Poorvi_Raut_HOW2X_CHATGPT

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Output of the code generated by CHATGPT in python Programming Language using Jupyter Notebook

```
pip install pandas

pip install numpy

pip install matplotlib

import pandas as pd


#1. Read in the CSV file

data = pd.read_csv('/Users/Owner/Desktop/Spring 2023/CS 513 KDD/breast-cancer-wisconsin.csv')


# 1.1 Summarize each column

print(data.describe()
```

```
Sample        F1        F2        F3        F4 \
count 6.990000e+02  699.000000  699.000000  699.000000  699.000000
mean   1.071704e+06   4.417740   3.134478   3.207439   2.806867
std   6.170957e+05   2.815741   3.051459   2.971913   2.855379
min   6.163400e+04   1.000000   1.000000   1.000000   1.000000
25%   8.706885e+05   2.000000   1.000000   1.000000   1.000000
50%   1.171710e+06   4.000000   1.000000   1.000000   1.000000
75%   1.238298e+06   6.000000   5.000000   5.000000   4.000000
max   1.345435e+07   10.000000   10.000000   10.000000   10.000000

          F5        F7        F8        F9      Class
count 699.000000 699.000000  699.000000  699.000000  699.000000
mean    3.216023   3.437768   2.866953   1.589413   2.689557
std     2.214300   2.438364   3.053634   1.715078   0.951273
min     1.000000   1.000000   1.000000   1.000000   2.000000
25%     2.000000   2.000000   1.000000   1.000000   2.000000
50%     2.000000   3.000000   1.000000   1.000000   2.000000
75%     4.000000   5.000000   4.000000   1.000000   4.000000
max    10.000000   10.000000   10.000000   10.000000   4.000000
```

```
#1.2 Check for missing values

print(data.isnull().sum())
```

```
Sample   0
F1       0
F2       0
F3       0
F4       0
F5       0
F6       0
F7       0
F8       0
F9       0
Class    0
dtype: int64
```

# 1.3 Replace missing values with the mean of the column

data.fillna(data.mean(), inplace=True)

Output

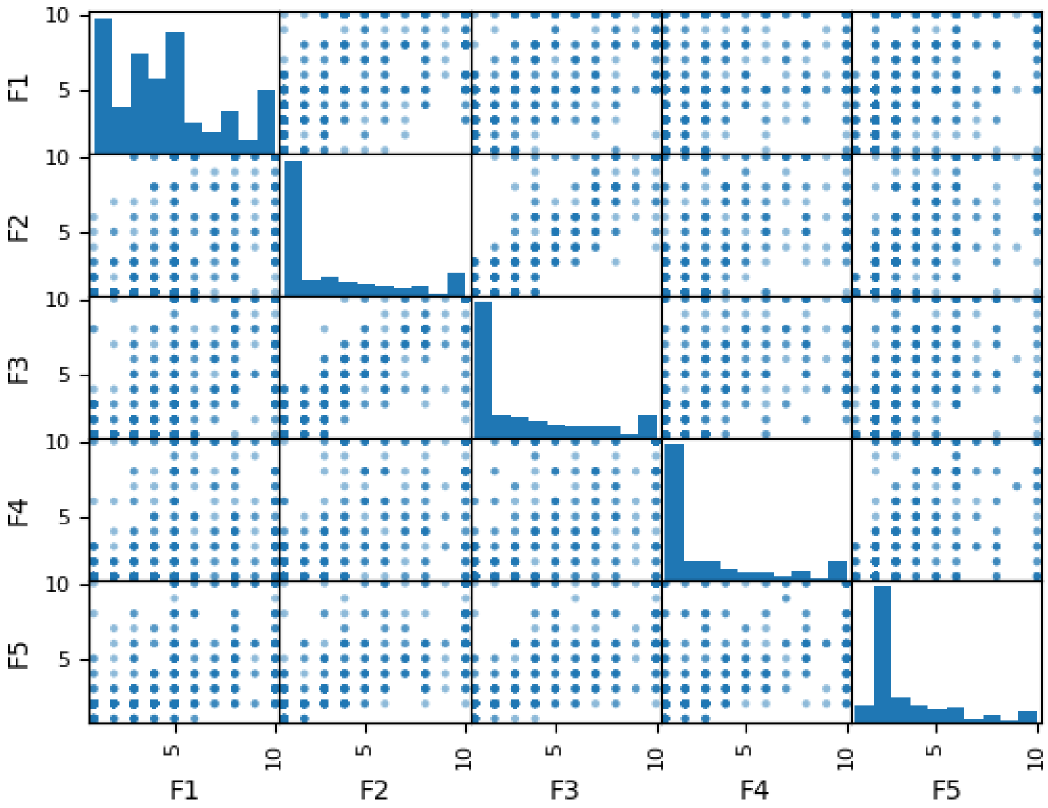
```
Sample F1 F2 F3 F4 F5      F6 F7 F8 F9 Class
1 1000025  5  1  1  1  2  1.000  3  1  1      2
2  1002945  5  4  4  5  7 10.000  3  2  1      2
3  1015425  3  1  1  1  2  2.000  3  1  1      2
4  1016277  6  8  8  1  3  4.000  3  7  1      2
5  1017023  4  1  1  3  2  1.000  3  1  1      2
6  1017122  8 10 10  8  7 10.000  9  7  1      4
7  1018099  1  1  1  1  2 10.000  3  1  1      2
8  1018561  2  1  2  1  2  1.000  3  1  1      2
9  1033078  2  1  1  1  2  1.000  1  1  5      2
10 1033078  4  2  1  1  2  1.000  2  1  1      2
11 1035283  1  1  1  1  1  1.000  3  1  1      2
12 1036172  2  1  1  1  2  1.000  2  1  1      2
13 1041801  5  3  3  3  2  3.000  4  4  1      4
14 1043999  1  1  1  1  2  3.000  3  1  1      2
15 1044572  8  7  5 10  7  9.000  5  5  4      4
16 1047630  7  4  6  4  6  1.000  4  3  1      4
17 1048672  4  1  1  1  2  1.000  2  1  1      2
18 1049815  4  1  1  1  2  1.000  3  1  1      2
19 1050670 10  7  7  6  4 10.000  4  1  2      4
20 1050718  6  1  1  1  2  1.000  3  1  1      2
21 1054590  7  3  2 10  5 10.000  5  4  4      4
22 1054593 10  5  5  3  6  7.000  7 10  1      4
23 1056784  3  1  1  1  2  1.000  2  1  1      2
24 1057013  8  4  5  1  2  3.545  7  3  1      4
25 1059552  1  1  1  1  2  1.000  3  1  1      2
26 1065726  5  2  3  4  2  7.000  3  6  1      4
27 1066373  3  2  1  1  1  1.000  2  1  1      2
28 1066979  5  1  1  1  2  1.000  2  1  1      2
29 1067444  2  1  1  1  2  1.000  2  1  1      2
30 1070935  1  1  3  1  2  1.000  1  1  1      2
31 1070935  3  1  1  1  1  1.000  2  1  1      2
32 1071760  2  1  1  1  2  1.000  3  1  1      2
33 1072179 10  7  7  3  8  5.000  7  4  3      4
34 1074610  2  1  1  2  2  1.000  3  1  1      2
35 1075123  3  1  2  1  2  1.000  2  1  1      2
36 1079304  2  1  1  1  2  1.000  2  1  1      2
37 1080185 10 10 10  8  6  1.000  8  9  1      4
38 1081791  6  2  1  1  1  1.000  7  1  1      2
39 1084584  5  4  4  9  2 10.000  5  6  1      4
```

```
40  1091262   2   5   3   3   6   7.000   7   5   1        4
41  1096800   6   6   6   9   6   3.545   7   8   1        2
42  1099510  10   4   3   1   3   3.000   6   5   2        4
43  1100524   6  10  10   2   8  10.000   7   3   3        4
44  1102573   5   6   5   6  10   1.000   3   1   1        4
45  1103608  10  10  10   4   8   1.000   8  10   1        4
46  1103722   1   1   1   1   2   1.000   2   1   2        2
47  1105257   3   7   7   4   4   9.000   4   8   1        4
48  1105524   1   1   1   1   2   1.000   2   1   1        2
49  1106095   4   1   1   3   2   1.000   3   1   1        2
50  1106829   7   8   7   2   4   8.000   3   8   2        4
51  1108370   9   5   8   1   2   3.000   2   1   5        4
52  1108449   5   3   3   4   2   4.000   3   4   1        4
53  1110102  10   3   6   2   3   5.000   4  10   2        4
54  1110503   5   5   5   8  10   8.000   7   3   7        4
55  1110524  10   5   5   6   8   8.000   7   1   1        4
56  1111249  10   6   6   3   4   5.000   3   6   1        4
57  1112209   8  10  10   1   3   6.000   3   9   1        4
58  1113038   8   2   4   1   5   1.000   5   4   4        4
59  1113483   5   2   3   1   6  10.000   5   1   1        4
60  1113906   9   5   5   2   2   2.000   5   1   1        4
61  1115282   5   3   5   5   3   3.000   4  10   1        4
62  1115293   1   1   1   1   2   2.000   2   1   1        2
63  1116116   9  10  10   1  10   8.000   3   3   1        4
64  1116132   6   3   4   1   5   2.000   3   9   1        4
65  1116192   1   1   1   1   2   1.000   2   1   1        2
66  1116998  10   4   2   1   3   2.000   4   3  10        4
67  1117152   4   1   1   1   2   1.000   3   1   1        2
68  1118039   5   3   4   1   8  10.000   4   9   1        4
69  1120559   8   3   8   3   4   9.000   8   9   8        4
70  1121732   1   1   1   1   2   1.000   3   2   1        2
71  1121919   5   1   3   1   2   1.000   2   1   1        2
72  1123061   6  10   2   8  10   2.000   7   8  10        4
73  1124651   1   3   3   2   2   1.000   7   2   1        2
74  1125035   9   4   5  10   6  10.000   4   8   1        4
75  1126417  10   6   4   1   3   4.000   3   2   3        4
76  1131294   1   1   2   1   2   2.000   4   2   1        2
77  1132347   1   1   4   1   2   1.000   2   1   1        2
78  1133041   5   3   1   2   2   1.000   2   1   1        2
79  1133136   3   1   1   1   2   3.000   3   1   1        2
80  1136142   2   1   1   1   3   1.000   2   1   1        2
81  1137156   2   2   2   1   1   1.000   7   1   1        2
82  1143978   4   1   1   2   2   1.000   2   1   1        2
83  1143978   5   2   1   1   2   1.000   3   1   1        2
84  1147044   3   1   1   1   2   2.000   7   1   1        2
85  1147699   3   5   7   8   8   9.000   7  10   7        4
86  1147748   5  10   6   1  10   4.000   4  10  10        4
87  1148278   3   3   6   4   5   8.000   4   4   1        4
88  1148873   3   6   6   6   5  10.000   6   8   3        4
89  1152331   4   1   1   1   2   1.000   3   1   1        2
90  1155546   2   1   1   2   3   1.000   2   1   1        2
```

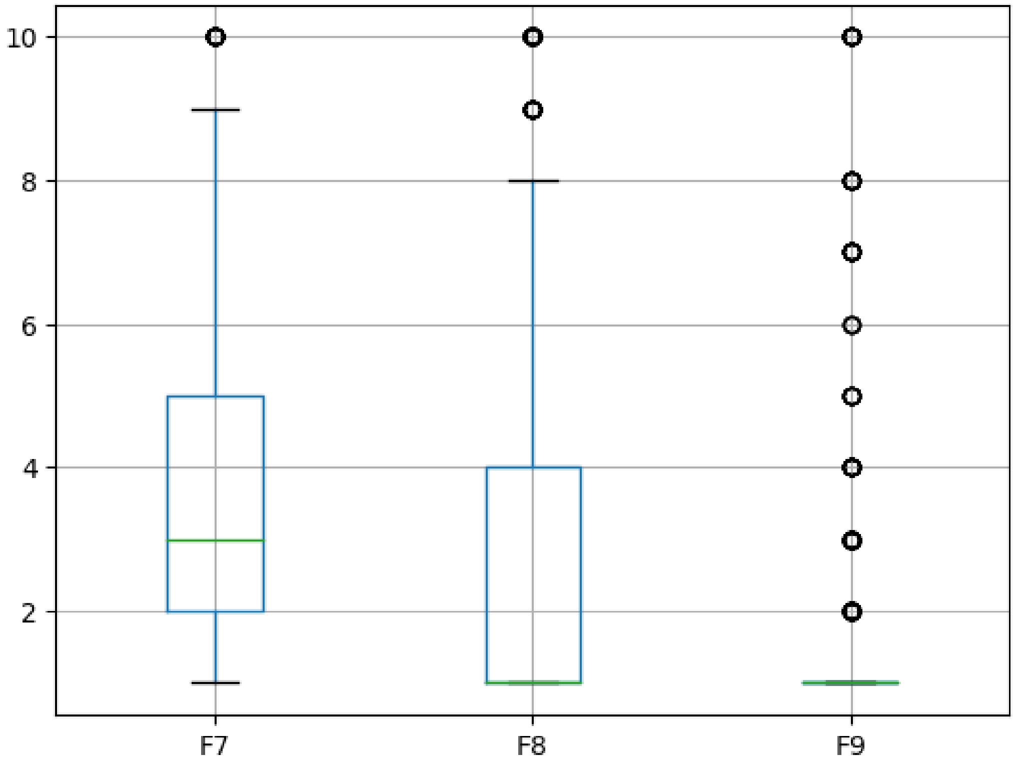
```
# Display frequency table of "Class" vs. F6

print(pd.crosstab(data['Class'], data['F6']))
```

```
F6      1  10  2  3  4  5 6  7  8  9  ?
Class
2     387   3 21  14  6 10  0  1  2  0  14
4      15 129   9 14  13 20  4  7  19  9  2
```

```
#1.4  Create scatter matrix of F1 to F6

pd.plotting.scatter_matrix(data[['F1', 'F2', 'F3', 'F4', 'F5', 'F6']])

plt.show()
```



```
# Create histogram of F7 to F9

data[['F7', 'F8', 'F9']].hist()

plt.show()


# Create box plot of F7 to F9

data [['F7', 'F8', 'F9']].boxplot()

plt.show()
```



```
#2.1 delete all objects in Python environment

del data


# 2.2 read in the CSV file.
```

```
data = pd.read_csv('/Users/Owner/Desktop/Spring 2023/CS 513 KDD/breast-cancer-wisconsin.csv')


# Remove any rows with missing values

data.dropna(inplace=True)
```