Definition of Cross Tabulation:

Suppose that you are hired by the local school board to conduct a survey on attitudes toward sex education. The district is planning to modify its current sex education curriculum, but it needs additional data to help determine what to include in the curriculum. Some of the school board members think that sex education should focus solely on abstinence, while others believe that sex education should be more comprehensive. You create a 3-item survey. The items are:

1. Do you think that high school students should be provided with abstinence-only sex education?
2. Do you think that high schools should provide more comprehensive sex education that includes a discussion of birth control methods and how to practice safe sex?
3. Do you think that receiving sex education in high school is important?

You decide to give your survey to 250 students, 250 parents and all of the 100 teachers in the school district. The following is a summary of your findings:

Cross tabulation helps you understand how two different variables are related to each other. For example, suppose you wanted to see if there is a relationship between the gender of the survey responder and if sex education in high school is important.

Using the survey data, you can count the number of males and females who said that sex education is important, and the number of males and females who said that sex education is not important. You then take this information and create a **contingency table**, which displays the frequency of each of the variables. Suppose that there are 300 females and 300 males who completed the survey. Here is what our cross tabulation looks like:

Cross tabulation is usually performed on categorical data — data that can be divided into mutually exclusive groups.

An example of categorical data is the region of sales for a product. Typically, region can be divided into categories such as geographic area (North, South, Northeast, West, etc) or state (Andhra Pradesh, Rajasthan, Bihar, etc.) The important thing to remember about categorical data is that a categorical data point cannot belong to more than one category.

Cross tabulations are used to examine relationships within data that may not be readily apparent. Cross tabulation is especially useful for studying market research or survey responses. Cross tabulation of categorical data can be done with through tools such as SPSS, SAS, and Microsoft Excel.

An example of cross tabulation:

"No other tool in Excel gives you the flexibility and analytical power of a pivot table."

One simple way to do cross tabulations is Microsoft Excel's pivot table feature. Pivot tables are a great way to search for patterns as they help in easily grouping raw data.

Consider the below sample data set in Excel. It displays details about commercial transactions for four product categories. Let's use this data set to show cross tabulation in action.

The benefits of cross tabulation:

The benefits of using cross tabulations in survey analysis are best illustrated through the following example. Using advanced survey software with built-in analysis capabilities, you can analyze the frequency of visits and break the results down by age. The choices for the first question are displayed to the left (the row labels) of the table data. The second question choices are displayed across the top of the table (the column headings). This association can be flipped if needed.