```python
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np

df = pd.read_csv("/content/Iris.csv")

df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
 #   Column         Non-Null Count  Dtype
---  ------         --------------  -----
 0   Id             150 non-null    int64
 1   SepalLengthCm  150 non-null    float64
 2   SepalWidthCm   150 non-null    float64
 3   PetalLengthCm  150 non-null    float64
 4   PetalWidthCm   150 non-null    float64
 5   Species        150 non-null    object
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

```python
df.describe()
```

```
                Id  SepalLengthCm  SepalWidthCm  PetalLengthCm
PetalWidthCm
count  150.000000     150.000000    150.000000     150.000000
150.000000
mean    75.500000       5.843333      3.054000       3.758667
1.198667
std     43.445368       0.828066      0.433594       1.764420
0.763161
min      1.000000       4.300000      2.000000       1.000000
0.100000
25%     38.250000       5.100000      2.800000       1.600000
0.300000
50%     75.500000       5.800000      3.000000       4.350000
1.300000
75%    112.750000       6.400000      3.300000       5.100000
1.800000
max    150.000000       7.900000      4.400000       6.900000
2.500000
```

```python
df.isnull().sum()
```

```
Id               0
SepalLengthCm    0
SepalWidthCm     0
PetalLengthCm    0
PetalWidthCm     0
Species          0
dtype: int64
```

```
df
```

```
      Id  SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm  \
0      1            5.1           3.5            1.4           0.2
1      2            4.9           3.0            1.4           0.2
2      3            4.7           3.2            1.3           0.2
3      4            4.6           3.1            1.5           0.2
4      5            5.0           3.6            1.4           0.2
..   ...            ...           ...            ...           ...
145  146            6.7           3.0            5.2           2.3
146  147            6.3           2.5            5.0           1.9
147  148            6.5           3.0            5.2           2.0
148  149            6.2           3.4            5.4           2.3
149  150            5.9           3.0            5.1           1.8

            Species
0       Iris-setosa
1       Iris-setosa
2       Iris-setosa
3       Iris-setosa
4       Iris-setosa
..              ...
145  Iris-virginica
146  Iris-virginica
147  Iris-virginica
148  Iris-virginica
149  Iris-virginica

[150 rows x 6 columns]
```

```
df.drop(columns='Id',inplace=True)
```

```
df
```

```
     SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
Species
0              5.1           3.5            1.4           0.2
Iris-setosa
1              4.9           3.0            1.4           0.2
Iris-setosa
2              4.7           3.2            1.3           0.2
Iris-setosa
3              4.6           3.1            1.5           0.2
Iris-setosa
4              5.0           3.6            1.4           0.2
Iris-setosa
..             ...           ...            ...           ...
...
145            6.7           3.0            5.2           2.3  Iris-
virginica
146            6.3           2.5            5.0           1.9  Iris-
```

```
virginica
147            6.5           3.0            5.2           2.0  Iris-
virginica
148            6.2           3.4            5.4           2.3  Iris-
virginica
149            5.9           3.0            5.1           1.8  Iris-
virginica

[150 rows x 5 columns]
```

```
grp = df.groupby('Species')
```

```
df['Species'].unique()
```

```
array(['Iris-setosa', 'Iris-versicolor', 'Iris-virginica'],
dtype=object)
```

```
iris_setosa = grp.get_group("Iris-setosa")
```

```
iris_setosa.head(10)
```

```
   SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
Species
0            5.1           3.5            1.4           0.2  Iris-
setosa
1            4.9           3.0            1.4           0.2  Iris-
setosa
2            4.7           3.2            1.3           0.2  Iris-
setosa
3            4.6           3.1            1.5           0.2  Iris-
setosa
4            5.0           3.6            1.4           0.2  Iris-
setosa
5            5.4           3.9            1.7           0.4  Iris-
setosa
6            4.6           3.4            1.4           0.3  Iris-
setosa
7            5.0           3.4            1.5           0.2  Iris-
setosa
8            4.4           2.9            1.4           0.2  Iris-
setosa
9            4.9           3.1            1.5           0.1  Iris-
setosa
```

```
iris_setosa
```

```
    SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
Species
0             5.1           3.5            1.4           0.2  Iris-
setosa
1             4.9           3.0            1.4           0.2  Iris-
setosa
```

2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
5	5.4	3.9	1.7	0.4	Iris-setosa
6	4.6	3.4	1.4	0.3	Iris-setosa
7	5.0	3.4	1.5	0.2	Iris-setosa
8	4.4	2.9	1.4	0.2	Iris-setosa
9	4.9	3.1	1.5	0.1	Iris-setosa
10	5.4	3.7	1.5	0.2	Iris-setosa
11	4.8	3.4	1.6	0.2	Iris-setosa
12	4.8	3.0	1.4	0.1	Iris-setosa
13	4.3	3.0	1.1	0.1	Iris-setosa
14	5.8	4.0	1.2	0.2	Iris-setosa
15	5.7	4.4	1.5	0.4	Iris-setosa
16	5.4	3.9	1.3	0.4	Iris-setosa
17	5.1	3.5	1.4	0.3	Iris-setosa
18	5.7	3.8	1.7	0.3	Iris-setosa
19	5.1	3.8	1.5	0.3	Iris-setosa
20	5.4	3.4	1.7	0.2	Iris-setosa
21	5.1	3.7	1.5	0.4	Iris-setosa
22	4.6	3.6	1.0	0.2	Iris-setosa
23	5.1	3.3	1.7	0.5	Iris-setosa
24	4.8	3.4	1.9	0.2	Iris-setosa
25	5.0	3.0	1.6	0.2	Iris-setosa
26	5.0	3.4	1.6	0.4	Iris-setosa

```
27            5.2           3.5            1.5           0.2  Iris-
setosa
28            5.2           3.4            1.4           0.2  Iris-
setosa
29            4.7           3.2            1.6           0.2  Iris-
setosa
30            4.8           3.1            1.6           0.2  Iris-
setosa
31            5.4           3.4            1.5           0.4  Iris-
setosa
32            5.2           4.1            1.5           0.1  Iris-
setosa
33            5.5           4.2            1.4           0.2  Iris-
setosa
34            4.9           3.1            1.5           0.1  Iris-
setosa
35            5.0           3.2            1.2           0.2  Iris-
setosa
36            5.5           3.5            1.3           0.2  Iris-
setosa
37            4.9           3.1            1.5           0.1  Iris-
setosa
38            4.4           3.0            1.3           0.2  Iris-
setosa
39            5.1           3.4            1.5           0.2  Iris-
setosa
40            5.0           3.5            1.3           0.3  Iris-
setosa
41            4.5           2.3            1.3           0.3  Iris-
setosa
42            4.4           3.2            1.3           0.2  Iris-
setosa
43            5.0           3.5            1.6           0.6  Iris-
setosa
44            5.1           3.8            1.9           0.4  Iris-
setosa
45            4.8           3.0            1.4           0.3  Iris-
setosa
46            5.1           3.8            1.6           0.2  Iris-
setosa
47            4.6           3.2            1.4           0.2  Iris-
setosa
48            5.3           3.7            1.5           0.2  Iris-
setosa
49            5.0           3.3            1.4           0.2  Iris-
setosa
```

```
iris_setosa.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 50 entries, 0 to 49
```

```
Data columns (total 5 columns):
 #   Column         Non-Null Count  Dtype
---  ------         --------------  -----
 0   SepalLengthCm  50 non-null     float64
 1   SepalWidthCm   50 non-null     float64
 2   PetalLengthCm  50 non-null     float64
 3   PetalWidthCm   50 non-null     float64
 4   Species        50 non-null     object
dtypes: float64(4), object(1)
memory usage: 2.3+ KB
```

```
iris_setosa.describe()
```

```
       SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
count       50.00000     50.000000      50.000000      50.00000
mean         5.00600      3.418000       1.464000       0.24400
std          0.35249      0.381024       0.173511       0.10721
min          4.30000      2.300000       1.000000       0.10000
25%          4.80000      3.125000       1.400000       0.20000
50%          5.00000      3.400000       1.500000       0.20000
75%          5.20000      3.675000       1.575000       0.30000
max          5.80000      4.400000       1.900000       0.60000
```

```
iris_versicolor = grp.get_group('Iris-versicolor')
```

```
iris_versicolor
```

```
    SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
Species
50            7.0           3.2            4.7           1.4  Iris-
versicolor
51            6.4           3.2            4.5           1.5  Iris-
versicolor
52            6.9           3.1            4.9           1.5  Iris-
versicolor
53            5.5           2.3            4.0           1.3  Iris-
versicolor
54            6.5           2.8            4.6           1.5  Iris-
versicolor
55            5.7           2.8            4.5           1.3  Iris-
versicolor
56            6.3           3.3            4.7           1.6  Iris-
versicolor
57            4.9           2.4            3.3           1.0  Iris-
versicolor
58            6.6           2.9            4.6           1.3  Iris-
versicolor
59            5.2           2.7            3.9           1.4  Iris-
versicolor
60            5.0           2.0            3.5           1.0  Iris-
versicolor
```

61	5.9	3.0	4.2	1.5	Iris-versicolor
62	6.0	2.2	4.0	1.0	Iris-versicolor
63	6.1	2.9	4.7	1.4	Iris-versicolor
64	5.6	2.9	3.6	1.3	Iris-versicolor
65	6.7	3.1	4.4	1.4	Iris-versicolor
66	5.6	3.0	4.5	1.5	Iris-versicolor
67	5.8	2.7	4.1	1.0	Iris-versicolor
68	6.2	2.2	4.5	1.5	Iris-versicolor
69	5.6	2.5	3.9	1.1	Iris-versicolor
70	5.9	3.2	4.8	1.8	Iris-versicolor
71	6.1	2.8	4.0	1.3	Iris-versicolor
72	6.3	2.5	4.9	1.5	Iris-versicolor
73	6.1	2.8	4.7	1.2	Iris-versicolor
74	6.4	2.9	4.3	1.3	Iris-versicolor
75	6.6	3.0	4.4	1.4	Iris-versicolor
76	6.8	2.8	4.8	1.4	Iris-versicolor
77	6.7	3.0	5.0	1.7	Iris-versicolor
78	6.0	2.9	4.5	1.5	Iris-versicolor
79	5.7	2.6	3.5	1.0	Iris-versicolor
80	5.5	2.4	3.8	1.1	Iris-versicolor
81	5.5	2.4	3.7	1.0	Iris-versicolor
82	5.8	2.7	3.9	1.2	Iris-versicolor
83	6.0	2.7	5.1	1.6	Iris-versicolor
84	5.4	3.0	4.5	1.5	Iris-versicolor
85	6.0	3.4	4.5	1.6	Iris-versicolor

```
86            6.7           3.1            4.7           1.5  Iris-
versicolor
87            6.3           2.3            4.4           1.3  Iris-
versicolor
88            5.6           3.0            4.1           1.3  Iris-
versicolor
89            5.5           2.5            4.0           1.3  Iris-
versicolor
90            5.5           2.6            4.4           1.2  Iris-
versicolor
91            6.1           3.0            4.6           1.4  Iris-
versicolor
92            5.8           2.6            4.0           1.2  Iris-
versicolor
93            5.0           2.3            3.3           1.0  Iris-
versicolor
94            5.6           2.7            4.2           1.3  Iris-
versicolor
95            5.7           3.0            4.2           1.2  Iris-
versicolor
96            5.7           2.9            4.2           1.3  Iris-
versicolor
97            6.2           2.9            4.3           1.3  Iris-
versicolor
98            5.1           2.5            3.0           1.1  Iris-
versicolor
99            5.7           2.8            4.1           1.3  Iris-
versicolor
```

```
iris_versicolor.describe()
```

```
       SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
count      50.000000     50.000000      50.000000     50.000000
mean        5.936000      2.770000       4.260000      1.326000
std         0.516171      0.313798       0.469911      0.197753
min         4.900000      2.000000       3.000000      1.000000
25%         5.600000      2.525000       4.000000      1.200000
50%         5.900000      2.800000       4.350000      1.300000
75%         6.300000      3.000000       4.600000      1.500000
max         7.000000      3.400000       5.100000      1.800000
```

```
df['Species'].unique()
```

```
array(['Iris-setosa', 'Iris-versicolor', 'Iris-virginica'],
dtype=object)
```

```
iris_virginica = grp.get_group("Iris-virginica")
```

```
iris_virginica.describe()
```

```
       SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
count       50.00000     50.000000      50.000000      50.00000
```

```
mean         6.58800      2.974000       5.552000       2.02600
std          0.63588      0.322497       0.551895       0.27465
min          4.90000      2.200000       4.500000       1.40000
25%          6.22500      2.800000       5.100000       1.80000
50%          6.50000      3.000000       5.550000       2.00000
75%          6.90000      3.175000       5.875000       2.30000
max          7.90000      3.800000       6.900000       2.50000
```

```
iris_virginica.mean()
```

```
<ipython-input-64-4321a7fe8aa7>:1: FutureWarning: The default value of
numeric_only in DataFrame.mean is deprecated. In a future version, it
will default to False. In addition, specifying 'numeric_only=None' is
deprecated. Select only valid columns or specify the value of
numeric_only to silence this warning.
  iris_virginica.mean()
```

```
SepalLengthCm    6.588
SepalWidthCm     2.974
PetalLengthCm    5.552
PetalWidthCm     2.026
dtype: float64
```

```
print(iris_virginica.describe())
```

```
       SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
count       50.00000     50.000000      50.000000      50.00000
mean         6.58800      2.974000       5.552000       2.02600
std          0.63588      0.322497       0.551895       0.27465
min          4.90000      2.200000       4.500000       1.40000
25%          6.22500      2.800000       5.100000       1.80000
50%          6.50000      3.000000       5.550000       2.00000
75%          6.90000      3.175000       5.875000       2.30000
max          7.90000      3.800000       6.900000       2.50000
```

```
print(" 1. Iris_virginica\n 2. Iris-versicolor \n 3. Iris-setosa \n 4.
exit")
choice = ''
while(choice!='exit'):
  choice = input("Enter your choice: ")

  if(choice == 'Iris_virginica'):
    print("Iris_virginica")
    print(iris_virginica.describe())
  elif(choice=='Iris-versicolor'):
    print("Iris-versicolor")
    print(iris_versicolor.describe())
  elif(choice=='Iris-setosa'):
    print("Iris-setosa")
    print(iris_setosa.descirbe())
```

```
  else:
    print("Thank You")
```

```
1. iris_virginica
 2. Iris-versicolor
 3. Iris-setosa
 4. exit
Enter your choice: iris_virginica
       SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
count       50.00000     50.000000      50.000000      50.00000
mean         6.58800      2.974000       5.552000       2.02600
std          0.63588      0.322497       0.551895       0.27465
min          4.90000      2.200000       4.500000       1.40000
25%          6.22500      2.800000       5.100000       1.80000
50%          6.50000      3.000000       5.550000       2.00000
75%          6.90000      3.175000       5.875000       2.30000
max          7.90000      3.800000       6.900000       2.50000
Enter your choice: exit
Thank You
```