# CLASSIFICATION OF FRUITS

# SCREENSHOT OF THE OUTPUT

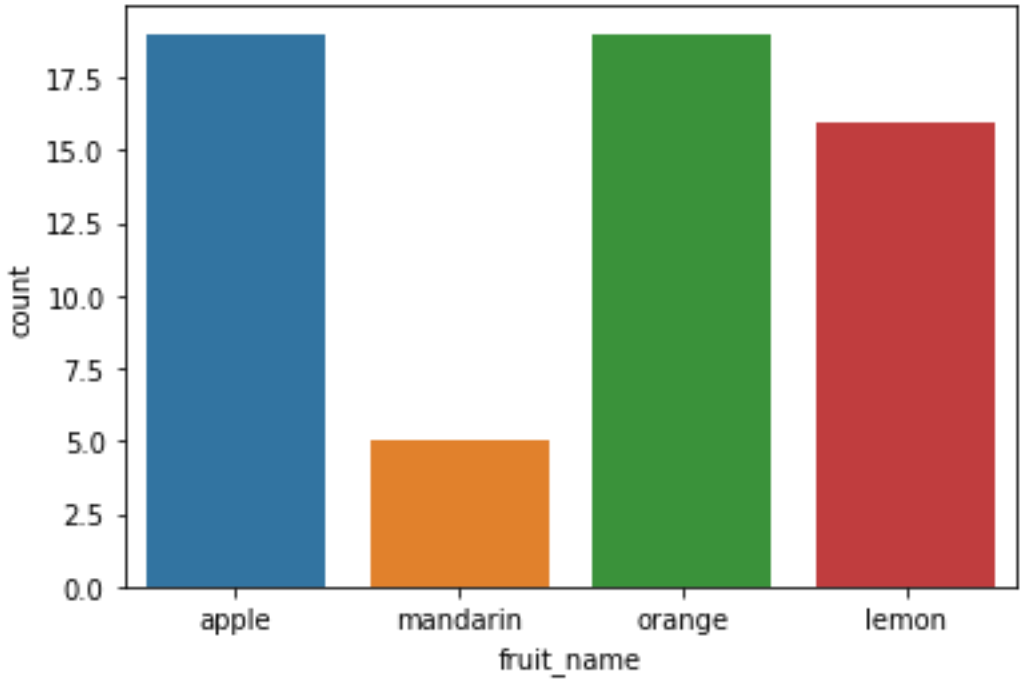
## SHAPE OF THE DATA:

```
(59, 6)

COUNT OF FRUITS:

fruit_name
apple       19
lemon       16
mandarin     5
orange      19
dtype: int64

BAR PLOT:
```




SAMPLE DATA:

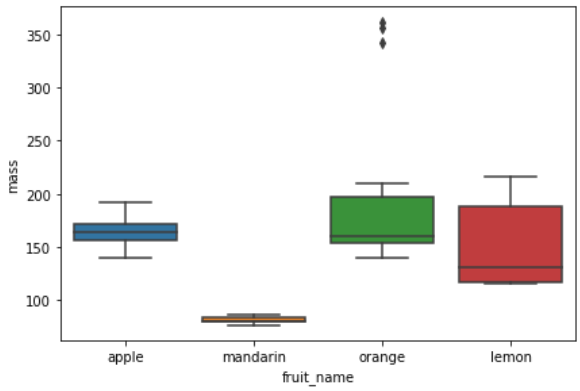
| fruit_label | fruit_name | mass | width | height | color_score |
|---|---|---|---|---|---|
| 0 | 1 apple | 192 | 8.4 | 7.3 | 0.55 |
| 1 | 1 apple | 180 | 8.0 | 6.8 | 0.59 |
| 2 | 1 apple | 176 | 7.4 | 7.2 | 0.60 |
| 3 | 2 mandarin | 86 | 6.2 | 4.7 | 0.80 |
| 4 | 2 mandarin | 84 | 6.0 | 4.6 | 0.79 |
| 5 | 2 mandarin | 80 | 5.8 | 4.3 | 0.77 |
| 6 | 2 mandarin | 80 | 5.9 | 4.3 | 0.81 |
| 7 | 2 mandarin | 76 | 5.8 | 4.0 | 0.81 |
| 8 | 1 apple | 178 | 7.1 | 7.8 | 0.92 |
| 9 | 1 apple | 172 | 7.4 | 7.0 | 0.89 |
| 10 | 1 apple | 166 | 6.9 | 7.3 | 0.93 |
| 11 | 1 apple | 172 | 7.1 | 7.6 | 0.92 |

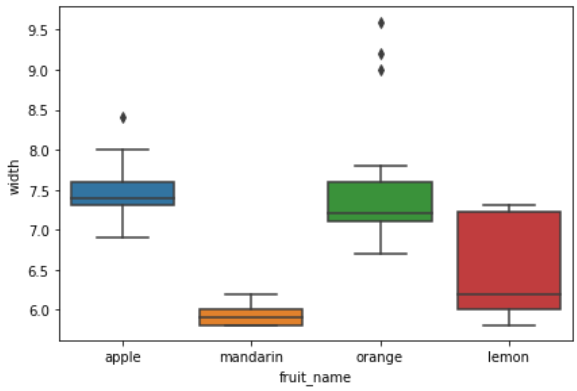
```
12              1      apple   154    7.0     7.1          0.88
13              1      apple   164    7.3     7.7          0.70
14              1      apple   152    7.6     7.3          0.69
```

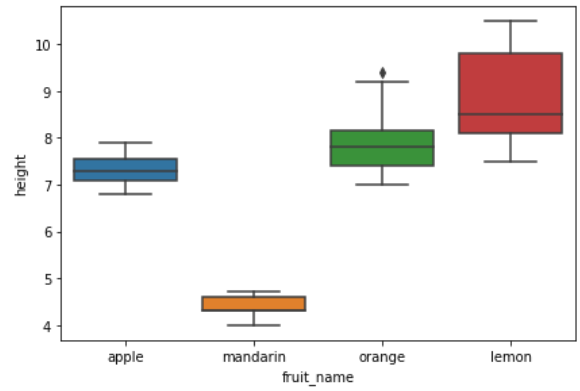
DESCRIPTION OF DATA:

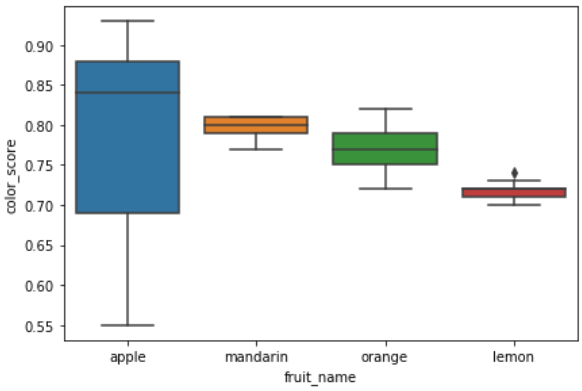
```
  fruit_label        mass       width     height  color_score
count    59.000000   59.000000  59.000000  59.000000    59.000000
mean      2.542373  163.118644   7.105085   7.693220     0.762881
std       1.208048   55.018832   0.816938   1.361017     0.076857
min       1.000000   76.000000   5.800000   4.000000     0.550000
25%       1.000000  140.000000   6.600000   7.200000     0.720000
50%       3.000000  158.000000   7.200000   7.600000     0.750000
75%       4.000000  177.000000   7.500000   8.200000     0.810000
max       4.000000  362.000000   9.600000  10.500000     0.930000
```

BOX PLOT:

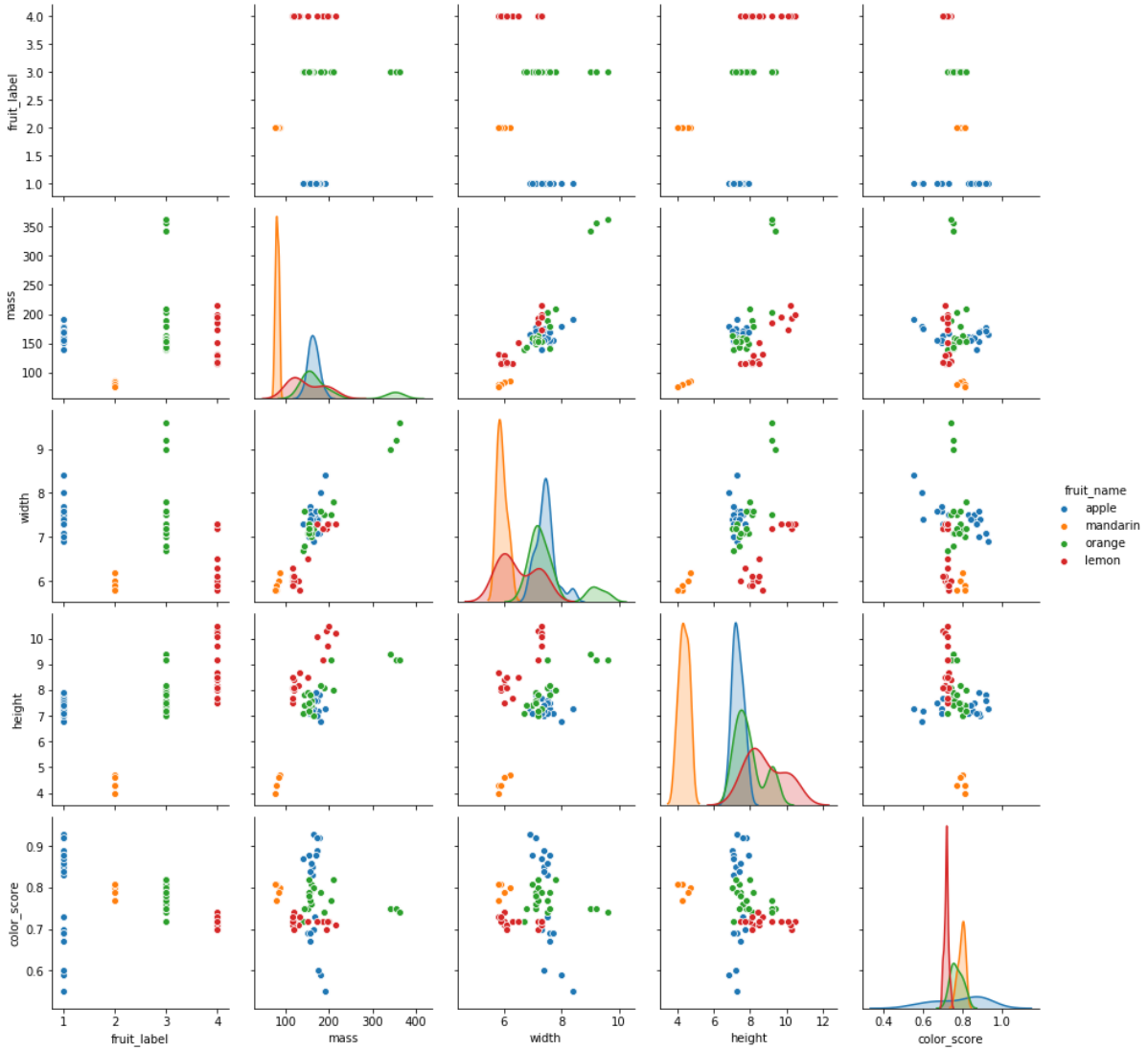


SCATTER PLOT:




CONFUSION MATRIX AND ACCURACY WHEN K=5:

```
[[4 0 0 0]
 [0 1 0 0]
 [0 0 8 0]
 [0 0 0 2]]
              precision    recall  f1-score   support

           1       1.00      1.00      1.00         4
           2       1.00      1.00      1.00         1
           3       1.00      1.00      1.00         8
           4       1.00      1.00      1.00         2

   avg / total       1.00      1.00      1.00        15
```

RESULT VISUALATION: