



Skewness and Kurtosis

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What is Skewness?

Definition

Skewness measures the degree of asymmetry of a distribution in relation to its mean value.

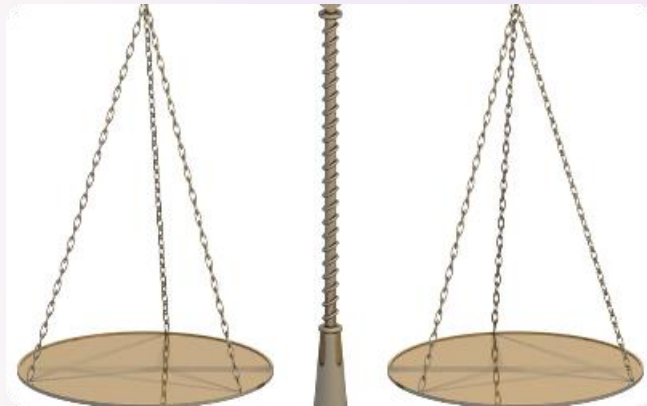
Types

There are three types of skewness: positive, negative, and zero.

Interpretation

A positive skew means that the tail of the distribution is longer on the right side, while a negative skew means that the tail is longer on the left side. A zero skew means the distribution is perfectly symmetrical.

Interpreting Skewness Values



Positive Skewness

Positive skewness values indicate that the mean is greater than the median.



Negative Skewness

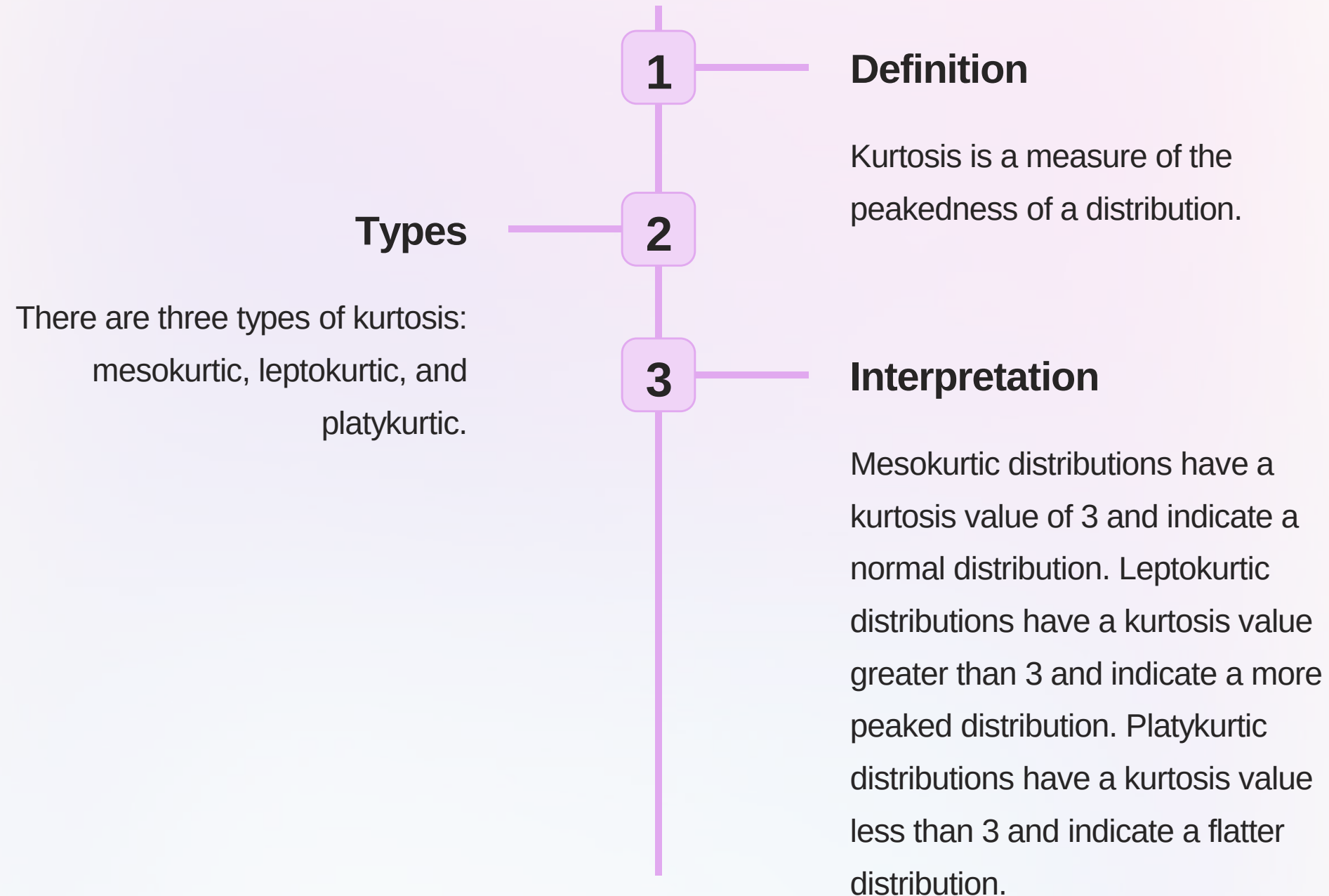
Negative skewness values indicate that the median is greater than the mean and that the tail of the distribution is longer on the left side.



Zero Skewness

Zero skewness values indicate that the distribution is perfectly symmetrical.

What is Kurtosis?



Interpreting Kurtosis Values

1 Mesokurtic

A kurtosis value of 3 indicates a normal distribution that is neither flat nor peaked.

2 Leptokurtic

A kurtosis value greater than 3 indicates a more centrally peaked distribution.

3 Platykurtic

A kurtosis value less than 3 indicates a flatter distribution with fewer outliers.

Relationship between Skewness and Kurtosis

Positive Skewness and Kurtosis

A positively skewed distribution with a high kurtosis value indicates that there is a high concentration of data points around the mean and a small range of outliers. This could be seen in data related to incomes or salaries.

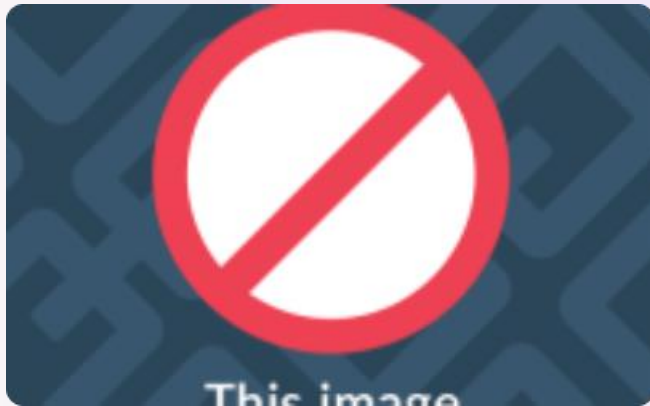
Negative Skewness and Kurtosis

A negatively skewed distribution with a high kurtosis value indicates that there is a low concentration of data points around the mean and a broad range of outliers. This could be seen with data related to the number of days before payments are made.

Zero Skewness and Kurtosis

A symmetrical distribution with a kurtosis value of 3 indicates a normal distribution. This could be seen in data related to physical features like weight or height.

Applications of Skewness and Kurtosis



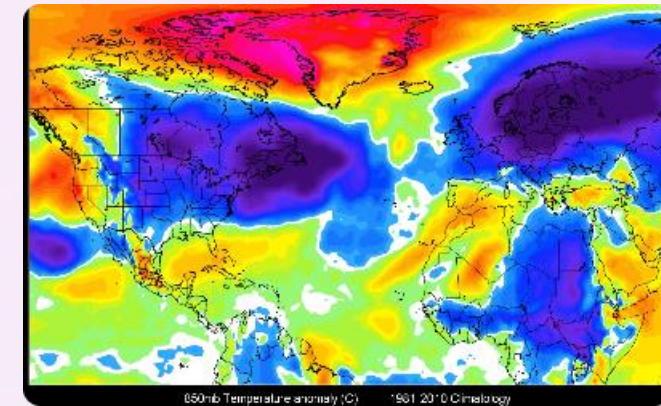
Stock Market

Use skewness and kurtosis to study stock market trends and data.



Product Development

Understand consumer preferences and the effectiveness of different products by analyzing the skewness and kurtosis values of sales data.



Climate

Characterize climate data to understand seasonal changes or overall trends.