Cross-tabulation, also known as contingency table analysis or crosstab, is a statistical technique used to summarize and analyze the relationship between two categorical variables. It provides a way to explore the association and distribution of data across different categories. The result is a table that shows the frequency or count of observations for each combination of the two variables.

Here are the key components and steps involved in cross-tabulation:

Variables:

Cross-tabulation involves two categorical variables. These variables could be nominal or ordinal. Table Construction:

A table is constructed with rows representing one variable and columns representing the other variable. The intersection of a row and a column represents a unique combination of the two variables. Frequency Counts:

Each cell in the table contains the frequency count or the number of occurrences of a specific combination of categories from the two variables. Percentages or Proportions:

Often, the raw frequency counts are converted into percentages or proportions to better understand the relative distribution of the data. Analysis:

Analysts can then analyze the table to identify patterns, trends, or relationships between the two variables. This can involve looking for higher or lower frequencies in specific cells or comparing percentages across rows or columns. Chi-Square Test:

In some cases, a chi-square test may be performed on the cross-tabulation to determine if the observed distribution of data significantly differs from what would be expected by chance.