

Step-1: Import necessary libraries and data exploration on given data.

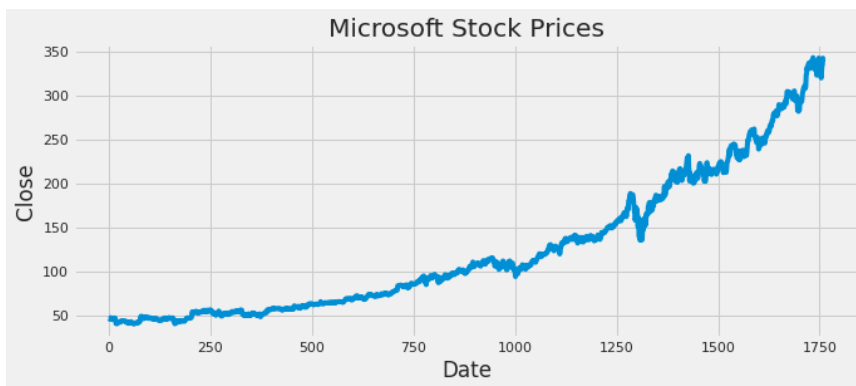
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
sns.set()
plt.style.use('fivethirtyeight')

data = pd.read_csv("Microsoft.csv")
print(data.head())
```

	Date	Open	High	Low	Close	Adj Close	Volume
0	02-01-2015	46.660000	47.419998	46.540001	46.759998	41.193840	27913900
1	05-01-2015	46.369999	46.730000	46.250000	46.330002	40.815037	39673900
2	06-01-2015	46.380001	46.750000	45.540001	45.650002	40.215973	36447900
3	07-01-2015	45.980000	46.459999	45.490002	46.230000	40.726925	29114100
4	08-01-2015	46.750000	47.750000	46.720001	47.590000	41.925045	29645200

Step-2: Data Visualization

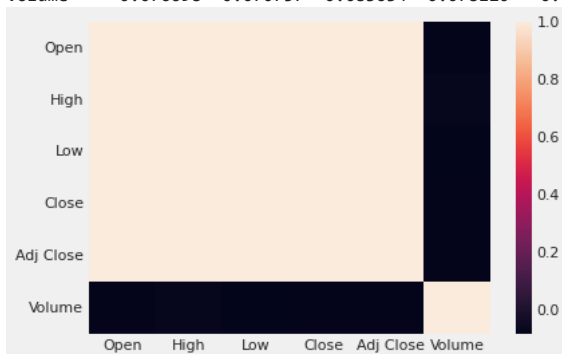
```
plt.figure(figsize=(10, 4))
plt.title("Microsoft Stock Prices")
plt.xlabel("Date")
plt.ylabel("Close")
plt.plot(data["Close"])
plt.show()
```



Step-3: Finding Co-relation between data

```
print(data.corr())
sns.heatmap(data.corr())
plt.show()
```

	Open	High	Low	Close	Adj Close	Volume
Open	1.000000	0.999868	0.999853	0.999722	0.999721	-0.076698
High	0.999868	1.000000	0.999782	0.999844	0.999845	-0.070757
Low	0.999853	0.999782	1.000000	0.999863	0.999856	-0.083634
Close	0.999722	0.999844	0.999863	1.000000	0.999991	-0.078120
Adj Close	0.999721	0.999845	0.999856	0.999991	1.000000	-0.078150
Volume	-0.076698	-0.070757	-0.083634	-0.078120	-0.078150	1.000000



Step-4: Splitting Data into train and test data

```
x = data[["Open", "High", "Low"]]
y = data["Close"]
```

```
x = x.to_numpy()
y = y.to_numpy()
y = y.reshape(-1, 1)

from sklearn.model_selection import train_test_split
xtrain, xtest, ytrain, ytest = train_test_split(x, y, test_size=0.2, random_state=42)
```

Step-5: Applying machine learning model

```
from sklearn.tree import DecisionTreeRegressor
model = DecisionTreeRegressor()
model.fit(xtrain, ytrain)
ypred = model.predict(xtest)
data = pd.DataFrame(data={"Predicted Rate": ypred})
print(data.head())
```

	Predicted Rate
0	106.029999
1	231.600006
2	257.170013
3	88.000000
4	104.269997