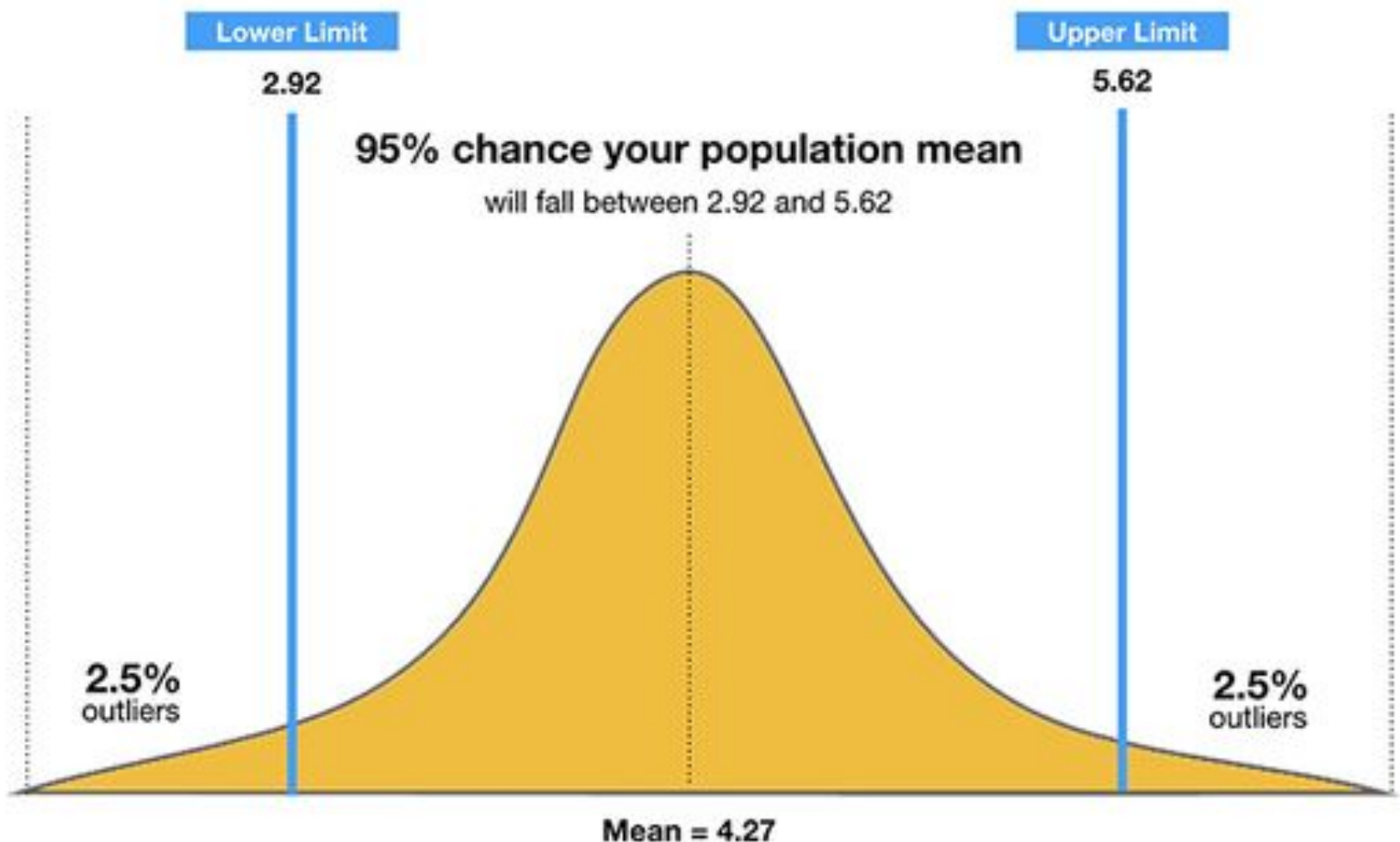




What are Confidence Intervals in Statistics?

By [Saul McLeod](#), June 10, 2019

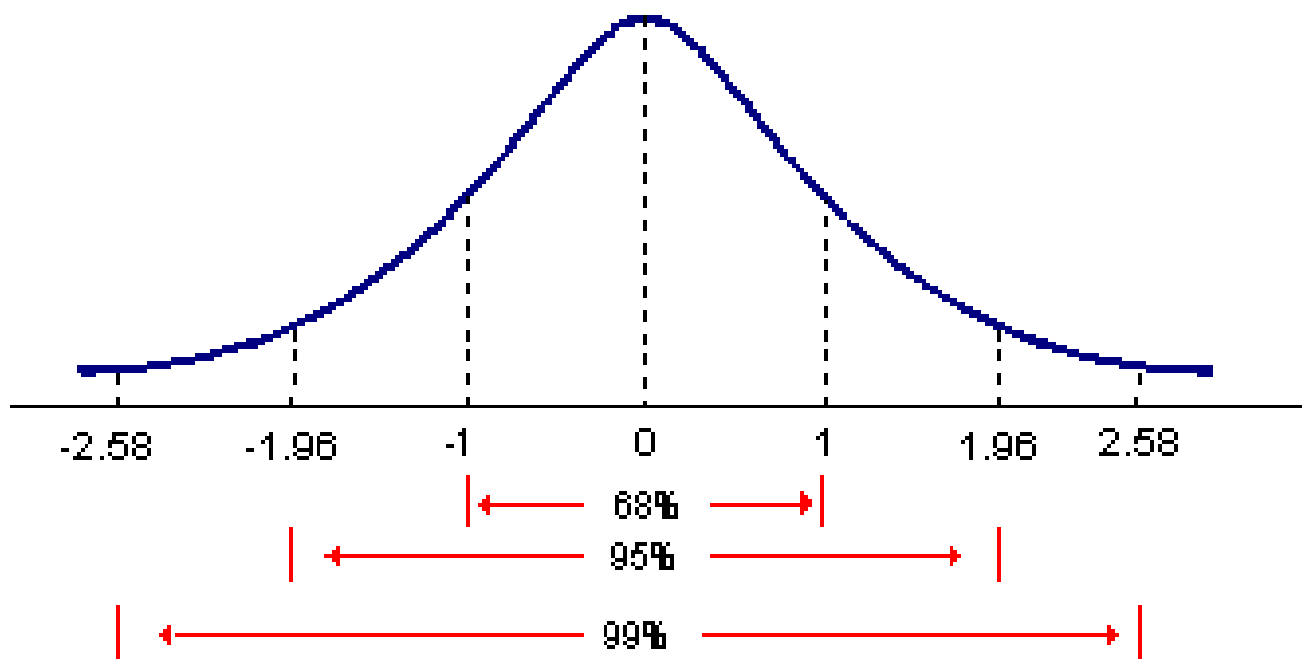
<https://www.simplypsychology.org/confidence-interval.html>



What does a 95% confidence interval mean?

A confidence interval is a range of values that are likely to contain the true mean of the population. As each sample size increases, the interval values narrow, meaning that you know that larger .

We can visualize this using a normal distribution (see the below graph).



What a 95% confidence interval means is that in 5 out of 100 samples the population mean will lie outside the upper and lower bounds of the confidence interval (as illustrated by the 2.5% on either side of the 95% confidence intervals in the graph on the first page).

What a 99% confidence interval means is that in 1 out of 100 samples the population mean will lie outside the upper and lower confidence bounds of the confidence interval.

What a 68% confidence interval means is that in 32 out of 100 samples the population mean will lie outside the upper and lower bounds of the confidence interval.

Confidence Level	Z-Score
68%	1.000
95%	1.960
99%	2.576