In [2]:
```
!pip install pandas numpy seaborn
```

```
Requirement already satisfied: pandas in /home/sargam/.conda/envs/myenv/li
b/python3.11/site-packages (2.2.3)
Requirement already satisfied: numpy in /home/sargam/.conda/envs/myenv/li
b/python3.11/site-packages (2.0.1)
Requirement already satisfied: seaborn in /home/sargam/.conda/envs/myenv/l
ib/python3.11/site-packages (0.13.2)
Requirement already satisfied: python-dateutil>=2.8.2 in /home/sargam/.con
da/envs/myenv/lib/python3.11/site-packages (from pandas) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in /home/sargam/.conda/envs/my
env/lib/python3.11/site-packages (from pandas) (2024.1)
Requirement already satisfied: tzdata>=2022.7 in /home/sargam/.conda/envs/
myenv/lib/python3.11/site-packages (from pandas) (2025.2)
Requirement already satisfied: matplotlib!=3.6.1,>=3.4 in /home/sargam/.co
nda/envs/myenv/lib/python3.11/site-packages (from seaborn) (3.10.1)
Requirement already satisfied: contourpy>=1.0.1 in /home/sargam/.conda/env
s/myenv/lib/python3.11/site-packages (from matplotlib!=3.6.1,>=3.4->seabor
n) (1.3.2)
Requirement already satisfied: cycler>=0.10 in /home/sargam/.conda/envs/my
env/lib/python3.11/site-packages (from matplotlib!=3.6.1,>=3.4->seaborn)
(0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in /home/sargam/.conda/en
vs/myenv/lib/python3.11/site-packages (from matplotlib!=3.6.1,>=3.4->seabo
rn) (4.57.0)
Requirement already satisfied: kiwisolver>=1.3.1 in /home/sargam/.conda/en
vs/myenv/lib/python3.11/site-packages (from matplotlib!=3.6.1,>=3.4->seabo
rn) (1.4.8)
Requirement already satisfied: packaging>=20.0 in /home/sargam/.conda/env
s/myenv/lib/python3.11/site-packages (from matplotlib!=3.6.1,>=3.4->seabor
n) (24.2)
Requirement already satisfied: pillow>=8 in /home/sargam/.conda/envs/myen
v/lib/python3.11/site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (1
1.2.1)
Requirement already satisfied: pyparsing>=2.3.1 in /home/sargam/.conda/env
s/myenv/lib/python3.11/site-packages (from matplotlib!=3.6.1,>=3.4->seabor
n) (3.2.3)
Requirement already satisfied: six>=1.5 in /home/sargam/.conda/envs/myenv/
lib/python3.11/site-packages (from python-dateutil>=2.8.2->pandas) (1.17.
0)
```

In [7]:
```
# Import necessary libraries
import seaborn as sns
# Importing necessary libraries
import pandas as pd
import numpy as np


# Load the Iris dataset directly from seaborn
df = sns.load_dataset('iris')

# Inspect the first few rows to confirm it's loaded
print(df.head())
```

```
   sepal_length  sepal_width  petal_length  petal_width species
0           5.1          3.5           1.4          0.2  setosa
1           4.9          3.0           1.4          0.2  setosa
2           4.7          3.2           1.3          0.2  setosa
3           4.6          3.1           1.5          0.2  setosa
4           5.0          3.6           1.4          0.2  setosa
```

In [8]:
```
# Group by the species and calculate the basic statistics
grouped_stats = df.groupby('species').agg({
    'sepal_length': ['mean', 'std', 'min', 'max', lambda x: np.percentile
    'sepal_width': ['mean', 'std', 'min', 'max', lambda x: np.percentile(
    'petal_length': ['mean', 'std', 'min', 'max', lambda x: np.percentile
    'petal_width': ['mean', 'std', 'min', 'max', lambda x: np.percentile(
})
```

In [9]:
```
# Display the result
print("\nGrouped Summary Statistics for each Species:")
print(grouped_stats)
```

```
Grouped Summary Statistics for each Species:
           sepal_length
\
                  mean       std  min  max <lambda_0> <lambda_1> <lambda_
2>
species
setosa            5.006  0.352490  4.3  5.8      4.800        5.0
5.2
versicolor        5.936  0.516171  4.9  7.0      5.600        5.9
6.3
virginica         6.588  0.635880  4.9  7.9      6.225        6.5
6.9

           sepal_width                 ... petal_length
\
                  mean       std  min  ...   <lambda_0> <lambda_1> <lambda
_2>
species                               ...
setosa            3.428  0.379064  2.3  ...          1.4       1.50      1.
575
versicolor        2.770  0.313798  2.0  ...          4.0       4.35      4.
600
virginica         2.974  0.322497  2.2  ...          5.1       5.55      5.
875

           petal_width
                  mean       std  min  max <lambda_0> <lambda_1> <lambda_2
>
species
setosa            0.246  0.105386  0.1  0.6        0.2        0.2        0.
3
versicolor        1.326  0.197753  1.0  1.8        1.2        1.3        1.
5
virginica         2.026  0.274650  1.4  2.5        1.8        2.0        2.
3

[3 rows x 28 columns]
```

In [ ]: