

```
In [5]: import numpy as np
import pandas as pd
import os
from subprocess import check_output
import seaborn as sns
import matplotlib.pyplot as plt
import warnings
from pandas.plotting import lag_plot
from statsmodels.tsa.arima_model import ARIMA
from sklearn.metrics import mean_squared_error
warnings.filterwarnings('ignore')
```

```
In [9]: df = pd.read_csv("TSLA 2010.csv")
df.head()
```

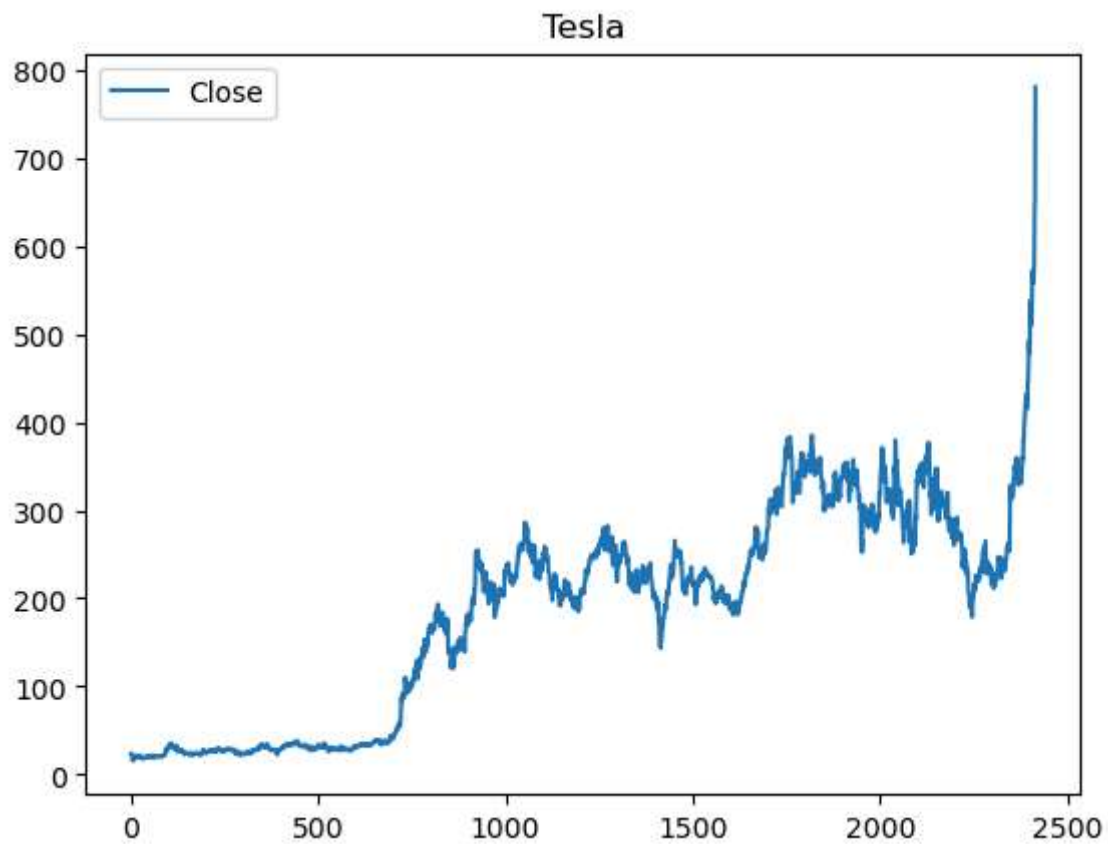
```
Out[9]:
```

	Date	Open	High	Low	Close	Adj Close	Volume
0	2010-06-29	19.000000	25.00	17.540001	23.889999	23.889999	18766300
1	2010-06-30	25.790001	30.42	23.299999	23.830000	23.830000	17187100
2	2010-07-01	25.000000	25.92	20.270000	21.959999	21.959999	8218800
3	2010-07-02	23.000000	23.10	18.709999	19.200001	19.200001	5139800
4	2010-07-06	20.000000	20.00	15.830000	16.110001	16.110001	6866900

```
In [11]: print(df.shape)
print(df.columns)
```

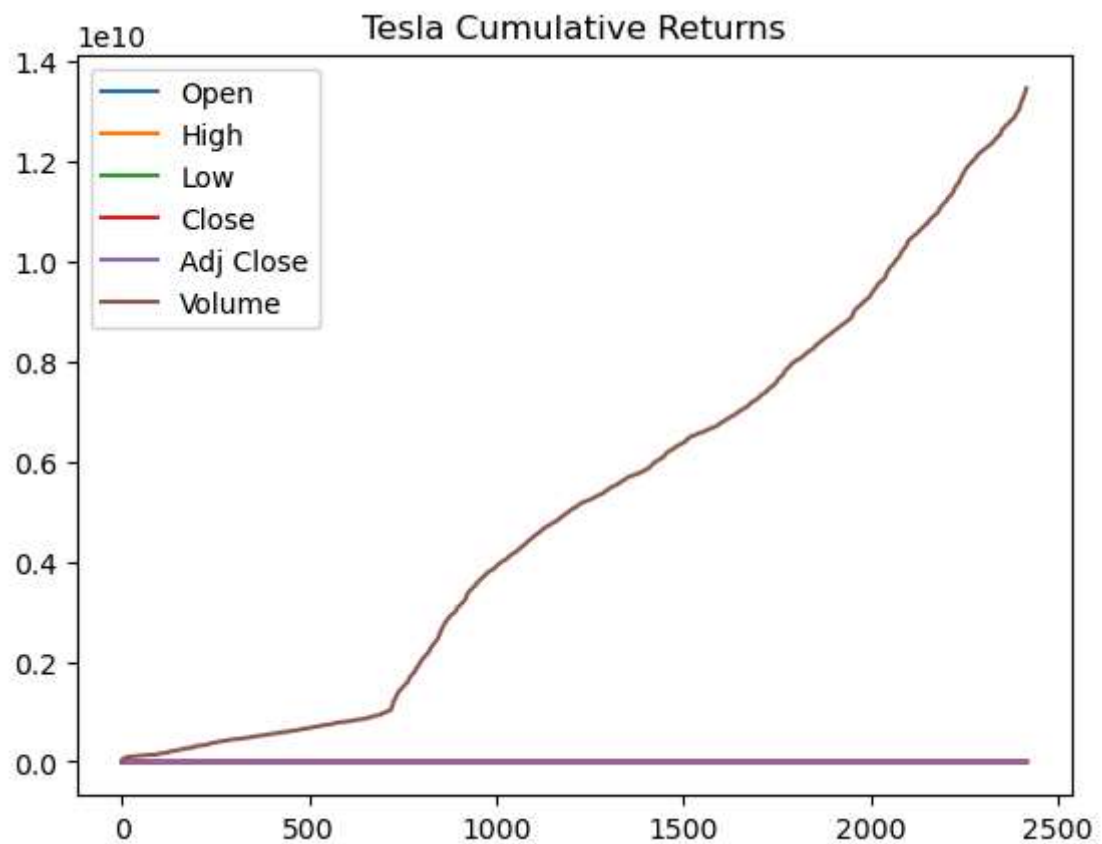
```
(2416, 7)
Index(['Date', 'Open', 'High', 'Low', 'Close', 'Adj Close', 'Volume'], dtype='object')
```

```
In [12]: df[['Close']].plot()  
plt.title("Tesla")  
plt.show()
```



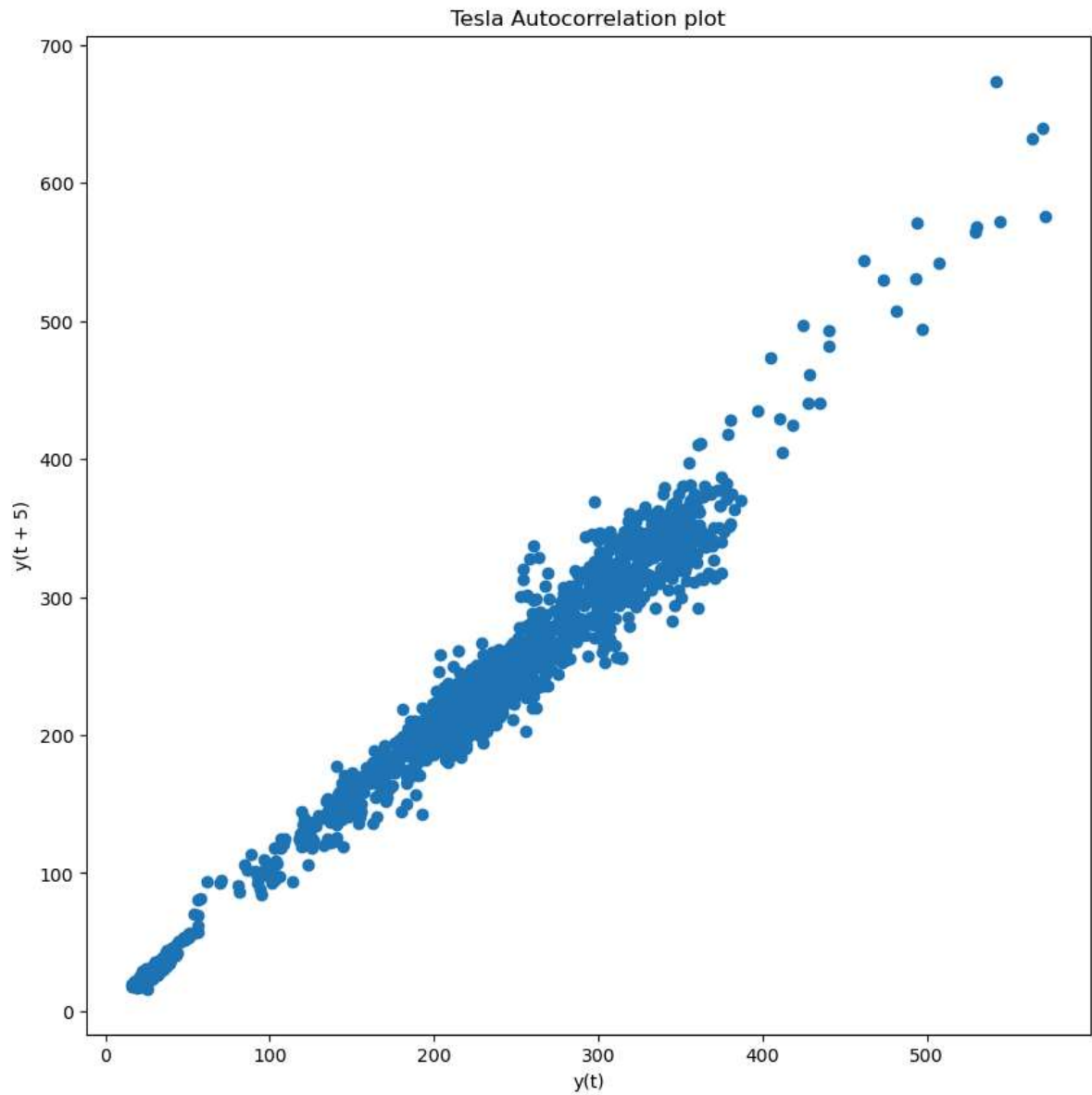
```
In [13]: dr = df.cumsum()  
dr.plot()  
plt.title('Tesla Cumulative Returns')
```

```
Out[13]: Text(0.5, 1.0, 'Tesla Cumulative Returns')
```



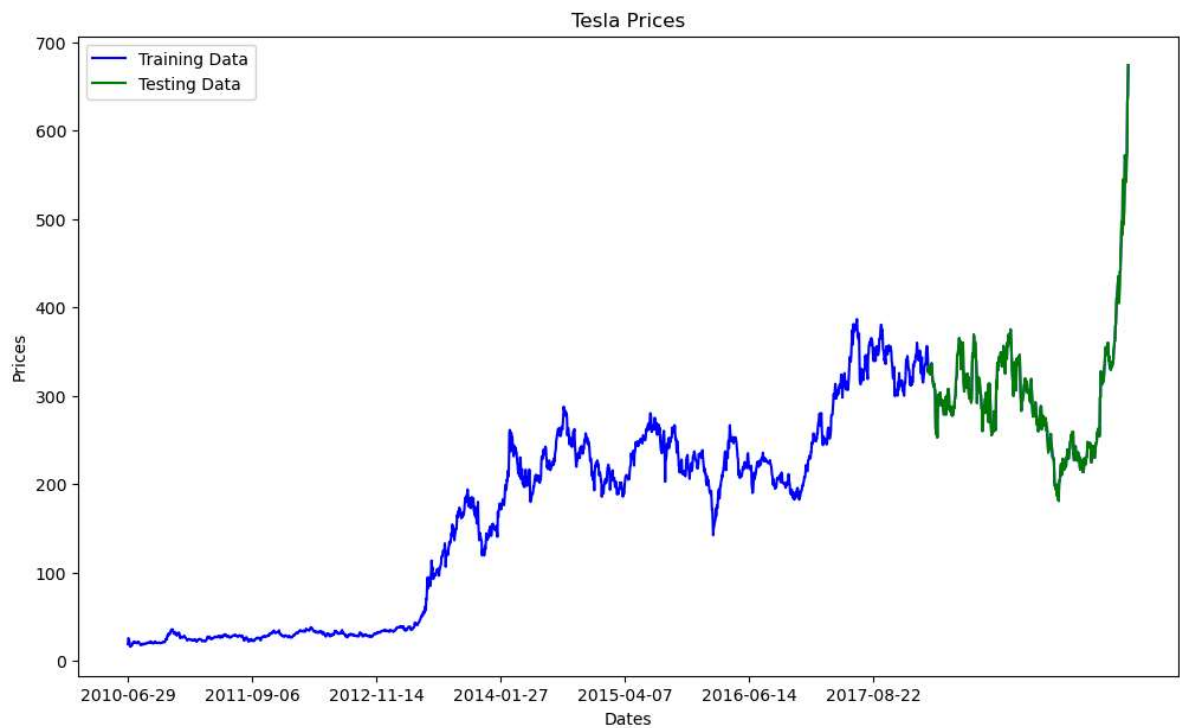
```
In [14]: plt.figure(figsize=(10,10))  
lag_plot(df['Open'], lag=5)  
plt.title('Tesla Autocorrelation plot')
```

```
Out[14]: Text(0.5, 1.0, 'Tesla Autocorrelation plot')
```



```
In [15]: train_data, test_data = df[0:int(len(df)*0.8)], df[int(len(df)*0.8):]
plt.figure(figsize=(12,7))
plt.title('Tesla Prices')
plt.xlabel('Dates')
plt.ylabel('Prices')
plt.plot(df['Open'], 'blue', label='Training Data')
plt.plot(test_data['Open'], 'green', label='Testing Data')
plt.xticks(np.arange(0,1857, 300), df['Date'][0:1857:300])
plt.legend()
```

Out[15]: <matplotlib.legend.Legend at 0x2091a198b50>



```
In [16]: plt.figure(figsize=(12,7))
plt.plot(df['Open'], 'green', color='blue', label='Training Data')
plt.plot(test_data.index, predictions, color='green', marker='o', linestyle='dashed',
        label='Predicted Price')
plt.plot(test_data.index, test_data['Open'], color='red', label='Actual Price')
plt.title('Tesla Prices Prediction')
plt.xlabel('Dates')
plt.ylabel('Prices')
plt.xticks(np.arange(0,1857, 300), df['Date'][0:1857:300])
plt.legend()
```

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**NameError**

Traceback (most recent call last)

Cell In[16], line 3

```
1 plt.figure(figsize=(12,7))
2 plt.plot(df['Open'], 'green', color='blue', label='Training Data')
----> 3 plt.plot(test_data.index, predictions, color='green', marker='o', lin
     style='dashed',
4         label='Predicted Price')
5 plt.plot(test_data.index, test_data['Open'], color='red', label='Actual Price')
6 plt.title('Tesla Prices Prediction')
```

**NameError**: name 'predictions' is not defined



```
In [17]: plt.figure(figsize=(12,7))
plt.plot(test_data.index, predictions, color='green', marker='o', linestyle='dashed',
         label='Predicted Price')
plt.plot(test_data.index, test_data['Open'], color='red', label='Actual Price')
plt.xticks(np.arange(1486,1856, 60), df['Date'][1486:1856:60])
plt.title('Tesla Prices Prediction')
plt.xlabel('Dates')
plt.ylabel('Prices')
plt.legend()
```

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**NameError**

Traceback (most recent call last)

Cell In[17], line 2

```
1 plt.figure(figsize=(12,7))
----> 2 plt.plot(test_data.index, predictions, color='green', marker='o', lin
      estyle='dashed',
      3         label='Predicted Price')
      4 plt.plot(test_data.index, test_data['Open'], color='red', label='Actual Price')
      5 plt.xticks(np.arange(1486,1856, 60), df['Date'][1486:1856:60])
```

**NameError**: name 'predictions' is not defined

<Figure size 1200x700 with 0 Axes>

In [ ]: