import pandas as pd

**5/7/24, 4:49 PM Assignment 3.ipynb - Colab**

data=pd.read\_csv(Vcontent/Iris.csv') df=pd.DataFrame(data)

df

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 |
| **145** 146 | 6.7 | 3.0 | 5.2 | 2.3 Iris-virginica |
| **146** 147 | 6.3 | 2.5 | 5.0 | 1.9 Iris-virginica |
| **147** 148 | 6.5 | 3.0 | 5.2 | 2.0 Iris-virginica |
| **148** 149 | 6.2 | 3.4 | 5.4 | 2.3 Iris-virginica |
| **149** 150 | 5.9 | 3.0 | 5.1 | 1.8 Iris-virginica |

150 rows x 6 columns

df.describe()

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **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 |
| df.dtypes |  |  |  |  |  |

Id int64

SepalLengthCm float64

SepalWidthCm float64

PetalLengthCm float64

PetalWidthCm float64

Species object

dtype: object

df.groupby('Species').mean()

**Id SepalLengthCm SepalWidthCm PetalLengthCm PetalWidthCm**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Species** |  |  |  |  |  |
| **Iris-setosa** | 25.5 | 5.006 | 3.418 | 1.464 | 0.244 |
| **Iris-versicolor** | 75.5 | 5.936 | 2.770 | 4.260 | 1.326 |
| **Iris-virginica** | 125.5 | 6.588 | 2.974 | 5.552 | 2.026 |

df.groupby('Species').median()

[**https://colab.research.google.com/drive/1Y5h1VF3HrBsEnk3bHEXrA55x5SCIZTGi#printMode=true**](https://colab.research.google.com/drive/1Y5h1VF3HrBsEnk3bHEXrA55x5SCIZTGi#printMode=true) **1/3**

**Id SepalLengthCm SepalWidthCm PetalLengthCm PetalWidthCm**

**5/7/24, 4:49 PM Assignment 3.ipynb - Colab**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Species** |  |  |  |  |  |
| **Iris-setosa** | 25.5 | 5.0 | 3.4 | 1.50 | 0.2 |
| **Iris-versicolor** | 75.5 | 5.9 | 2.8 | 4.35 | 1.3 |
| **Iris-virginica** | 125.5 | 6.5 | 3.0 | 5.55 | 2.0 |

df.groupby('Species').std()

**Id SepalLengthCm SepalWidthCm PetalLengthCm PetalWidthCm**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Species** |  |  |  |  |  |
| **Iris-setosa** | 14.57738 | 0.352490 | 0.381024 | 0.173511 | 0.107210 |
| **Iris-versicolor** | 14.57738 | 0.516171 | 0.313798 | 0.469911 | 0.197753 |
| **Iris-virginica** | 14.57738 | 0.635880 | 0.322497 | 0.551895 | 0.274650 |

df.groupby('Species').var()

**Id SepalLengthCm SepalWidthCm PetalLengthCm PetalWidthCm**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** |  |  |  |  |
| **Iris-setosa** 212.5 | 0.124249 | 0.145180 | 0.030106 | 0.011494 |
| **Iris-versicolor** 212.5 | 0.266433 | 0.098469 | 0.220816 | 0.039106 |
| **Iris-virginica** 212.5 | 0.404343 | 0.104004 | 0.304588 | 0.075433 |

df.mode(axis=1,numeric\_only.True) df.mode(axis=0, numeric\_only=False)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Id** | **SepalLengthCm** | **SepalWidthCm** | **PetalLengthCm** | **PetalWidthCm** | **Species** |
| **0** | 1 | 5.0 | 3.0 | 1.5 | 0.2 | Iris-setosa |
| **1** | 2 | NaN | NaN | NaN | NaN | Iris-versicolor |
| **2** | 3 | NaN | NaN | NaN | NaN | Iris-virginica |
| 3 | 4 | NaN | NaN | NaN | NaN | NaN |
| **4** | 5 | NaN | NaN | NaN | NaN | NaN |
| **145** | 146 | NaN | NaN | NaN | NaN | NaN |
| **146** | 147 | NaN | NaN | NaN | NaN | NaN |
| **147** | 148 | NaN | NaN | NaN | NaN | NaN |
| **148** | 149 | NaN | NaN | NaN | NaN | NaN |
| **149** | **150** | **NaN** | **NaN** | **NaN** | **NaN** | NaN |

150 rows x 6 columns

df.groupby('Species').max()

**Id SepalLengthCm SepalWidthCm PetalLengthCm PetalWidthCm**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Species** |  |  |  |  |  |
| **Iris-setosa** | 50 | 5.8 | 4.4 | 1.9 | 0.6 |
| **Iris-versicolor** | 100 | 7.0 | 3.4 | 5.1 | 1.8 |
| **Iris-virginica** | 150 | 7.9 | 3.8 | 6.9 | 2.5 |

df.groupby('Species').min()

<https://colab.research.google.com/drive/lY5h1VF3HrBsEnk3bHEXrA55x5SCIZTGi#printMode=true> 2/3

**Id SepalLengthCm SepalWidthCm PetalLengthCm PetalWidthCm**

**5/7/24, 4:49 PM Assignment 3.ipynb - Colab**

[**https://colab.research.google.com/drive/lY5h1VF3HrBsEnk3bHEXrA55x5SCIZTGi#printMode=true**](https://colab.research.google.com/drive/lY5h1VF3HrBsEnk3bHEXrA55x5SCIZTGi#printMode=true) **3/3**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Species** |  |  |  |  |  |
| **Iris-setosa** | 1 | 4.3 | 2.3 | 1.0 | 0.1 |
| **Iris-versicolor** | 51 | 4.9 | 2.0 | 3.0 | 1.0 |
| **Iris-virginica** | 101 | 4.9 | 2.2 | 4.5 | 1.4 |