```
import pandas as pd
import numpy as np
import math
import statistics
import scipy.stats
import seaborn as sns

df=pd.read_csv("Iris.csv")
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['Species'].unique()
```

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

```
setosa=df[df['Species']=='Iris-setosa']
setosa=setosa.drop(['Id'],axis=1)

virginica=df[df['Species']=='Iris-virginica']
virginica=virginica.drop(['Id'],axis=1)

versicolor=df[df['Species']=='Iris-versicolor']
versicolor=versicolor.drop(['Id'],axis=1)
```

```
#Calculating Mean for each species
setosa_mean=setosa.mean(numeric_only=True)
print("SETOSA\n",setosa_mean)

virginica_mean=virginica.mean(numeric_only=True)
print("\nVIRGINICA\n",virginica_mean)

versicolor_mean=versicolor.mean(numeric_only=True)
print("\nVERSICOLOR\n",versicolor_mean)
```

```
SETOSA
 SepalLengthCm    5.006
SepalWidthCm     3.418
PetalLengthCm    1.464
PetalWidthCm     0.244
dtype: float64

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

VERSICOLOR
 SepalLengthCm    5.936
SepalWidthCm     2.770
PetalLengthCm    4.260
PetalWidthCm     1.326
dtype: float64
```

```
#Calculating Median for each species
setosa_median=setosa.median(numeric_only=True)
print("SETOSA\n",setosa_median)

virginica_median=virginica.median(numeric_only=True)
print("\nVIRGINICA\n",virginica_median)

versicolor_median=versicolor.median(numeric_only=True)
print("\nVERSICOLOR\n",versicolor_median)
```

```
SETOSA
 SepalLengthCm    5.0
SepalWidthCm     3.4
PetalLengthCm    1.5
PetalWidthCm     0.2
dtype: float64

VIRGINICA
 SepalLengthCm    6.50
```

```
SepalWidthCm     3.00
PetalLengthCm    5.55
PetalWidthCm     2.00
dtype: float64

VERSICOLOR
 SepalLengthCm    5.90
SepalWidthCm     2.80
PetalLengthCm    4.35
PetalWidthCm     1.30
dtype: float64
```

```
#Calculating Mode for each species
setosa_mode=setosa.mode(numeric_only=True)
print("SETOSA\n",setosa_mode)

virginica_mode=virginica.mode(numeric_only=True)
print("\nVIRGINICA\n",virginica_mode)

versicolor_mode=versicolor.mode(numeric_only=True)
print("\nVERSICOLOR\n",versicolor_mode)
```

```
SETOSA
    SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
0            5.0           3.4            1.5           0.2
1            5.1           NaN            NaN           NaN

VIRGINICA
    SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
0            6.3           3.0            5.1           1.8

VERSICOLOR
    SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
0            5.5           3.0            4.5           1.3
1            5.6           NaN            NaN           NaN
2            5.7           NaN            NaN           NaN
```

```
#Calculating Standard Deviation for each species
setosa_std=setosa.std(numeric_only=True)
print("SETOSA\n",setosa_std)

virginica_std=virginica.std(numeric_only=True)
print("\nVIRGINICA\n",virginica_std)

versicolor_std=versicolor.std(numeric_only=True)
print("\nVERSICOLOR\n",versicolor_std)
```

```
SETOSA
 SepalLengthCm    0.352490
SepalWidthCm     0.381024
```

```
PetalLengthCm    0.173511
PetalWidthCm     0.107210
dtype: float64

VIRGINICA
 SepalLengthCm    0.635880
SepalWidthCm     0.322497
PetalLengthCm    0.551895
PetalWidthCm     0.274650
dtype: float64

VERSICOLOR
 SepalLengthCm    0.516171
SepalWidthCm     0.313798
PetalLengthCm    0.469911
PetalWidthCm     0.197753
dtype: float64
```

```
#Calculating Variance for each species
setosa_variance=setosa.var(numeric_only=True)
print("SETOSA\n",setosa_variance)

virginica_variance=virginica.var(numeric_only=True)
print("\nVIRGINICA\n",virginica_variance)

versicolor_variance=versicolor.var(numeric_only=True)
print("\nVERSICOLOR\n",versicolor_variance)
```

```
SETOSA
 SepalLengthCm    0.124249
SepalWidthCm     0.145180
PetalLengthCm    0.030106
PetalWidthCm     0.011494
dtype: float64

VIRGINICA
 SepalLengthCm    0.404343
SepalWidthCm     0.104004
PetalLengthCm    0.304588
PetalWidthCm     0.075433
dtype: float64

VERSICOLOR
 SepalLengthCm    0.266433
SepalWidthCm     0.098469
PetalLengthCm    0.220816
PetalWidthCm     0.039106
dtype: float64
```

```
df1=df.drop(['Id'],axis=1)
correlation = df1.corr()
round(correlation,2)
```

```
               SepalLengthCm  SepalWidthCm  PetalLengthCm
PetalWidthCm
SepalLengthCm           1.00         -0.11           0.87
0.82
SepalWidthCm           -0.11          1.00          -0.42          -
0.36
PetalLengthCm           0.87         -0.42           1.00
0.96
PetalWidthCm            0.82         -0.36           0.96
1.00
```

```
sns.heatmap(correlation)
```

```
<AxesSubplot:>
```