**Arithmetic Mean**

The **arithmetic mean**, often referred to simply as the **mean**, is one of the most commonly used measures of central tendency. It represents the average value of a dataset, providing a single number that summarizes the central point of the data.

**Formula for Arithmetic Mean:**

Mean=∑xi/n

Where:

* ∑xi = Sum of all data points in the dataset
* n = Total number of data points

**How It Works:**

1. **Add** all the values in the dataset together.
2. **Divide** the total sum by the number of values.

**Example:**

Consider the dataset: **5, 8, 12, 15, 20**

**Step 1:** Add all the numbers:

5+8+12+15+20=605 + 8 + 12 + 15 + 20 = 60

**Step 2:** Divide by the number of values (which is 5):

Mean=60/5=12

So, the **arithmetic mean** of this dataset is **12**.

**Key Points to Remember:**

* The mean **uses all data points**, making it a comprehensive measure.
* It works best with **quantitative data** that is symmetrically distributed (without extreme outliers).
* The mean can be **skewed** if the dataset contains **outliers** (extremely high or low values).

**Example with Outliers:**

Consider **2, 3, 4, 5 and 100**:

* Sum = 2+3+4+5+100=114
* Mean = 114/5=22.8

Notice how the outlier **100** pulls the mean significantly higher than the other values. This is why the mean may not always represent the "typical" value in skewed datasets.

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