In [1]:
```
import pandas as pd
import matplotlib as mt
import seaborn as sns
```

In [2]:
```
df=pd.read_csv('Iris.csv')
```

In [4]:
```
df.info()
# count This shows the number of non-null values in each numerical column
#mean
#std ,
#25%= Q1  value below which 25% of the data falls.
# 50% median
#75%= Q3   value below which 75% of the data falls.
#max and min val in that column
```

```
<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
```

In [5]:
```
df.shape
```

Out[5]:
```
(150, 6)
```

In [6]:
```
df.describe()
```

Out[6]:

| | 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 |

In [7]:
```
df.head()
```

Out[7]:

| | Id | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm | Species |
|---|---|---|---|---|---|---|
| **0** | 1 | 5.1 | 3.5 | 1.4 | 0.2 | Iris-setosa |
| **1** | 2 | 4.9 | 3.0 | 1.4 | 0.2 | Iris-setosa |
| **2** | 3 | 4.7 | 3.2 | 1.3 | 0.2 | Iris-setosa |
| **3** | 4 | 4.6 | 3.1 | 1.5 | 0.2 | Iris-setosa |
| **4** | 5 | 5.0 | 3.6 | 1.4 | 0.2 | Iris-setosa |

In [8]:
```
df.tail()
```

Out[8]:

| | Id | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm | Species |
|---|---|---|---|---|---|---|
| **145** | 146 | 6.7 | 3.0 | 5.2 | 2.3 | Iris-virginica |
| **146** | 147 | 6.3 | 2.5 | 5.0 | 1.9 | Iris-virginica |
| **147** | 148 | 6.5 | 3.0 | 5.2 | 2.0 | Iris-virginica |
| **148** | 149 | 6.2 | 3.4 | 5.4 | 2.3 | Iris-virginica |
| **149** | 150 | 5.9 | 3.0 | 5.1 | 1.8 | Iris-virginica |

In [9]:
```
df.isnull()
```

Out[9]:

| | Id | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm | Species |
|---|---|---|---|---|---|---|
| **0** | False | False | False | False | False | False |
| **1** | False | False | False | False | False | False |
| **2** | False | False | False | False | False | False |
| **3** | False | False | False | False | False | False |
| **4** | False | False | False | False | False | False |
| **...** | ... | ... | ... | ... | ... | ... |
| **145** | False | False | False | False | False | False |
| **146** | False | False | False | False | False | False |
| **147** | False | False | False | False | False | False |
| **148** | False | False | False | False | False | False |
| **149** | False | False | False | False | False | False |

150 rows × 6 columns

In [11]:
```
df.isnull().sum()
```

Out[11]:
```
Id               0
SepalLengthCm    0
SepalWidthCm     0
PetalLengthCm    0
PetalWidthCm     0
Species          0
dtype: int64
```

In [12]:
```
grp_df=df[["SepalLengthCm","SepalWidthCm","PetalLengthCm","PetalWidthCm"]].g
```

In [25]:
```
mean=grp_df.mean()
mean
```

Out[25]:

| Species | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm |
|---|---|---|---|---|
| **Iris-setosa** | 5.006 | 3.418 | 1.464 | 0.244 |
| **Iris-versicolor** | 5.936 | 2.770 | 4.260 | 1.326 |
| **Iris-virginica** | 6.588 | 2.974 | 5.552 | 2.026 |

In [18]:
```
median=grp_df.median()
median
```

Out[18]:

| Species | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm |
|---|---|---|---|---|
| **Iris-setosa** | 5.0 | 3.4 | 1.50 | 0.2 |
| **Iris-versicolor** | 5.9 | 2.8 | 4.35 | 1.3 |
| **Iris-virginica** | 6.5 | 3.0 | 5.55 | 2.0 |

In [19]:
```
std=grp_df.std()
std
```

Out[19]:

| Species | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm |
|---|---|---|---|---|
| **Iris-setosa** | 0.352490 | 0.381024 | 0.173511 | 0.107210 |
| **Iris-versicolor** | 0.516171 | 0.313798 | 0.469911 | 0.197753 |
| **Iris-virginica** | 0.635880 | 0.322497 | 0.551895 | 0.274650 |

In [20]:
```
df.Species.mode()
```

Out[20]:
```
0        Iris-setosa
1    Iris-versicolor
2     Iris-virginica
Name: Species, dtype: object
```

In [21]:
```
df.SepalLengthCm.std()
```

Out[21]:
```
0.8280661279778629
```

In [22]:
```
df.SepalWidthCm.std()
```

Out[22]:
```
0.4335943113621737
```

In [23]:
```
df.PetalLengthCm.std()
```

Out[23]:
```
1.7644204199522617
```

In [24]:
```
df.PetalWidthCm.std()
```

Out[24]:
```
0.7631607417008414
```

In [ ]:
```

```