

Importing necessary libraries

```
In [ ]: import pandas as pd
import statistics as stat
import numpy as np
import math
```

Loading dataset

```
In [ ]: df = pd.read_csv("Dataset/iris.csv")
df.sample(7)
```

```
Out[ ]:
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
81	82	5.5	2.4	3.7	1.0	Iris-versicolor
99	100	5.7	2.8	4.1	1.3	Iris-versicolor
103	104	6.3	2.9	5.6	1.8	Iris-virginica
133	134	6.3	2.8	5.1	1.5	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
39	40	5.1	3.4	1.5	0.2	Iris-setosa
78	79	6.0	2.9	4.5	1.5	Iris-versicolor

```
In [ ]: def calculate_mode(series):
    mode_value = series.mode()
    if len(mode_value) > 0:
        return mode_value[0]
    else:
        return None
```

Central tendencies of Sepal length

```
In [ ]: mean = df.groupby(["Species"])[ "SepalLengthCm"].mean()
median = df.groupby(["Species"])[ "SepalLengthCm"].median()
mode = df.groupby("Species")[ "SepalLengthCm"].apply(calculate_mode)

var = df.groupby(["Species"])[ "SepalLengthCm"].var()
std = df.groupby(["Species"])[ "SepalLengthCm"].std()

print(f"Central tendencies of Sepal length")
print("Mean")
print(mean)
print("\n")
```

```
print("Median")
print(median)
print("\n")
print("Mode")
print(mode)
print("\n")
```

Central tendencies of Sepal length

Mean

Species

Iris-setosa 5.006

Iris-versicolor 5.936

Iris-virginica 6.588

Name: SepalLengthCm, dtype: float64

Median

Species

Iris-setosa 5.0

Iris-versicolor 5.9

Iris-virginica 6.5

Name: SepalLengthCm, dtype: float64

Mode

Species

Iris-setosa 5.0

Iris-versicolor 5.5

Iris-virginica 6.3

Name: SepalLengthCm, dtype: float64

Measure of dispersion of Sepal length

```
In [ ]: print(f"Measure of dispersion of Sepal length")
print("Variance")
print(var)
print("\n")
print("Standard deviation")
print(std)
```

Measure of dispersion of Sepal length

Variance

Species

Iris-setosa 0.124249

Iris-versicolor 0.266433

Iris-virginica 0.404343

Name: SepalLengthCm, dtype: float64

Standard deviation

Species

Iris-setosa 0.352490

Iris-versicolor 0.516171

Iris-virginica 0.635880

Name: SepalLengthCm, dtype: float64