The Mean: Takeaways ⤴

Syntax

COMPUTING THE MEAN OF ANY NUMERICAL ARRAY:

- Pure Python:
```
mean = sum(array) / len(array)
```

- Using numpy:
```
from numpy import mean
mean_numpy = mean(array)
```

COMPUTING THE MEAN OF A SERIES:

- Using pandas:
```
mean = Series.mean()
```

Concepts

- We can summarize the distribution of a numerical variable by computing its **mean**.

- The mean is a single value and is the result of taking into account **equally** each value in the distribution.

- The mean is **the balance point** of a distribution — the total distance of the values below the mean is equal to the total distance of the values above the mean.

- The mean μ of a population can be defined algebraically in several equivalent ways:

$$\mu = \frac{x_1 + x_2 + \ldots + x_N}{N} = \frac{\sum_{i=1}^{N} x_i}{N} = \frac{1}{N} \left(\sum_{i=1}^{N} x_i \right)$$

- The mean $\bar{x}$ of a sample can be defined algebraically in several equivalent ways:

$$\bar{x} = \frac{x_1 + x_2 + \ldots + x_n}{n} = \frac{\sum_{i=1}^{n} x_i}{n} = \frac{1}{n} \left(\sum_{i=1}^{n} x_i \right)$$

- The sample mean $\bar{x}$ is an unbiased estimator for the population mean μ.

Resources

- [The Wikipedia entry](#) on the mean.

- Useful documentation:
  - [numpy.mean()](#)
  - [Series.mean()](#)