What are the different types of statistical analysis and how are they used to create histograms?

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Statistical analysis is a method used to analyze data and extract meaningful insights from it. There are various types of statistical analysis, each with its own purpose and application. One of these types is the creation of histograms, which are graphical representations of data distribution.

To create a histogram, different types of statistical analysis are used, such as descriptive statistics, inferential statistics, and graphical analysis. Descriptive statistics involve summarizing and describing the data, such as calculating measures of central tendency and dispersion. This helps to understand the overall pattern and characteristics of the data.

Inferential statistics, on the other hand, involve making inferences and predictions about a larger population based on a smaller sample of data. This is useful in creating a representative histogram that accurately reflects the population.

Lastly, graphical analysis involves visually exploring the data to identify patterns and trends. This type of analysis is crucial in creating a histogram as it helps to determine the appropriate number and size of bins, which are the intervals used to group the data in a histogram.

Overall, the combination of these different types of statistical analysis allows for the creation of informative and accurate histograms, which are useful in understanding and interpreting data.

Statistics - Histograms

A histogram visually presents quantitative data.

Histograms

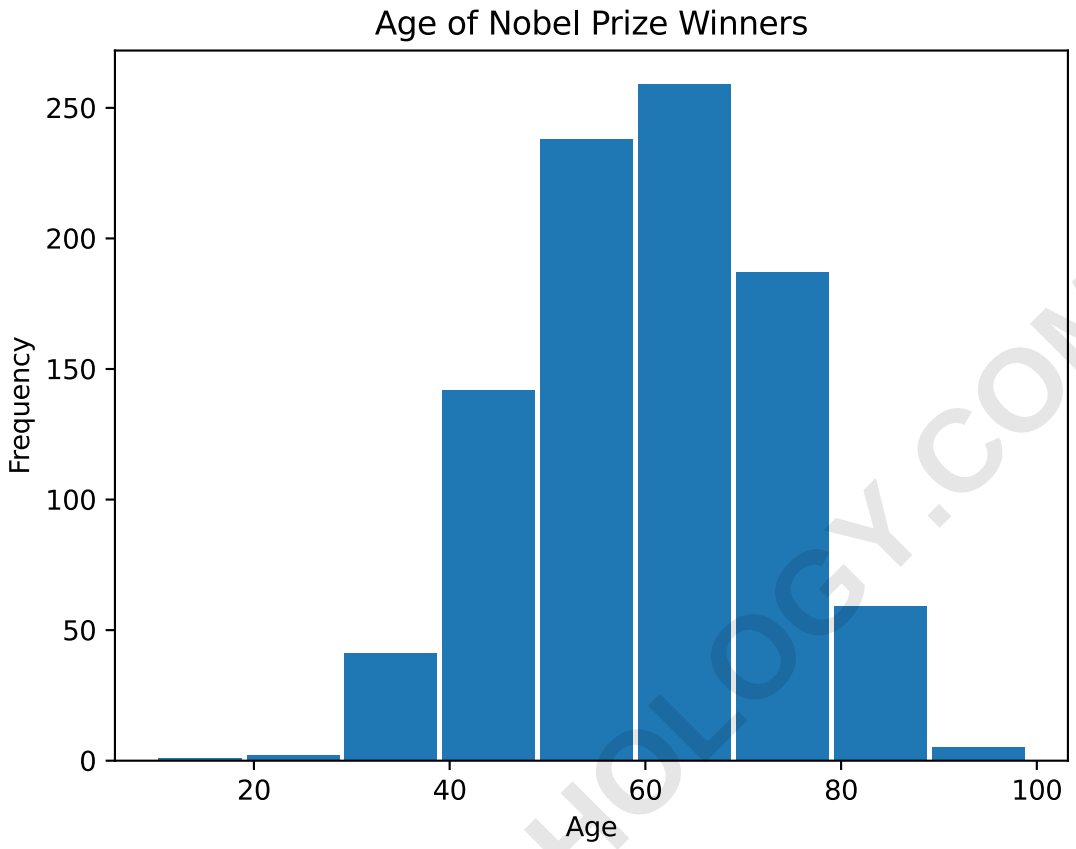
A histogram is a widely used graph to show the distribution of quantitative (numerical) data.

It shows the **frequency** of values in the data, usually in intervals of values. Frequency is the amount of times that value appeared in the data.

Each interval is represented with a bar, placed next to the other intervals on a number line.

The height of the bar represents the frequency of values in that interval.

Here is a histogram of the age of all 934 Nobel Prize winners up to the year 2020:



This histogram uses age intervals from 10 to 19, 20 to 29, and so on.

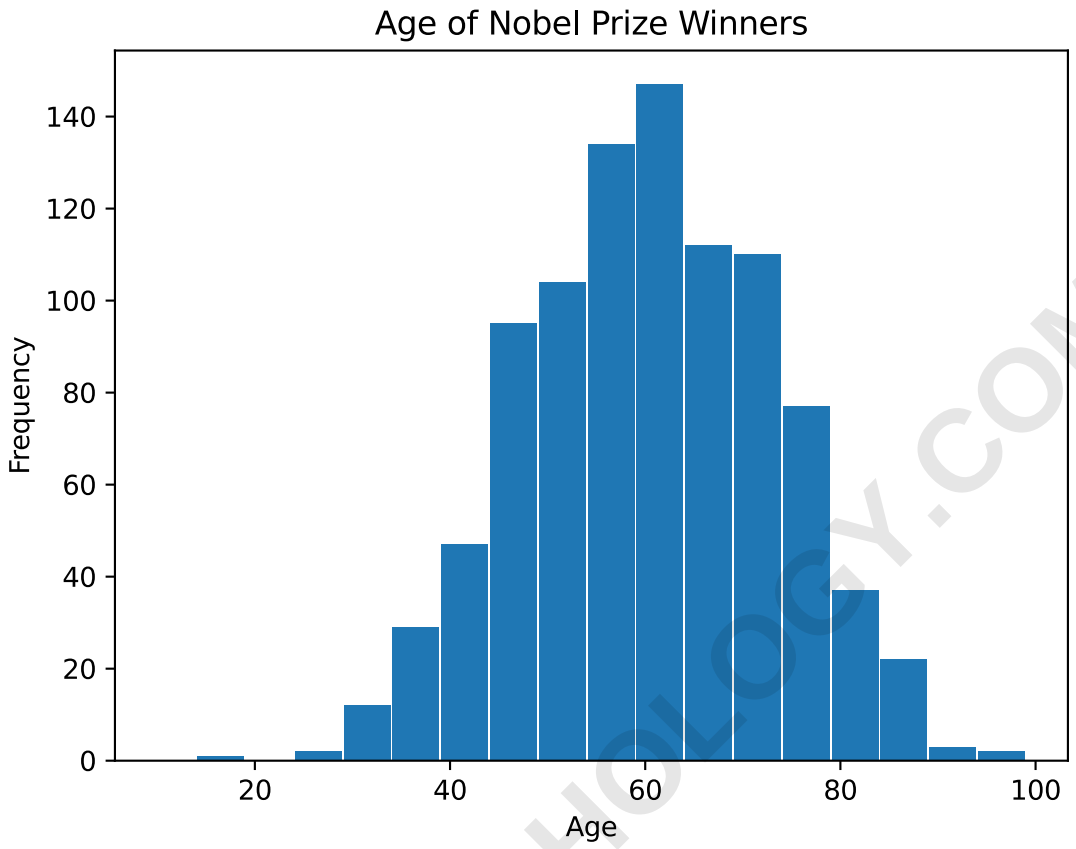
Note: Histograms are similar to bar graphs, which are used for qualitative data.

Bin Width

The intervals of values are often called 'bins'. And the length of an interval is called 'bin width'.

We can choose any width. It is best with a bin width that shows enough detail without being confusing.

Here is a histogram of the same Nobel Prize winner data, but with bin widths of 5 instead of 10:



This histogram uses age intervals from from 15 to 19, 20 to 24, 25 to 29, and so on.

Smaller intervals gives a more detailed look at the distribution of the age values in the data.

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