PRACTICAL NO. 01

PROGRAM:

a.

```
import pandas as pd
mtcars = pd.read_csv('C:\\Users\\Abhishek\\Desktop\\PS-2\\mtcars.csv')
#  Display summary statistics
print("1] Summary Statistics for mtcars dataset:\n")
print(mtcars.describe())
#  Display structure information
print("\n2] Structure Information for mtcars dataset:\n")
print(mtcars.info())
#  Use the quantile() method to get the quartile values for a specific column
print("\n3] Quartile Information for mtcars dataset:\n")
print(mtcars['mpg'].quantile([0.25, 0.5, 0.75]))
```

b.

```
import pandas as pd
iris = pd.read_csv('C:\\Users\\Abhishek\\Desktop\\PS-2\\iris.csv')
#  Use subset() function to select only rows where Sepal.Width > 3
setosa_subset = iris[iris['sepal_width'] >= 3.8]
print("1] Subset of Iris dataset with only rows where Sepal.Width > 3.8 :\n")
print(setosa_subset)
#  Use aggregate() function to calculate mean sepal length for each species
aggregate_result = iris.groupby('species').mean()
print("\n2] Aggregate result - Mean sepal length and sepal width for each species:\n")
print(aggregate_result)
```

OUTPUT:

a.

```
C:\WorkSpace\Python\Python39\PycharmProjects\pythonProject\PS-2\Scripts\python.exe
1] Summary Statistics for mtcars dataset:

             mpg        cyl        disp  ...         am       gear     carb
count  32.000000  32.000000   32.000000  ...  32.000000  32.000000  32.0000
mean   20.090625   6.187500  230.721875  ...   0.406250   3.687500   2.8125
std     6.026948   1.785922  123.938694  ...   0.498991   0.737804   1.6152
min    10.400000   4.000000   71.100000  ...   0.000000   3.000000   1.0000
25%    15.425000   4.000000  120.825000  ...   0.000000   3.000000   2.0000
50%    19.200000   6.000000  196.300000  ...   0.000000   4.000000   2.0000
75%    22.800000   8.000000  326.000000  ...   1.000000   4.000000   4.0000
max    33.900000   8.000000  472.000000  ...   1.000000   5.000000   8.0000

[8 rows x 11 columns]
```

```
2] Structure Information for mtcars dataset:

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 32 entries, 0 to 31
Data columns (total 12 columns):
 #   Column  Non-Null Count  Dtype
---  ------  --------------  -----
 0   model   32 non-null     object
 1   mpg     32 non-null     float64
 2   cyl     32 non-null     int64
 3   disp    32 non-null     float64
 4   hp      32 non-null     int64
 5   drat    32 non-null     float64
 6   wt      32 non-null     float64
 7   qsec    32 non-null     float64
 8   vs      32 non-null     int64
 9   am      32 non-null     int64
 10  gear    32 non-null     int64
 11  carb    32 non-null     int64
dtypes: float64(5), int64(6), object(1)
memory usage: 3.1+ KB
None
```

```
3] Quartile Information for mtcars dataset:

0.25    15.425
0.50    19.200
0.75    22.800
Name: mpg, dtype: float64

Process finished with exit code 0
```

b.

```
C:\WorkSpace\Python\Python39\PycharmProjects\pythonProject\PS-2\Scripts\python.exe
1] Subset of Iris dataset with only rows where Sepal.Width > 3.8 :

     sepal_length  sepal_width  petal_length  petal_width    species
5             5.4          3.9           1.7          0.4     setosa
14            5.8          4.0           1.2          0.2     setosa
15            5.7          4.4           1.5          0.4     setosa
16            5.4          3.9           1.3          0.4     setosa
18            5.7          3.8           1.7          0.3     setosa
19            5.1          3.8           1.5          0.3     setosa
32            5.2          4.1           1.5          0.1     setosa
33            5.5          4.2           1.4          0.2     setosa
44            5.1          3.8           1.9          0.4     setosa
46            5.1          3.8           1.6          0.2     setosa
117           7.7          3.8           6.7          2.2  virginica
131           7.9          3.8           6.4          2.0  virginica

2] Aggregate result - Mean sepal length and sepal width for each species:

            sepal_length  sepal_width  petal_length  petal_width
species
setosa             5.006        3.418         1.464        0.244
versicolor         5.936        2.770         4.260        1.326
virginica          6.588        2.974         5.552        2.026

Process finished with exit code 0
```