

untitled12

May 3, 2024

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

```
[2]: data=pd.read_csv("C:\\Users\\nayan\\Downloads\\Iris.csv")
data
```

```
[2]:      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]

```
[3]: data.head()
```

```
[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

```
[4]: data.describe()
```

```
[4]:
```

	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

```
[5]: data.shape
```

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

```
[13]: data
```

```
[13]:
```

	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]

```
[18]: data.groupby('Species')[['SepalLengthCm', 'SepalWidthCm',
    ↪ 'PetalLengthCm', 'PetalWidthCm']].mean()
```

```
[18]:
```

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Species				
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

```
[19]: data.groupby('Species')[['SepalLengthCm', 'SepalWidthCm',
    ↪ 'PetalLengthCm', 'PetalWidthCm']].median()
```

```
[19]:
```

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Species				
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

```
[21]: data.Species.mode()
```

```
[21]: 0    Iris-setosa
      1    Iris-versicolor
      2    Iris-virginica
      Name: Species, dtype: object
```

```
[22]: data.groupby('Species')[['SepalLengthCm', 'SepalWidthCm',
    ↪ 'PetalLengthCm', 'PetalWidthCm']].min()
```

```
[22]:
```

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Species				
Iris-setosa	4.3	2.3	1.0	0.1
Iris-versicolor	4.9	2.0	3.0	1.0
Iris-virginica	4.9	2.2	4.5	1.4

```
[23]: data.groupby('Species')[['SepalLengthCm', 'SepalWidthCm',
    ↪ 'PetalLengthCm', 'PetalWidthCm']].max()
```

```
[23]:
```

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Species				
Iris-setosa	5.8	4.4	1.9	0.6
Iris-versicolor	7.0	3.4	5.1	1.8

Iris-virginica	7.9	3.8	6.9	2.5
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```
[24]: data.groupby('Species')[['SepalLengthCm', 'SepalWidthCm',
    ↪ 'PetalLengthCm', 'PetalWidthCm']].std()
```

```
[24]:
```

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Species				
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

```
[25]: data.SepalLengthCm.std()
```

```
[25]: 0.8280661279778629
```

```
[26]: data.SepalWidthCm.std()
```

```
[26]: 0.4335943113621737
```

```
[27]: data.PetalLengthCm.std()
```

```
[27]: 1.7644204199522617
```

```
[28]: data.PetalWidthCm.std()
```

```
[28]: 0.7631607417008414
```

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[ ]:
```