

What is an Observation in Statistics?

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An observation in statistics refers to the process of collecting and recording data or information about a particular phenomenon or group of individuals. It involves systematically observing and recording various variables, such as numerical values or categorical characteristics, in order to gain a better understanding of the subject being studied. Observations play a crucial role in statistical analysis as they provide the foundation for making inferences and drawing conclusions about a larger population. They can be obtained through various methods, such as surveys, experiments, or direct measurements, and are used to generate valuable insights and insights into patterns and trends within data. Overall, observations are a fundamental aspect of statistics that allow researchers to gather and analyze data in a structured and objective manner.

What is an Observation in Statistics?

In statistics, an observation is simply one occurrence of something you're measuring.

For example, suppose you're measuring the weight of a certain species of turtle. Each turtle that you collect the weight for counts as one single observation.

The following dataset contains the weight of 15 different turtles, so there are 15 total observations:

Weight (pounds)
290
296
299
300
305
307
311
315
325
339
340
355
357
359
361

When viewing a dataset in statistical software like Excel, R, Python, or Stata, the number of rows in the dataset is equal to the number of observations.

For example, a dataset with 100 rows has 100 observations.

It's also interesting to note that a single observation can be associated with multiple variables. For example, in the following dataset there are 15 observations and 3 variables:

3 variables

Weight (pounds)	Length (inches)	Region
290	30	East
296	35	East
299	34	East
300	34	East
305	38	East
307	40	North
311	46	North
315	45	North
325	49	North
339	48	North
340	55	South
355	58	South
357	55	West
359	57	West
361	59	West

The first observation has the following values for the three variables:

Weight: 290 pounds, Length: 30 inches, Region: East

	Weight (pounds)	Length (inches)	Region
Observation #1	290	30	East
	296	35	East
	299	34	East
	300	34	East
	305	38	East
	307	40	North
	311	46	North
	315	45	North
	325	49	North
	339	48	North
	340	55	South
	355	58	South
	357	55	West
	359	57	West
	361	59	West

The second observation has the following values for the three variables:

Weight: 296 pounds, Length: 35 inches, Region: East

	Weight (pounds)	Length (inches)	Region
	290	30	East
Observation #2	296	35	East
	299	34	East
	300	34	East
	305	38	East
	307	40	North
	311	46	North
	315	45	North
	325	49	North
	339	48	North
	340	55	South
	355	58	South
	357	55	West
	359	57	West
	361	59	West

And so on.

It's also worth noting that the total number of observations is equal to the sample size of the dataset. For example, a dataset that has 100 observations has a sample size of 100.

Descriptive vs. Inferential Statistics: What's the Difference?

Population vs. Sample: What's the Difference?

Statistic vs. Parameter: What's the Difference?