A sampling distribution is a distribution that consists of ALL POSSIBLE outcomes. A sampling distribution is a distribution of a statistic (a sample value like a mean or proportion). This allows us to investigate how a statistic behaves.

Use of a statistic to estimate the parameter is the main function of inferential statistics as it provides the properties of the statistic.

Central Limit Theorem (CLT):

The distribution of the sample mean will be approximately normal with mean (μ) and standard deviation of the sampling distribution (of the sample mean) is $se = \frac{\sigma}{\sqrt{n}}$, provided n is sufficiently large.

se =standard error

"sufficiently large"? ➔ when population distribution is normal, then there is no sample size requirement (usually have sample size of at least two). When population distribution is not normal (or you have no information about it), then $n \geq 30$.

CLT will work with the sampling distributions of sample mean, sample proportion, and the sample total.