99609	2.461554e+10	1.647821e+09
2022-03-22	41074.10547	43124.70703	40948.28125	42358.80859	42358.80859	3.200465e+10	1.647907e+09
2022-03-23	42364.37891	42893.50781	41877.50781	42892.95703	42892.95703	2.524294e+10	1.647994e+09
2022-03-24	42886.65234	44131.85547	42726.16406	43960.93359	43960.93359	3.104299e+10	1.648080e+09
2022-03-25	43958.67578	44982.51953	43711.87109	44395.96484	44395.96484	3.037942e+10	1.648166e+09

```
df.drop(['Volume','Adj Close'],axis=1,inplace=True)
```

```
df.shape
```

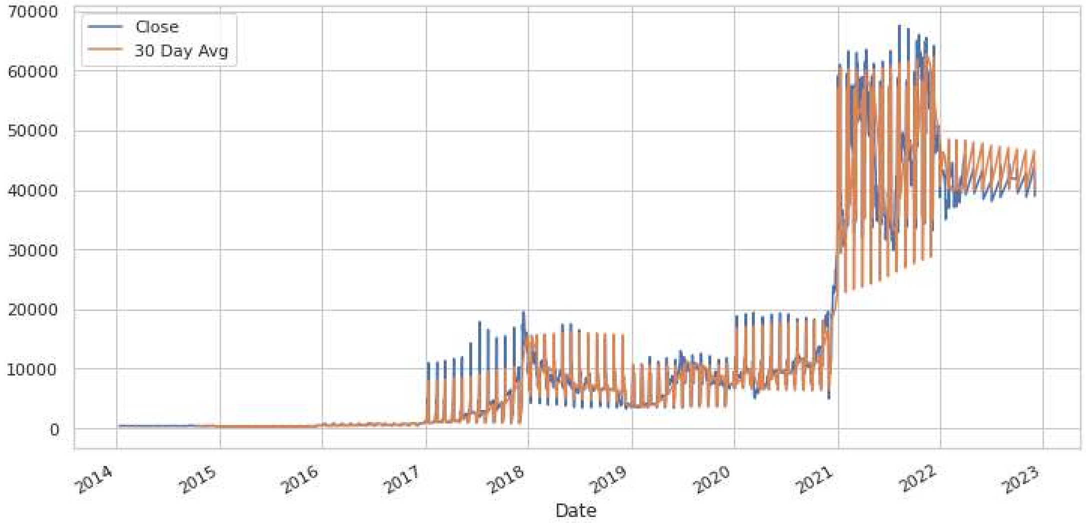
```
(2747, 5)
```

```
df.tail()
```

	Open	High	Low	Close	Timestamp
Date					
2022-03-21	41246.13281	41454.41016	40668.04297	41077.99609	1.647821e+09
2022-03-22	41074.10547	43124.70703	40948.28125	42358.80859	1.647907e+09
2022-03-23	42364.37891	42893.50781	41877.50781	42892.95703	1.647994e+09
2022-03-24	42886.65234	44131.85547	42726.16406	43960.93359	1.648080e+09
2022-03-25	43958.67578	44982.51953	43711.87109	44395.96484	1.648166e+09

```
sns.set()
sns.set_style('whitegrid')
df['Close'].plot(figsize=(12,6),label='Close')
df['Close'].rolling(window=30).mean().plot(label='30 Day Avg')# Plotting the
#rolling 30 day average against the Close Price
plt.legend()
```

```
<matplotlib.legend.Legend at 0x7f245f6ae050>
```



```
df['Average'] = (df['Open'] + df['High'] + df['Low'] + df['Close']) / 4
```

```
df.head()
```

	Open	High	Low	Close	Timestamp	Average
Date						
2014-09-17	465.864014	468.174011	452.421997	457.334015	1.410912e+09	460.948509
2014-09-18	456.859985	456.859985	413.104004	424.440002	1.410998e+09	437.815994
2014-09-19	424.102997	427.834991	384.532013	394.795990	1.411085e+09	407.816498
2014-09-20	394.673004	423.295990	389.882996	408.903992	1.411171e+09	404.188996
2014-09-21	408.084991	412.425995	393.181000	398.821014	1.411258e+09	403.128250

```
df['Prediction']=df[['Close']].shift(-30)
```

```
df.head()
```

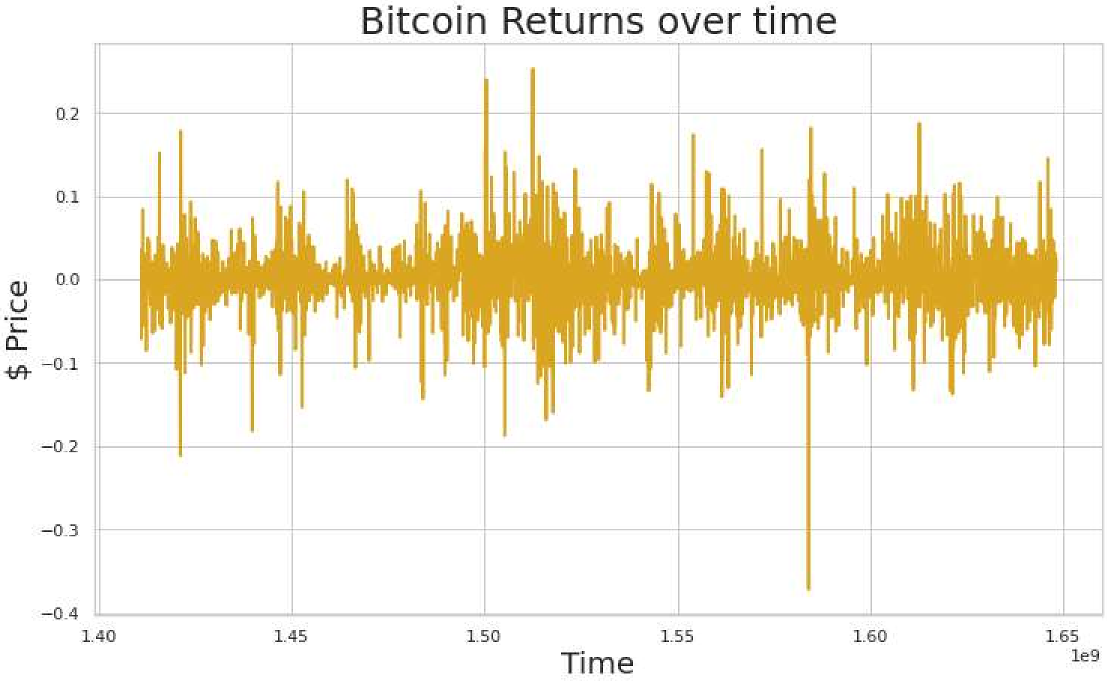
	Open	High	Low	Close	Timestamp	Average	Prediction	Returns
Date								
2014-09-17	465.864014	468.174011	452.421997	457.334015	1.410912e+09	460.948509	383.757996	NaN
2014-09-18	456.859985	456.859985	413.104004	424.440002	1.410998e+09	437.815994	391.441986	-0.071926
2014-09-19	424.102997	427.834991	384.532013	394.795990	1.411085e+09	407.816498	389.545990	-0.069843
2014-09-20	394.673004	423.295990	389.882996	408.903992	1.411171e+09	404.188996	382.845001	0.035735
2014-09-21	408.084991	412.425995	393.181000	398.821014	1.411258e+09	403.128250	386.475006	-0.024659

```
df['Returns']=df['Close'].pct_change()
df.head()
```

	Open	High	Low	Close	Timestamp	Average	Prediction	Returns
Date								
2014-09-17	465.864014	468.174011	452.421997	457.334015	1.410912e+09	460.948509	383.757996	NaN
2014-09-18	456.859985	456.859985	413.104004	424.440002	1.410998e+09	437.815994	391.441986	-0.071926
2014-09-19	424.102997	427.834991	384.532013	394.795990	1.411085e+09	407.816498	389.545990	-0.069843
2014-09-20	394.673004	423.295990	389.882996	408.903992	1.411171e+09	404.188996	382.845001	0.035735
2014-09-21	408.084991	412.425995	393.181000	398.821014	1.411258e+09	403.128250	386.475006	-0.024659

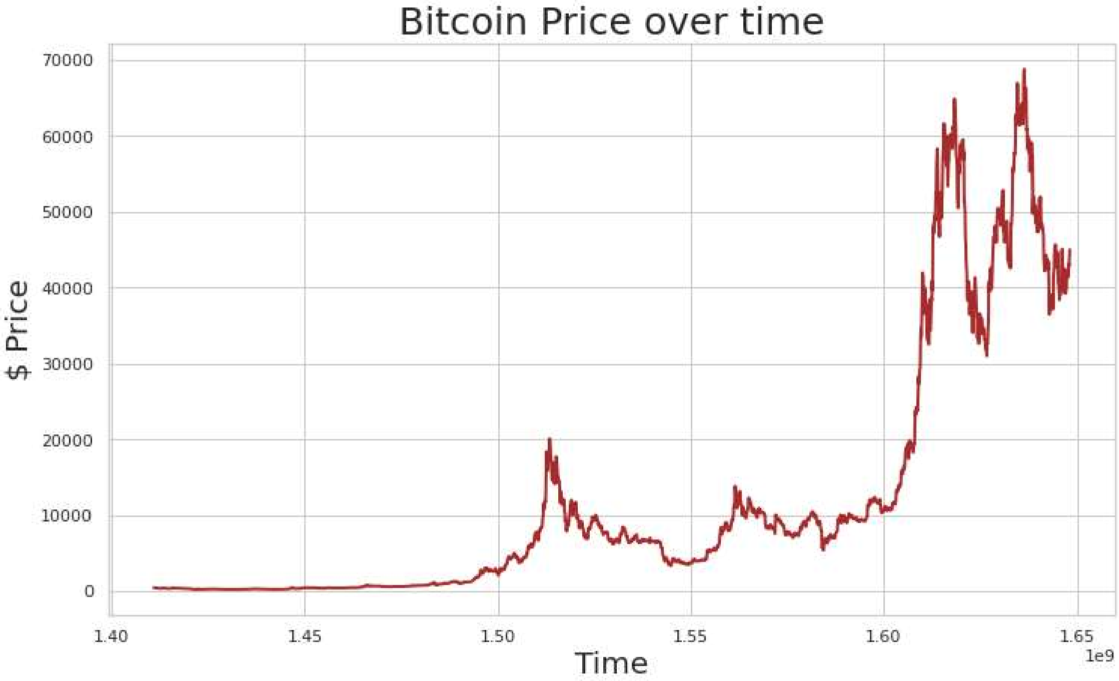
```
plt.figure(figsize = (12, 7))
plt.plot(df["Timestamp"], df["Returns"], color='goldenrod', lw=2)
plt.title("Bitcoin Returns over time", size=25)
plt.xlabel("Time", size=20)
plt.ylabel("$ Price", size=20)
```

```
Text(0, 0.5, '$ Price')
```

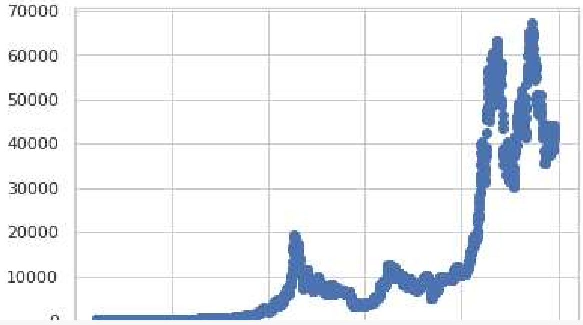


```
plt.figure(figsize = (12, 7))
plt.plot(df["Timestamp"], df["High"], color='brown', lw=2)
plt.title("Bitcoin Price over time", size=25)
plt.xlabel("Time", size=20)
plt.ylabel("$ Price", size=20)
```

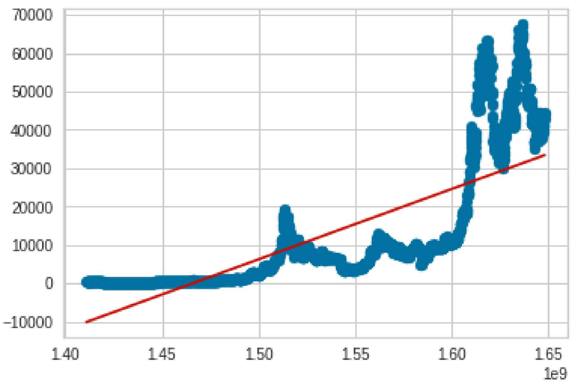
```
Text(0, 0.5, '$ Price')
```



```
x=df['Timestamp']
y=df['Average']
plt.scatter(x, y)
plt.show()
```



```
from scipy import stats

x = df["Timestamp"]
y = df["Close"]

slope, intercept, r, p, std_err = stats.linregress(x, y)

def myfunc(x):
  return slope * x + intercept

mymodel = list(map(myfunc, x))

plt.scatter(x, y)
plt.plot(x, mymodel,color='r')
plt.show()
```



```
!pip install --pre pycaret
```

```
dfnew = pd.read_csv("/content/drive/MyDrive/BTC-USD.csv")
dfnew
```

	Date	Open	High	Low	Close	Adj Close	Volume	Timestamp
0	17-09-2014	465.864014	468.174011	452.421997	457.334015	457.334015	2.105680e+07	1.410912e+09
1	18-09-2014	456.859985	456.859985	413.104004	424.440002	424.440002	3.448320e+07	1.410998e+09
2	19-09-2014	424.102997	427.834991	384.532013	394.795990	394.795990	3.791970e+07	1.411085e+09
3	20-09-2014	394.673004	423.295990	389.882996	408.903992	408.903992	3.686360e+07	1.411171e+09
4	21-09-2014	408.084991	412.425995	393.181000	398.821014	398.821014	2.658010e+07	1.411258e+09
...	...	...	...	...	...	...	...	...
2742	21-03-2022	41246.132810	41454.410160	40668.042970	41077.996090	41077.996090	2.461554e+10	1.647821e+09
2743	22-03-2022	41074.105470	43124.707030	40948.281250	42358.808590	42358.808590	3.200465e+10	1.647907e+09
2744	23-03-2022	42364.378910	42893.507810	41877.507810	42892.957030	42892.957030	2.524294e+10	1.647994e+09
2745	24-03-2022	42886.652340	44131.855470	42726.164060	43960.933590	43960.933590	3.104299e+10	1.648080e+09
2746	25-03-2022	43958.675780	44982.519530	43711.871090	44395.964840	44395.964840	3.037942e+10	1.648166e+09

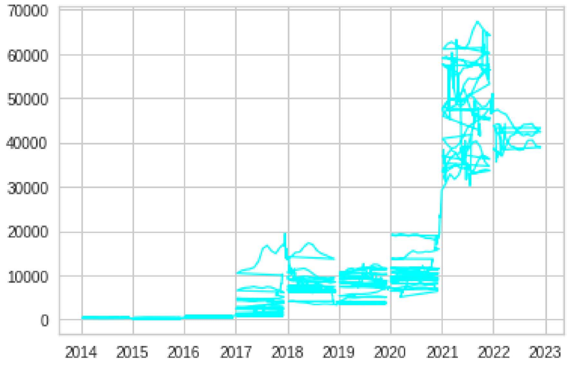
2747 rows × 8 columns

```
!pip install matplotlib==3.0.3
```

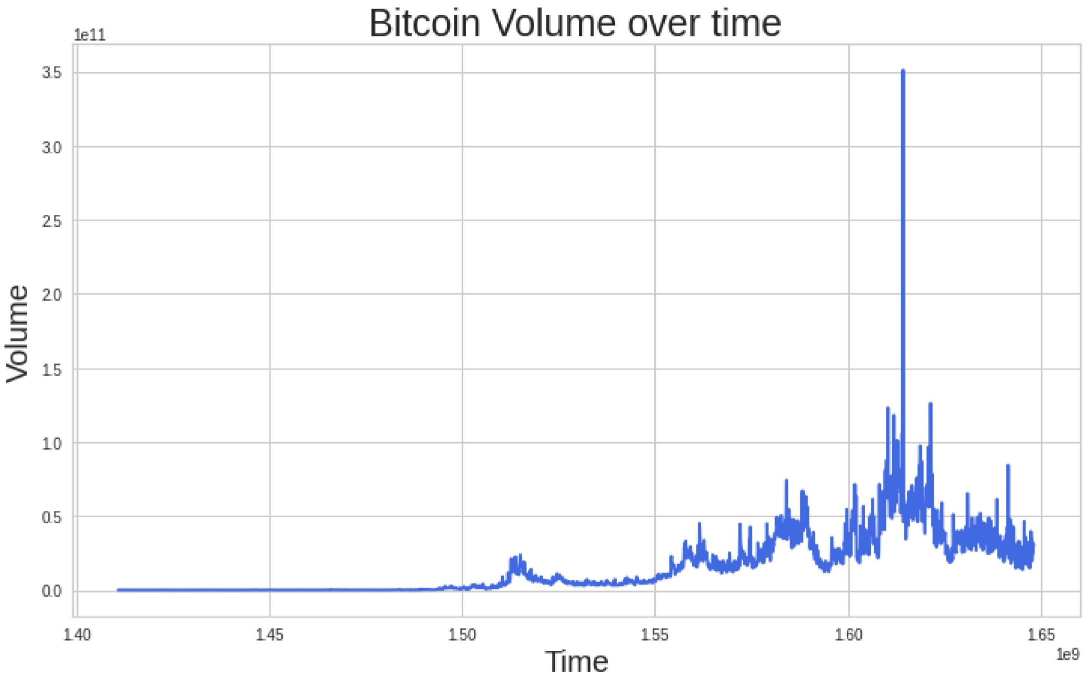
```
from pycaret.classification import *
```

```
plt.plot(df['Average'],color='cyan',lw=1.2)
```

```
[<matplotlib.lines.Line2D at 0x7f24495485d0>]
```



```
plt.figure(figsize = (12, 7))
plt.plot(dfnew["Timestamp"], dfnew["Volume"], color='royalblue', lw=2)
plt.title("Bitcoin Volume over time", size=25)
plt.xlabel("Time", size=20)
plt.ylabel("Volume", size=20);
```



```
#splitting data 2 sets
#70% data is allocated for training and 30% data is allocated for testing

required_features = ['Open', 'High', 'Low', 'Volume', 'Adj Close']
output_label = 'Close'
x_train, x_test, y_train, y_test = train_test_split(
    dfnew[required_features], df[output_label], test_size=0.05, random_state=0)
```

```
#creating model

model = LinearRegression()
model.fit(x_train, y_train)
```

```
LinearRegression()
```

```
model.score(x_test, y_test)
```

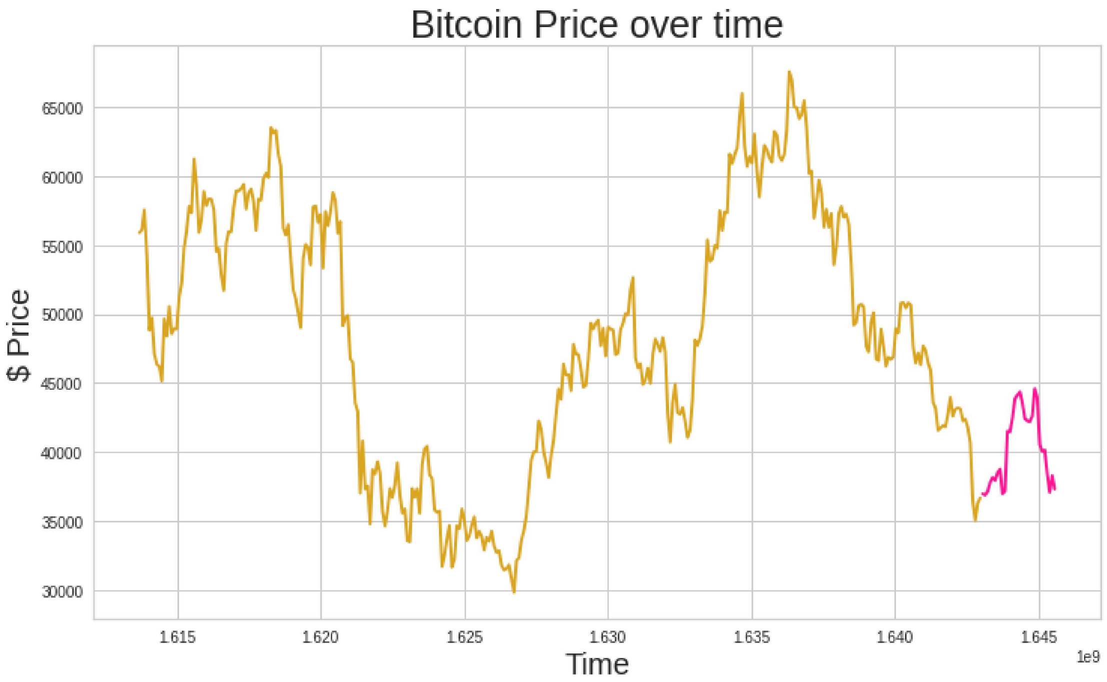
```
1.0
```

```
#predicitng price
future_set = dfnew.shift(periods=30).tail(30)
```

```
prediction = model.predict(future_set[required_features])
```

```
#plotting prediction graph
plt.figure(figsize = (12, 7))
plt.plot(dfnew["Timestamp"][-400:-60], dfnew["Adj Close"][-400:-60], color='goldenrod', lw=2)
plt.plot(future_set["Timestamp"], prediction, color='deeppink', lw=2)
plt.title("Bitcoin Price over time", size=25)
plt.xlabel("Time", size=20)
plt.ylabel("$ Price", size=20)
```

```
Text(0, 0.5, '$ Price')
```


Bitcoin Price over time
$ Price
1e9
Time