# Distributions

Distributions generally describe the shape by a name. this are both the shape of the generating distribution. There are several common distributions" Normal, Student's t, F, Z, $\chi^2$.

Distributions have 4 basic moments that describe the distribution.

1. Mean - Central Tendency of the distribution.
2. Variance - Dispersion of the distribution.
3. Skewness - Asymmetry of the data.
4. Kurtosis - Divergence of the shape from a standard shape (Normal).

Normal Distributions are the most commonly used distribution in statistics. It is a symmetrical bell shaped distribution
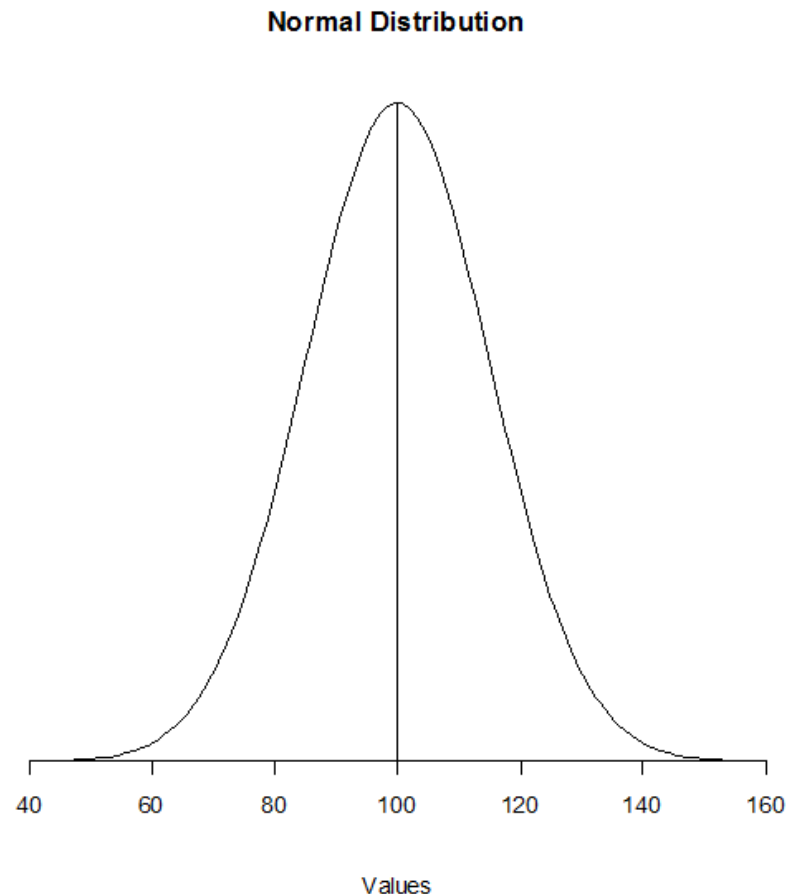


*Figure 1. A normal distribution with mean = 100, and standard deviation 15. The mean is the vertical line.*
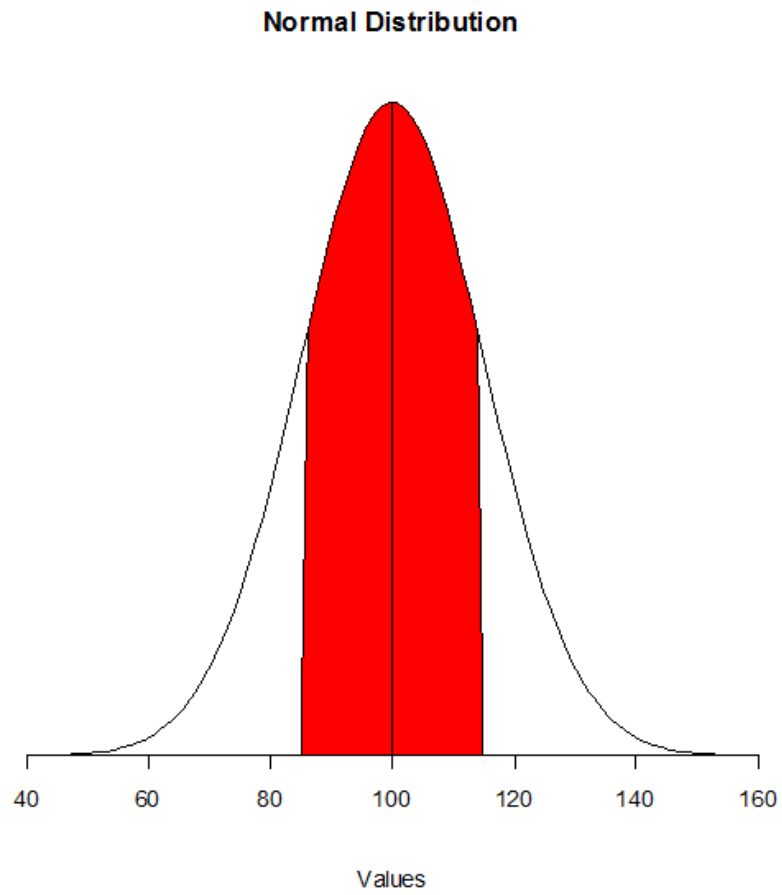
*Figure 2. A normal distribution with mean = 100, and standard deviation 15. One standard deviation is shown in red.*
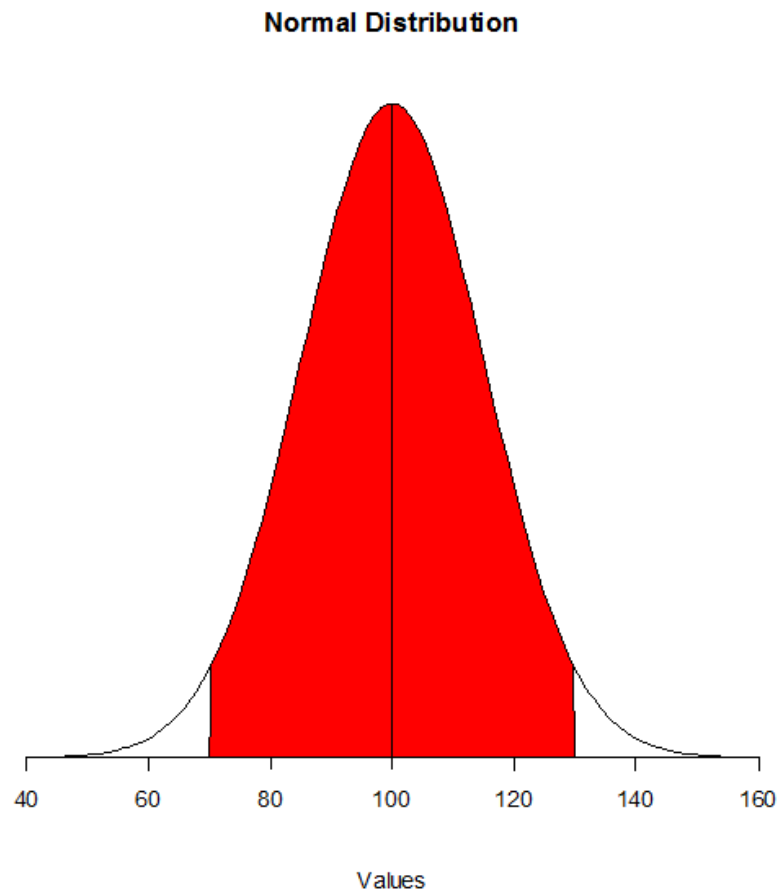
**Normal Distribution**



*Figure 3. A normal distribution with mean = 100, and standard deviation 15. Two standard deviations are shown in red.*
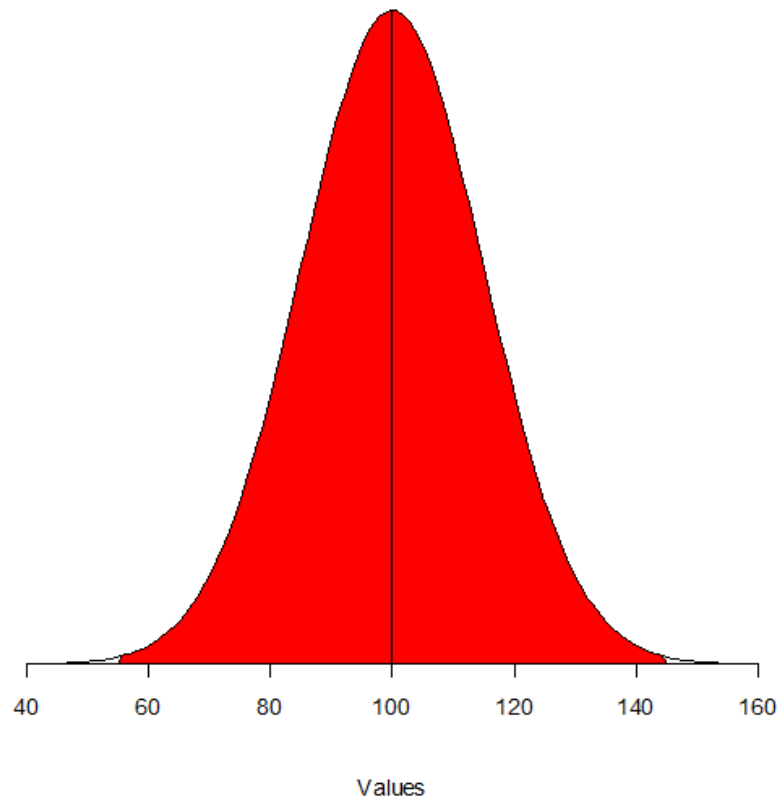
**Normal Distribution**



*Figure 4. A normal distribution with mean = 100, and standard deviation 15. Three standard deviations are shown in red.*