Experiment-12

AIM: Exploratory Data Analysis for Classification using Pandas or Matplotlib

```
import pandas as pd
import matplotlib.pyplot as plt
from scipy.stats import f_oneway

data = {
   'education': ['High School', 'College', 'High School', 'College', 'College'],
   'vote': ['Yes', 'No', 'No', 'Yes', 'Yes'],
   'population': [1000, 1500, 800, 1200, 2000]
}
DF = pd.DataFrame(data)
print(DF.describe())

y = list(DF['population'])
plt.boxplot(y)
plt.show()

print(DF["education"].value_counts())
print(DF.groupby(['education', 'vote']).mean())

group1 = [5, 7, 3, 4, 8]
group2 = [9, 12, 11, 13, 10]
group3 = [14, 16, 19, 17, 15]
```

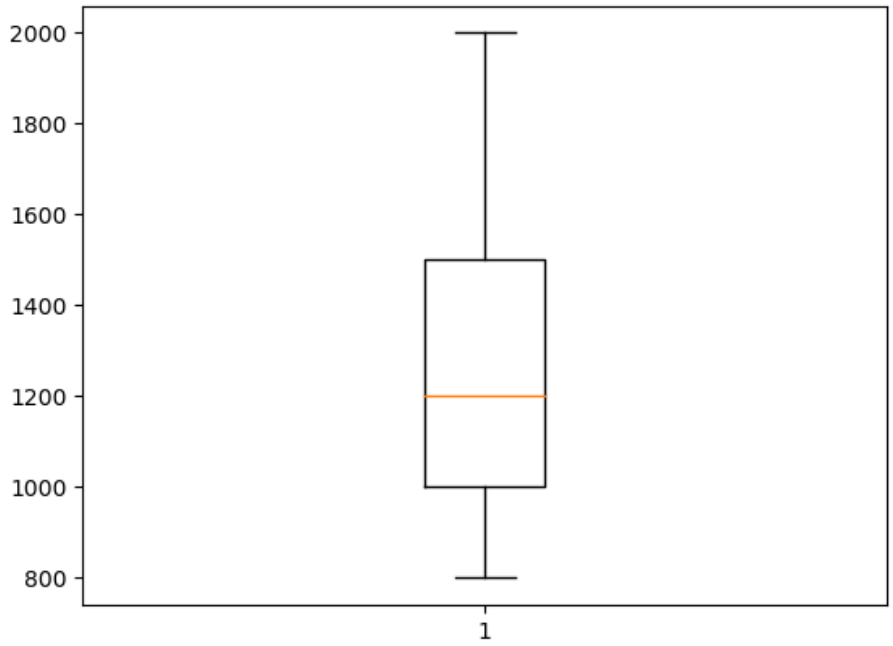
```
f_statistic, p_value = f_oneway(group1, group2, group3)


print("F-statistic:", f_statistic)

print("p-value:", p_value)
```

Output:

```
population
count      5.000000
mean    1300.000000
std      469.041576
min      800.000000
25%     1000.000000
50%     1200.000000
75%     1500.000000
max     2000.000000
```



```
College        3
High School    2
Name: education, dtype: int64
                  population
education   vote
College     No         1500.0
            Yes        1600.0
High School No          800.0
            Yes        1000.0
F-statistic: 41.67619047619048
p-value: 3.972813930868759e-06
```