Statistical Measures
(Skewness, Variance, Deviation)

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- <u>Importance of statistical measures in data analysis (skewness, variance, and deviation)</u>

1. **Skewness**

- measure of the asymmetry of a probability distribution.
- It helps us understand the shape of the distribution and identify any departure from symmetry.
- Positive skewness indicates a longer tail on the right side, while negative skewness indicates a longer tail on the left side.
- is widely used in finance, economics, and social sciences to analyze income distributions, market returns, and response times.
- *Example*: Examining the skewness of income distribution in a population

2. Variance

- Variance measures the spread or dispersion of a set of data points around their mean.
- It provides insights into the degree of variability within the data.
- High variance suggests a wider range of values, indicating greater diversity.
- Low variance indicates data points are closely clustered around the mean, implying less variability.
- is extensively utilized in risk analysis, quality control, and experimental studies.
  - *Example*:
Analyzing the variance of stock returns in a portfolio

3. Deviation

- measures the distance between individual data points and the mean.
- It reflects the extent of data points'

deviation from the average value.
- Absolute deviation calculates the absolute difference between a data point and the mean, while squared deviation considers the squared difference.
 - Deviation is crucial for assessing data variability, identifying outliers, and understanding the precision of measurements.
   - *Example*: Calculating the deviation of test scores from the mean in a classroom