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Class : D17A Roll No.: 57

ADS Experiment No. : 2

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn import preprocessing
import warnings
warnings.filterwarnings('ignore')
```

```
from google.colab import files
uploaded = files.upload()
```

Choose Files Apple.csv

- **Apple.csv**(text/csv) - 226931 bytes, last modified: 3/4/2023 - 100% done

Saving Apple.csv to Apple (1).csv

```
import io
df = pd.read_csv(io.BytesIO(uploaded['Apple.csv']))
```

```
df.head()
```

	Date	Open	High	Low	Close	Adj Close	Volume
0	2010-01-04	7.6225	7.660714	7.585000	7.643214	6.515213	493729600
1	2010-01-05	7.664286	7.699643	7.616071	7.656429	6.526476	601904800
2	2010-01-06	7.656429	7.686786	7.526786	7.534643	6.422664	552160000
3	2010-01-07	7.5625	7.571429	7.466071	7.520714	NaN	477131200
4	2010-01-08	7.510714	7.571429	7.466429	7.570714	6.453412	447610800

```
df.dtypes
```

```
Date          object
Open          object
High          object
Low          float64
Close         object
Adj Close    float64
Volume        object
dtype: object
```

```
df.duplicated().sum()
```

```
5
```

```
df = df.drop_duplicates()
```

```
df = df.replace(r'([A-Za-z]|\*)', np.NaN, regex=True)
```

```
df.isna().sum()
```

```
Date         0
Open         2
High         1
Low          0
Close        3
Adj Close    3
Volume       3
dtype: int64
```

```
from sklearn.impute import SimpleImputer
imp = SimpleImputer(missing_values=np.nan, strategy='mean')
```

```
imp.fit(df.iloc[:,1:])
df.iloc[:,1:] = imp.transform(df.iloc[:,1:])
```

```
df.isna().sum()
```

```
Date         0
Open         0
High         0
Low          0
Close        0
Adj Close    0
Volume       0
dtype: int64
```

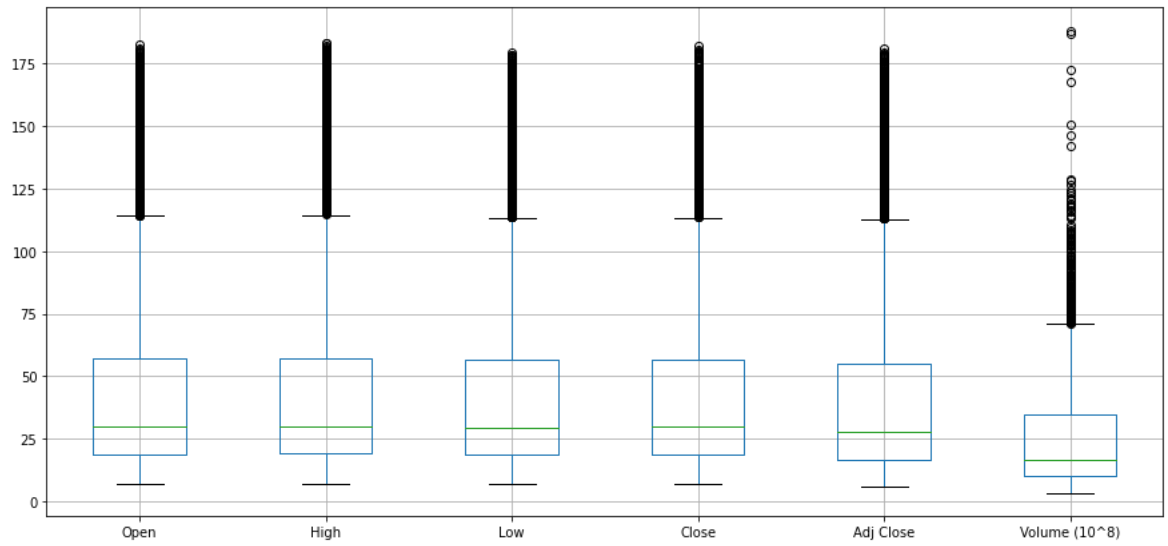
```
# 493729600 = 49.3729600 * 10^7

df['Volume'] = df['Volume'] / 10000000

df.rename(columns = {'Volume':'Volume (10^8)'}, inplace = True)
```

```
df.describe()
```

	Open	High	Low	Close	Adj Close	Volume (10^8)
count	3266.000000	3266.000000	3266.000000	3266.000000	3266.000000	3266.000000
mean	51.323297	51.889888	50.742408	51.321978	49.516522	25.657844
std	47.340920	47.952381	46.747966	47.339702	47.823632	22.265035
min	6.870357	7.000000	6.794643	6.858929	5.846675	3.519590
25%	18.962144	19.108035	18.778838	18.956875	16.627215	10.247542
50%	29.809999	30.011249	29.576250	29.909999	27.546022	16.713040
75%	56.986249	57.339999	56.490000	56.763124	55.039802	34.584650
max	182.630005	182.940002	179.119995	182.009995	180.959732	188.099800

```
df.boxplot(figsize=(15, 7))
```

```
<AxesSubplot:>
```




```
df.dtypes
```

```
Date              object
Open             float64
High             float64
Low              float64
Close            float64
Adj Close        float64
Volume (10^8)    float64
dtype: object
```

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