What are frequency tables and how are they used in statistics?

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Frequency tables are a type of data representation tool commonly used in statistics to organize and summarize categorical or discrete data. They display the number of occurrences or frequency of each category in a dataset, allowing for a quick and clear understanding of the distribution of the data. This can help in identifying patterns, trends, and outliers within the data. Frequency tables are often used in conjunction with other statistical methods such as histograms, bar charts, and measures of central tendency to provide a comprehensive analysis of the data. They are also helpful in making comparisons between different groups or datasets. Overall, frequency tables play a crucial role in simplifying and presenting complex data in a concise and informative manner.

Statistics - Frequency Tables

A frequency table is a way to present data. The data are counted and ordered to summarize larger sets of data.

With a frequency table you can analyze the way the data is distributed across different values.

Frequency Tables

Frequency means the number of times a value appears in the data. A table can quickly show us how many times each value appears.

If the data has many different values, it is easier to use intervals of values to present them in a table.

Here is the age of the 934 Nobel Prize winners up until the year 2020. In the table each row is an age interval of 10 years.

Age Interval	Frequency
10-19	1
20-29	2
30-39	48
40-49	158
50-59	236
60-69	262
70-79	174
80-89	50
90-99	3

We can see that there is only one winner from ages 10 to 19. And that the highest number of winners are in their 60s.

Note: The intervals for the values are also called 'bins'.

Relative Frequency Tables

Relative frequency means the number of times a value appears in the data compared to the total amount. A **percentage** is a relative frequency.

Here are the relative frequencies of ages of Noble Prize winners. Now, all the frequencies are divided by the total (934) to give percentages.

Age Interval	Relative Frequency
10-19	0.11%
20-29	0.21%
30-39	5.14%
40-49	16.92%
50-59	25.27%
60-69	28.05%
70-79	18.63%
80-89	5.35%
90-99	0.32%

Cumulative Frequency Tables

Cumulative frequency counts up to a particular value.

Here are the cumulative frequencies of ages of Nobel Prize winners. Now, we can see how many winners have been younger than a certain age.

Age	Cumulative Frequency
Younger than 20	1
Younger than 30	3
Younger than 40	51
Younger than 50	209

Younger than 60	445
Younger than 70	707
Younger than 80	881
Younger than 90	931
Younger than 100	934

Cumulative frequency tables can also be made with relative frequencies (percentages).