In [1]:

```
import pandas as pd
import numpy as np
import math
```

In [2]:

```
df = pd.read_csv("C:/Users/ameya/OneDrive/Desktop/DSBDAL/Iris.csv")
```

In [3]:

```
df.head()
```

Out[3]:

	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 [4]:

```
datagrp = df.groupby(df['Species'])
```

In [5]:

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

Out[5]:

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

In [6]:

```
setosaGrp = datagrp.get_group('Iris-setosa')
```

In [7]:

```
versicolorGrp = datagrp.get_group('Iris-versicolor')
```

In [8]:

```
virginicaGrp = datagrp.get_group('Iris-virginica')
```

In [9]:

```
setosaGrp.drop(['Species'],axis=1,inplace=True)
```

```
C:\Users\ameya\AppData\Local\Temp\ipykernel_1272\2476728539.py:1: Setting
WithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-do
cs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (http
s://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returni
ng-a-view-versus-a-copy)
  setosaGrp.drop(['Species'],axis=1,inplace=True)
```

In [10]:

```
setosaGrp.head()
```

Out[10]:

	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

In [11]:

```
versicolorGrp.drop(['Species'],axis=1,inplace=True)
```

```
C:\Users\ameya\AppData\Local\Temp\ipykernel_1272\1687820952.py:1: Setting
WithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-do
cs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (http
s://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returni
ng-a-view-versus-a-copy)
  versicolorGrp.drop(['Species'],axis=1,inplace=True)
```

In [12]:

```
versicolorGrp.head()
```

Out[12]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
50	51	7.0	3.2	4.7	1.4
51	52	6.4	3.2	4.5	1.5
52	53	6.9	3.1	4.9	1.5
53	54	5.5	2.3	4.0	1.3
54	55	6.5	2.8	4.6	1.5

In [13]:

```
virginicaGrp.drop(['Species'],axis=1,inplace=True)
```

```
C:\Users\ameya\AppData\Local\Temp\ipykernel_1272\2516959400.py:1: Setting
WithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-do
cs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (http
s://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returni
ng-a-view-versus-a-copy)
  virginicaGrp.drop(['Species'],axis=1,inplace=True)
```

In [14]:

```
virginicaGrp.head()
```

Out[14]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
100	101	6.3	3.3	6.0	2.5
101	102	5.8	2.7	5.1	1.9
102	103	7.1	3.0	5.9	2.1
103	104	6.3	2.9	5.6	1.8
104	105	6.5	3.0	5.8	2.2

In [15]:

```
def showData(data):
    print(data.name)
    data2 = data.sort_values(ascending = True)
    sum = 0;
    count = 0
    for i in data2:
        sum += i
        count +=1
    mean = sum/count
    print('Mean: ',mean)

    stdSum = 0
    for i in data2:
        dist = (i-mean)*(i-mean)
        stdSum += dist
    variance = stdSum/count
    std = math.sqrt(variance)
    print("Max: ",data2[count-1])
    print("Min: ",data2[0])

    Q1 = np.percentile(data2,0.25)
    Q2 = np.percentile(data2,0.5)
    Q3 = np.percentile(data2,0.75)

    print("Q1: ",Q1)
    print("Q2: ",Q2)
    print("Q3: ",Q3)
    print("Std: ",std)
    print("\n\n")
```

In [16]:

```
setosaGrp.apply(showData,0)
```

```
Id
Mean:  25.5
Max:  50
Min:  1
Q1:  1.1225
Q2:  1.245
Q3:  1.3675
Std:  14.430869689661812



SepalLengthCm
Mean:  5.005999999999999
Max:  5.0
Min:  5.1
Q1:  4.31225
Q2:  4.3245
Q3:  4.33675
Std:  0.34894698737773916



SepalWidthCm
Mean:  3.418000000000002
Max:  3.3
Min:  3.5
Q1:  2.3735
Q2:  2.447
Q3:  2.5204999999999997
Std:  0.3771949098277971



PetalLengthCm
Mean:  1.4640000000000004
Max:  1.4
Min:  1.4
Q1:  1.01225
Q2:  1.0245
Q3:  1.03675
Std:  0.17176728442867115



PetalWidthCm
Mean:  0.2440000000000001
Max:  0.2
Min:  0.2
Q1:  0.1
Q2:  0.1
Q3:  0.1
Std:  0.10613199329137282
```

Out[16]:

```
Id                 None
SepalLengthCm      None
SepalWidthCm       None
PetalLengthCm      None
PetalWidthCm       None
dtype: object
```

In [17]:

```
def getData(series):
    n = float(input("Enter the percentile boundary value: "))
    count =0
    for i in series:
        if i<=n:
            count +=1
    percentile = (count/series.shape[0])*100;
    print("Percentile: ",percentile)
```

In [18]:

```
getData(setosaGrp['SepalLengthCm'])
```

```
Enter the percentile boundary value: 5
Percentile:  56.00000000000001
```

In [ ]:

```

```