

# What is the difference between a population and a sample in statistics?

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## RECOMMENDED CITATION

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A population in statistics refers to the entire group or set of individuals, objects, or events that are being studied. It includes all possible elements that share a common characteristic or feature. On the other hand, a sample refers to a smaller subset of the population that is selected for the purpose of collecting data and making inferences about the entire population. The main difference between a population and a sample is that a population includes all elements of interest, while a sample is a smaller representation of the population. In statistical analysis, a sample is used to make inferences about the larger population, as it is often not feasible or practical to collect data from the entire population.

## Statistics - Populations and Samples

The terms 'population' and 'sample' are important in statistics and refer to key concepts that are closely related.

### Population and Samples

**Population:** Everything in the group that we want to learn about.

**Sample:** A part of the population.

Examples of populations and a sample from those populations:

Population	Sample
All of the people in Germany	500 Germans
All of the customers of Netflix	300 Netflix customers
Every car manufacturer	Tesla, Toyota, BMW, Ford

For good statistical analysis, the sample needs to be as "similar" as possible to the population. If they are similar enough, we say that the sample is **representative** of the population.

The sample is used to make conclusions about the whole population. If the sample is not similar enough to the whole population, the conclusions could be useless.

**Note:** Many words have specific meanings in statistics.

The word 'population' normally refers to a group of people. In statistics, it is any specific group that we are interested in learning about.

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