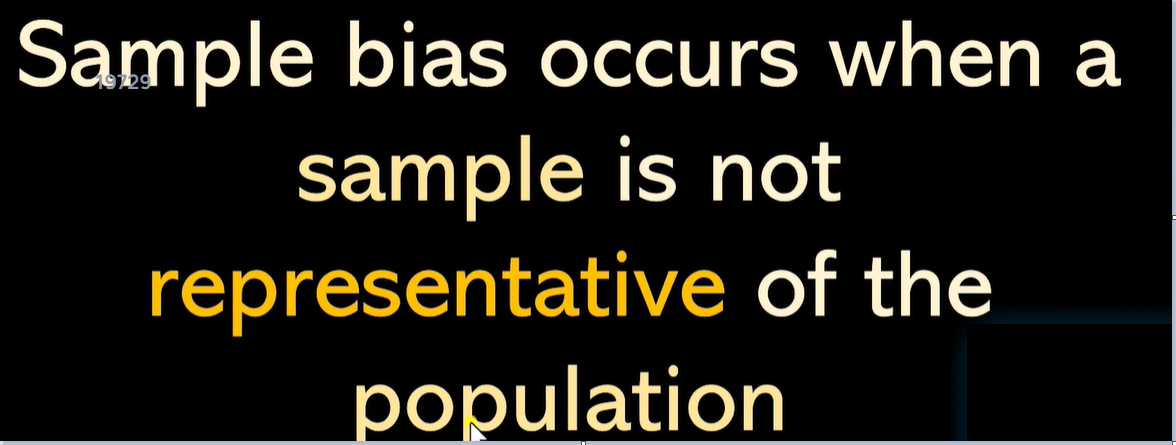
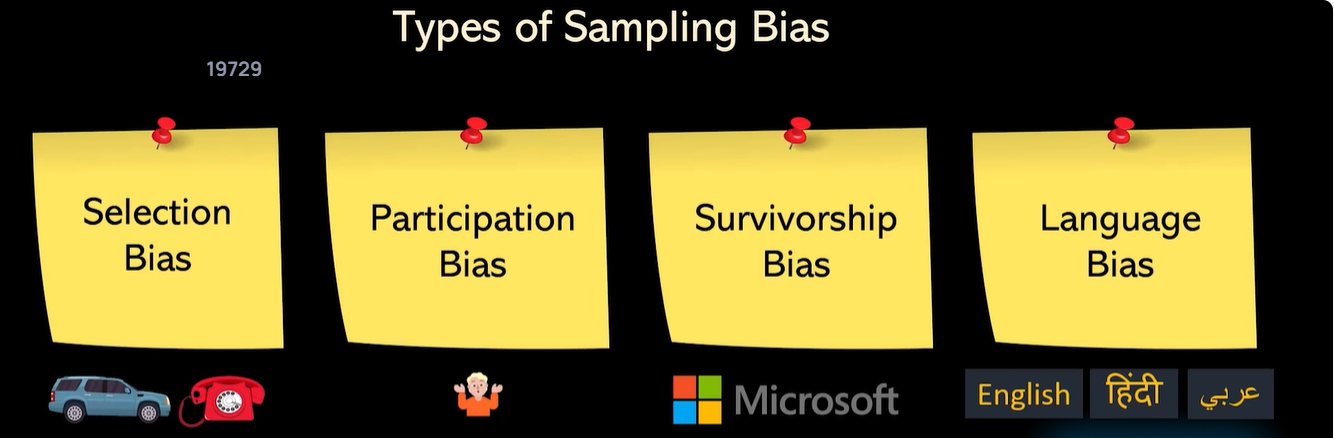
**Random sampling and Sample bias**

Select sample covering all variety of population. For elections, do not select sample from the population with car and phone – selection bias

Then participation bias

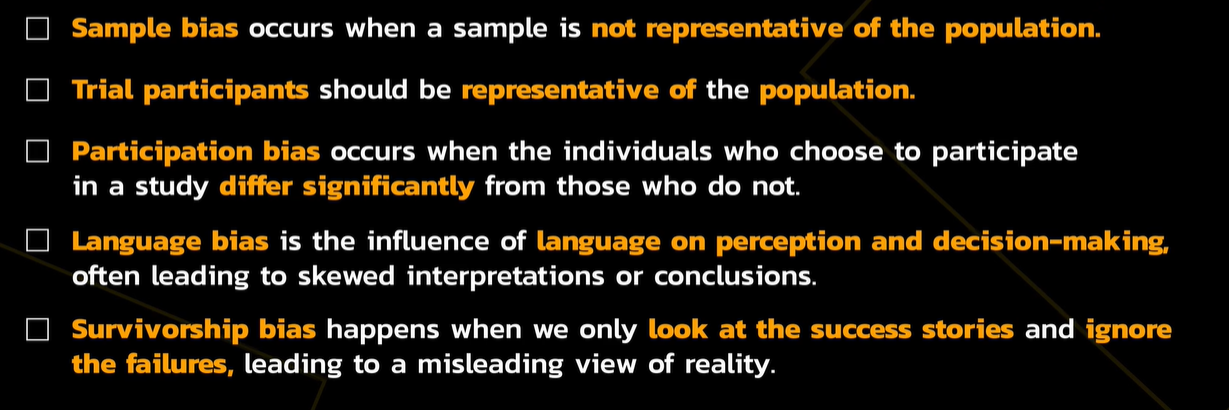
Select



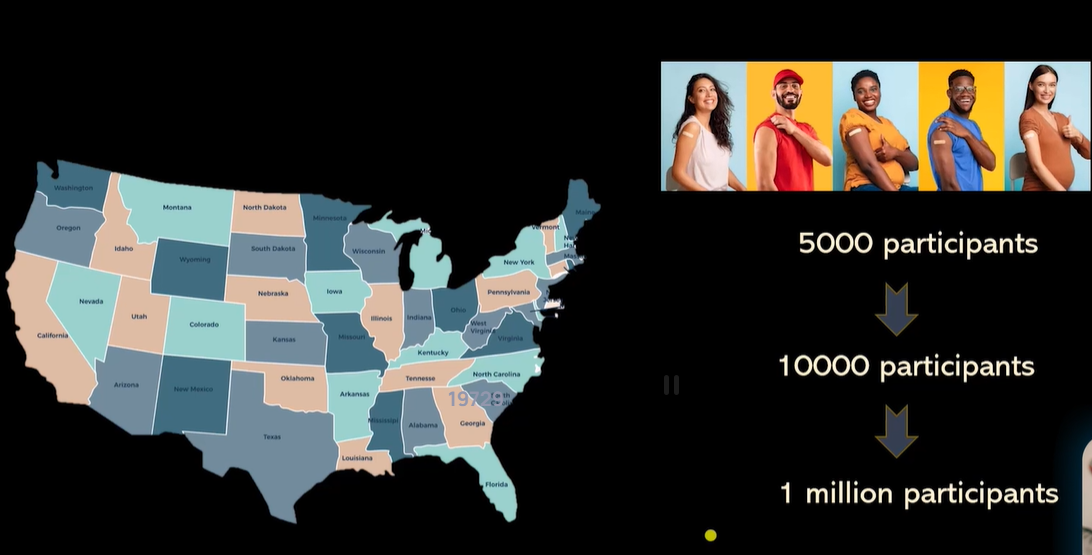


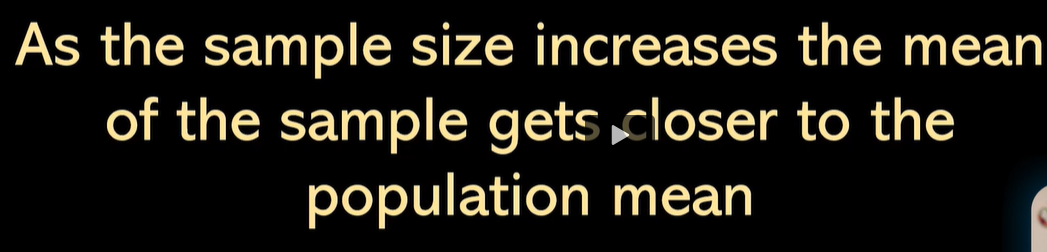
Trial participants should be representative of the population

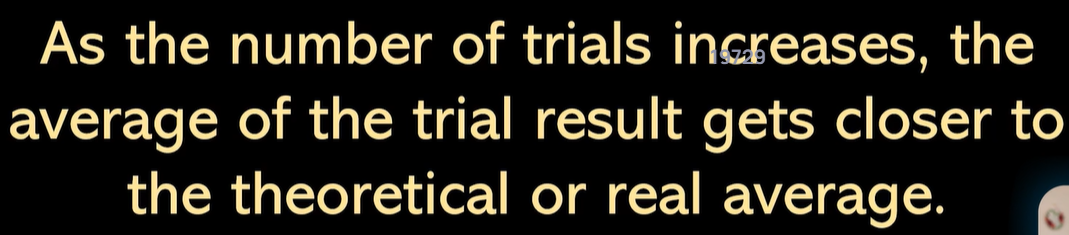




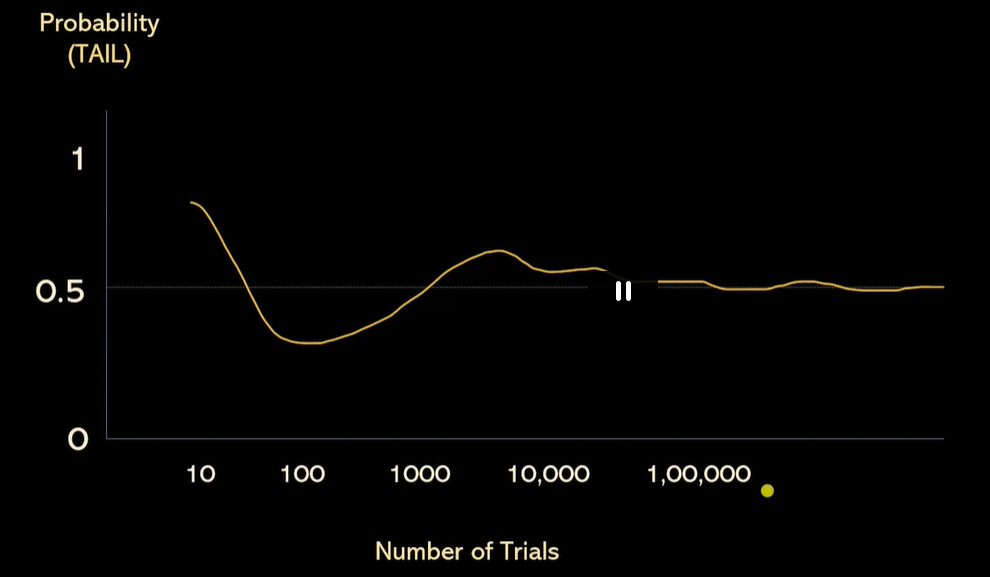
**The law of large numbers**

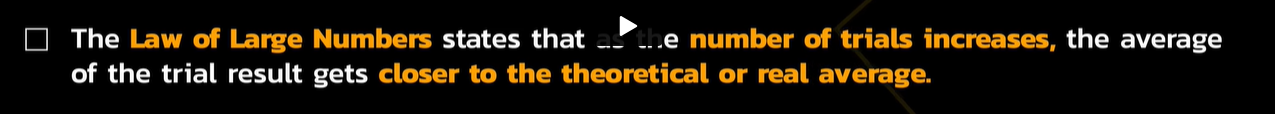




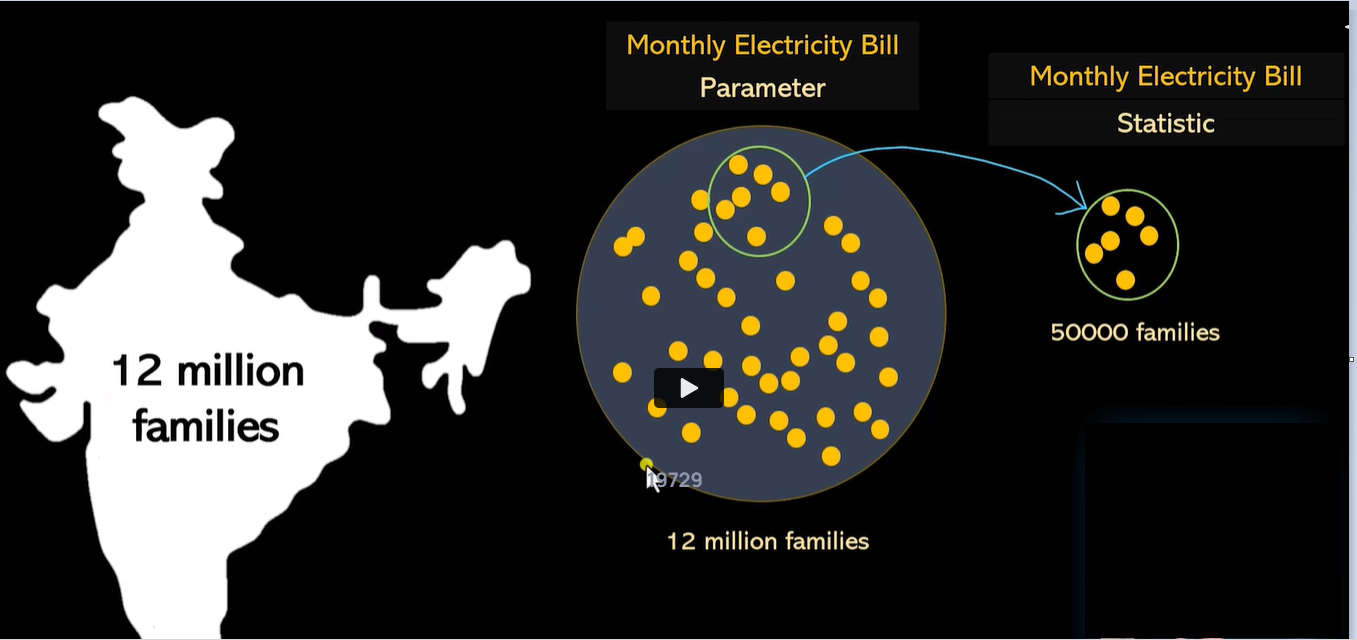


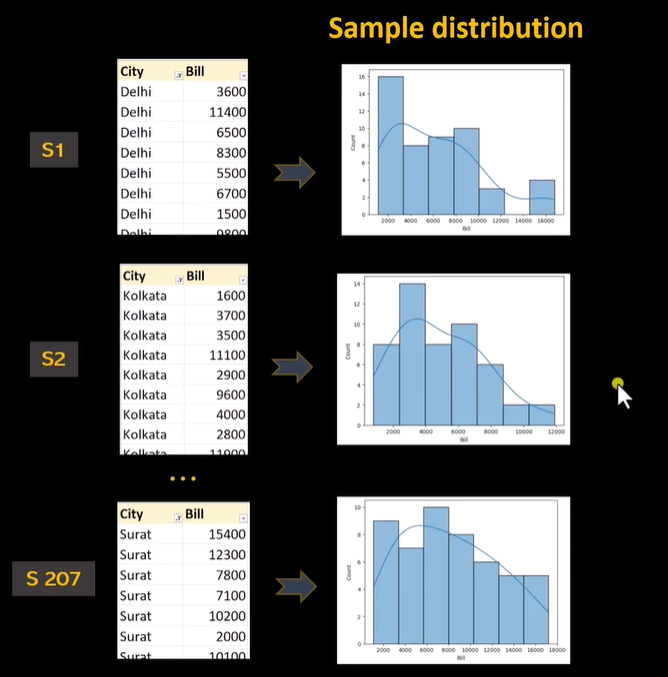
If we toss a coin for 10 time, there can head for 3 time and tail for 7 time. If we conduct experiment for 1 million times, probability of Head would be ½

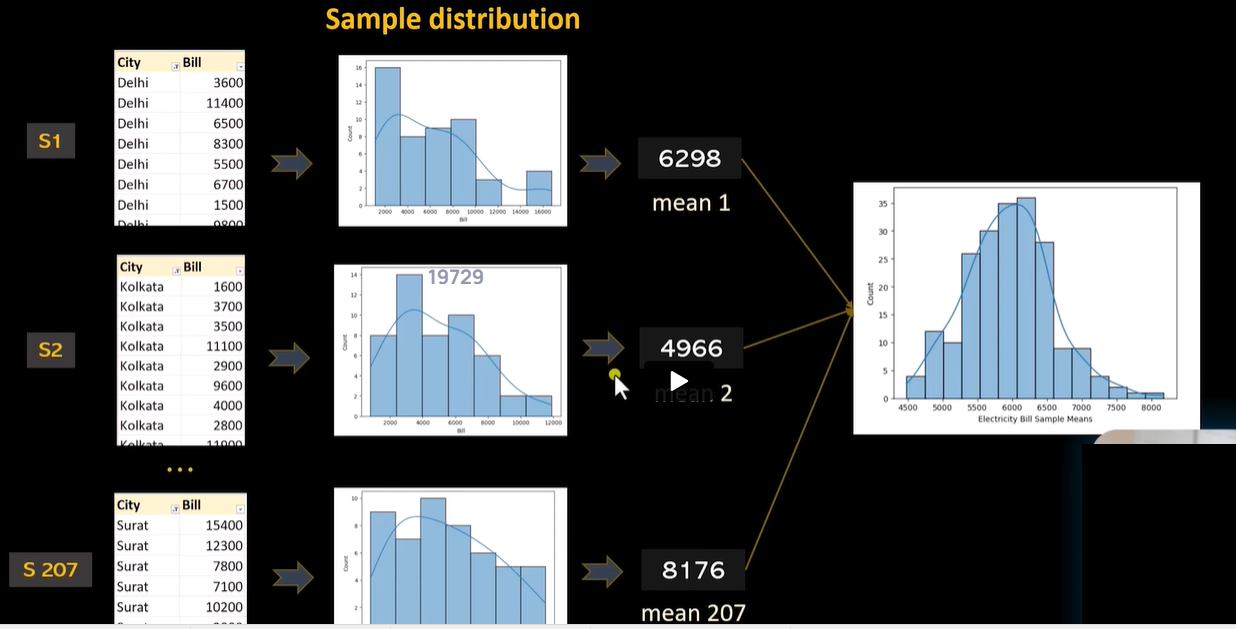


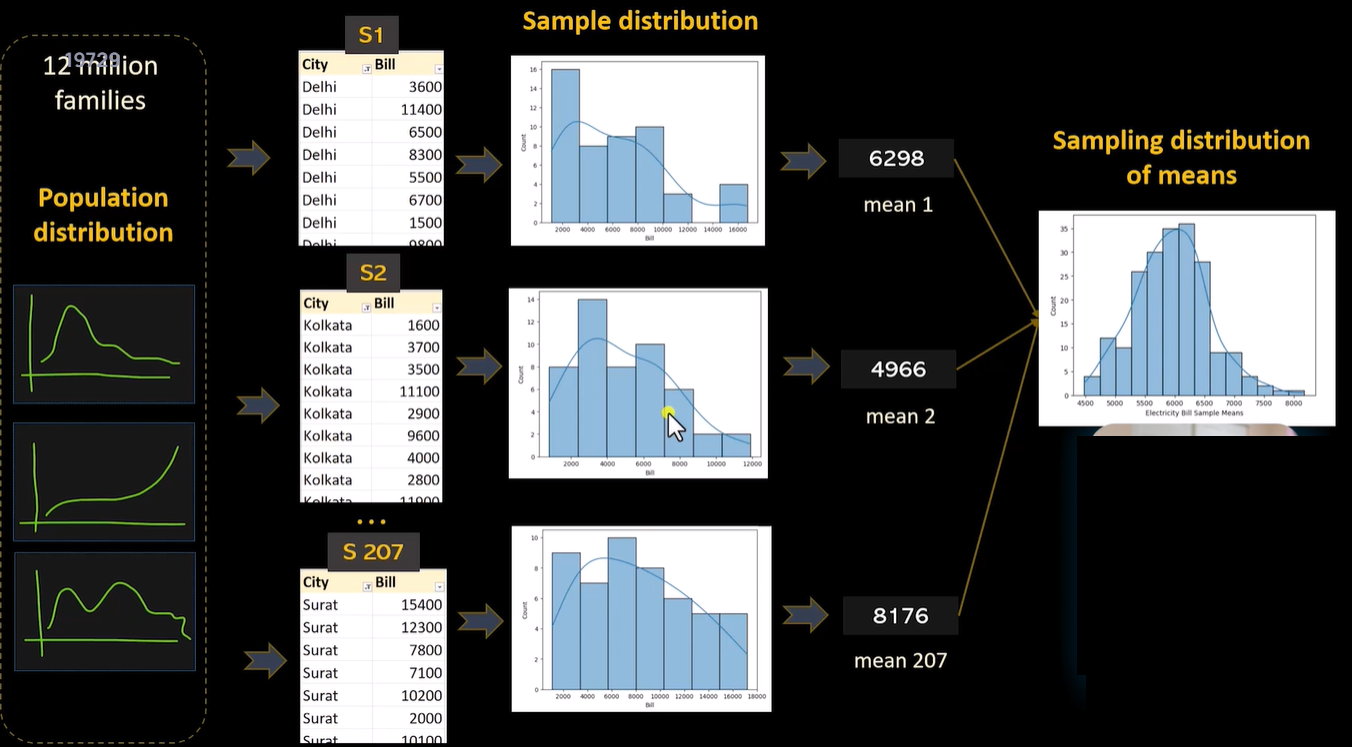


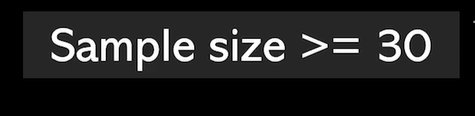
Central Limit Theorem – Sampling Distribution

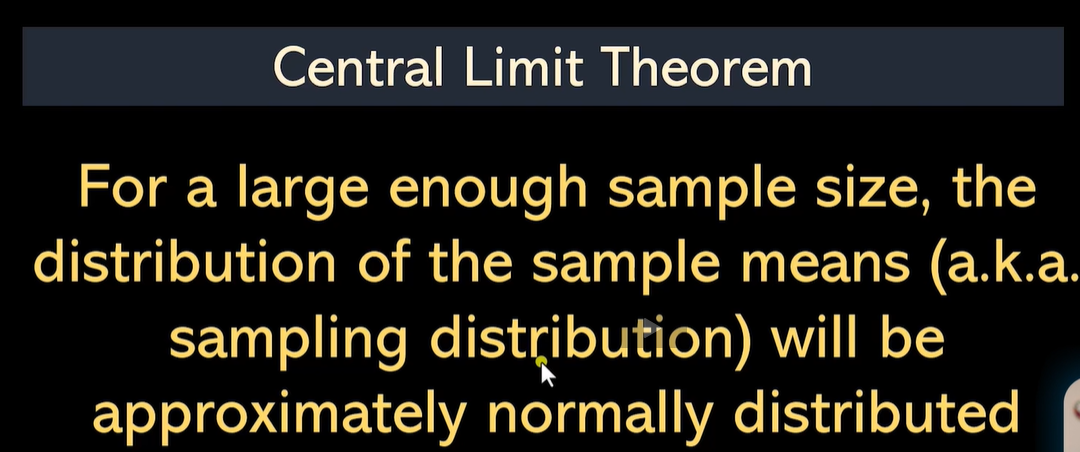




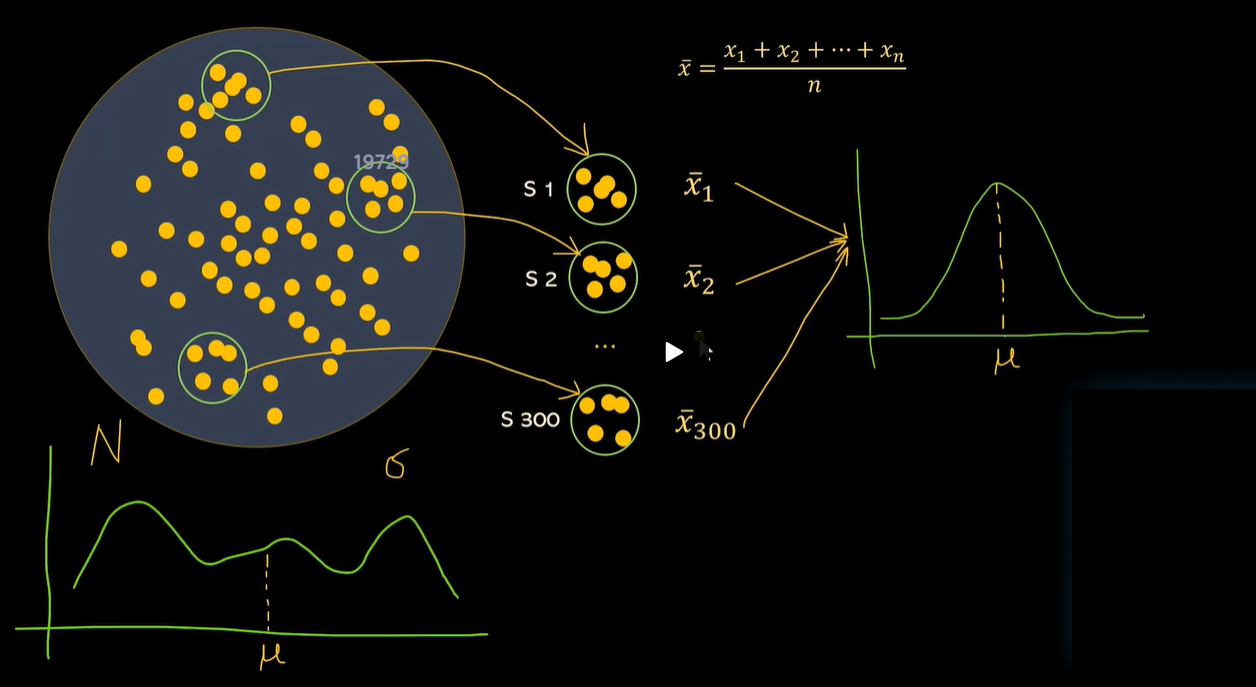






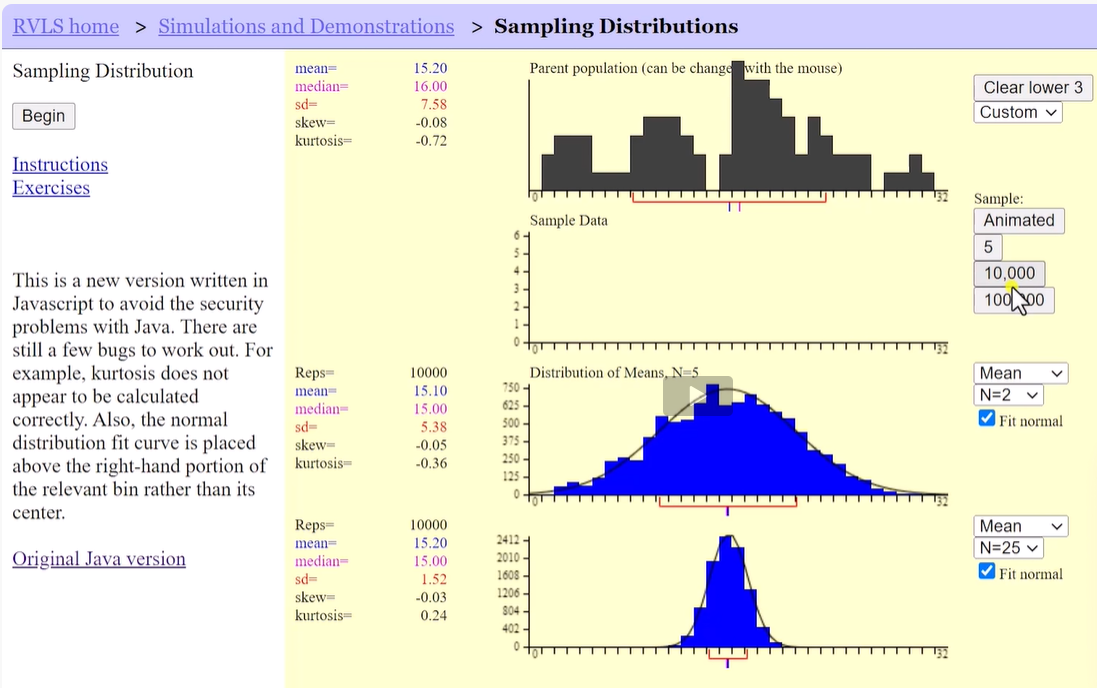


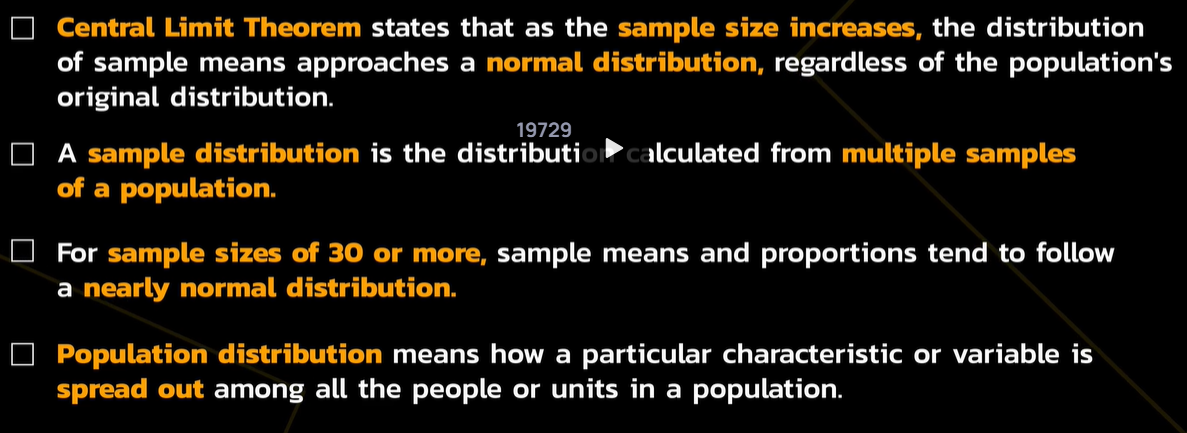




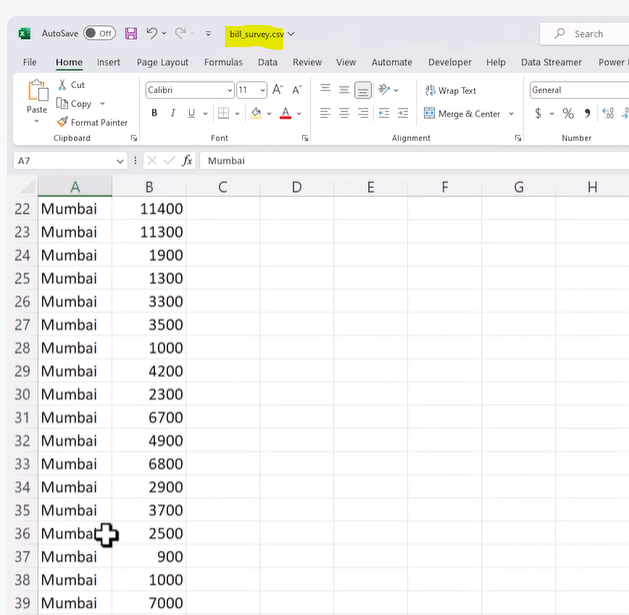
As sample size increases, distribution of sample means becomes more normal

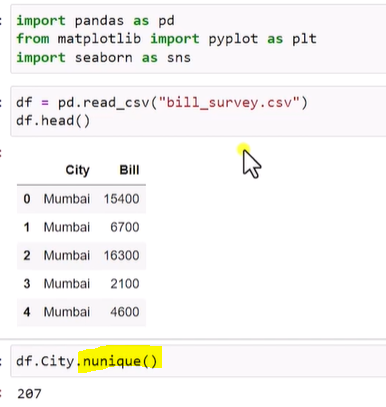


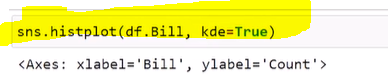


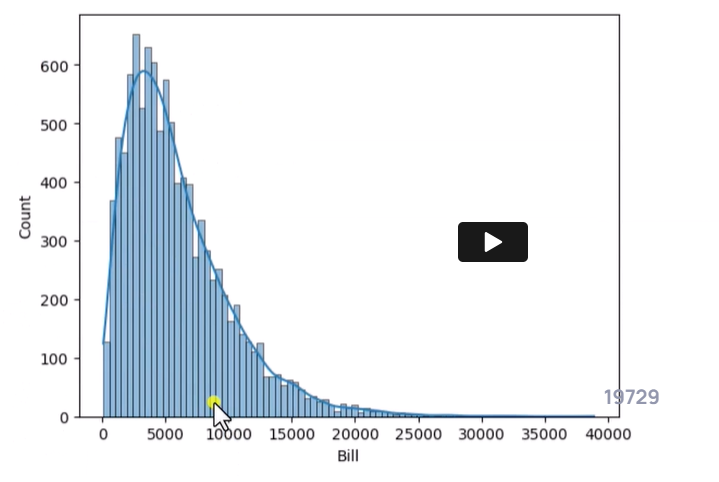


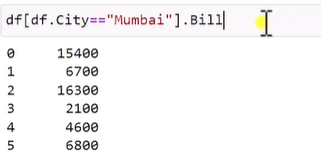
**Case study: Solar panels**

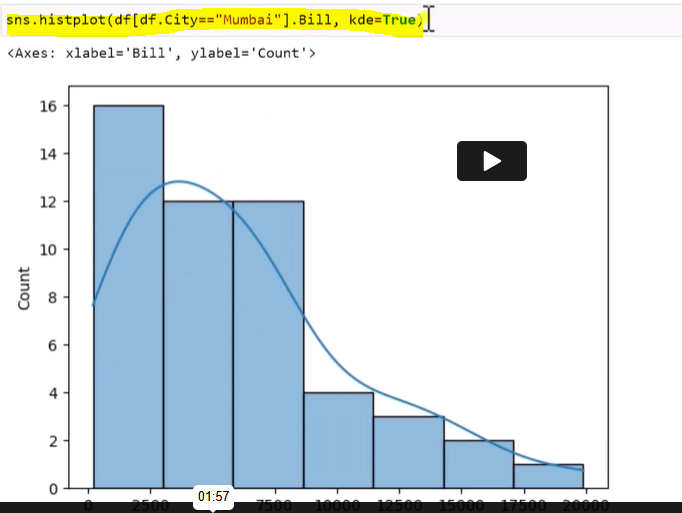




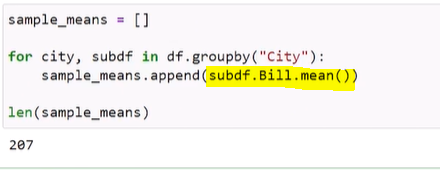


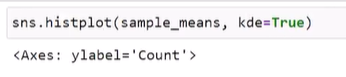


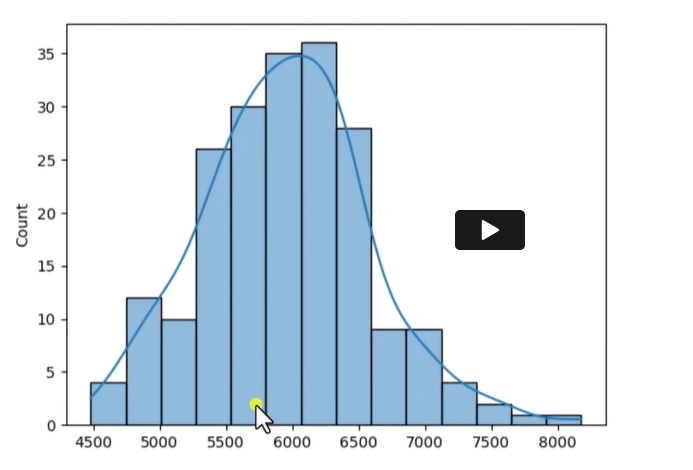


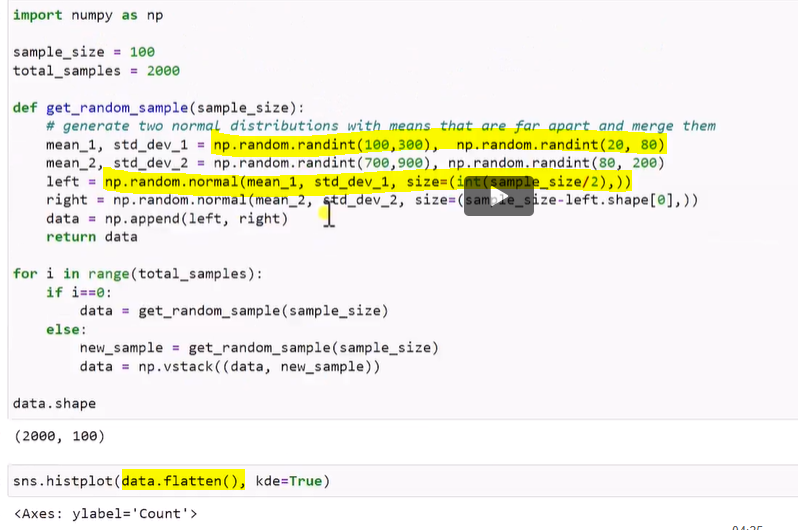


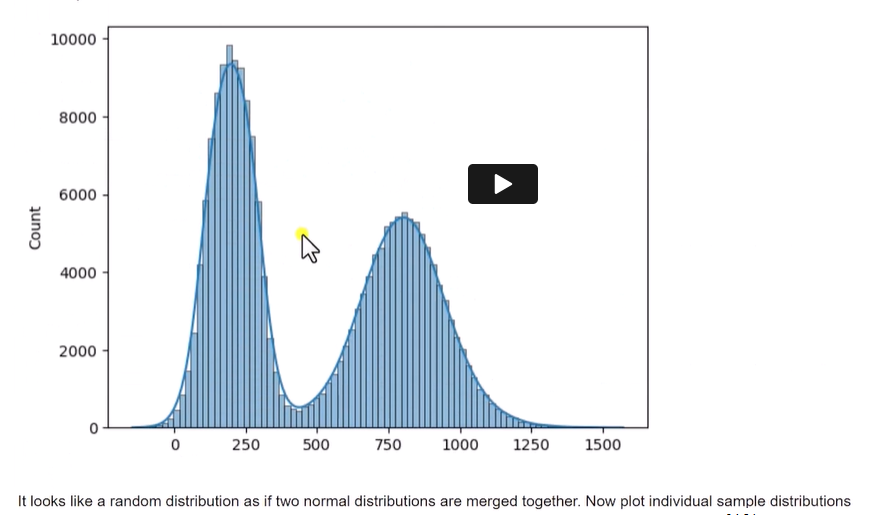


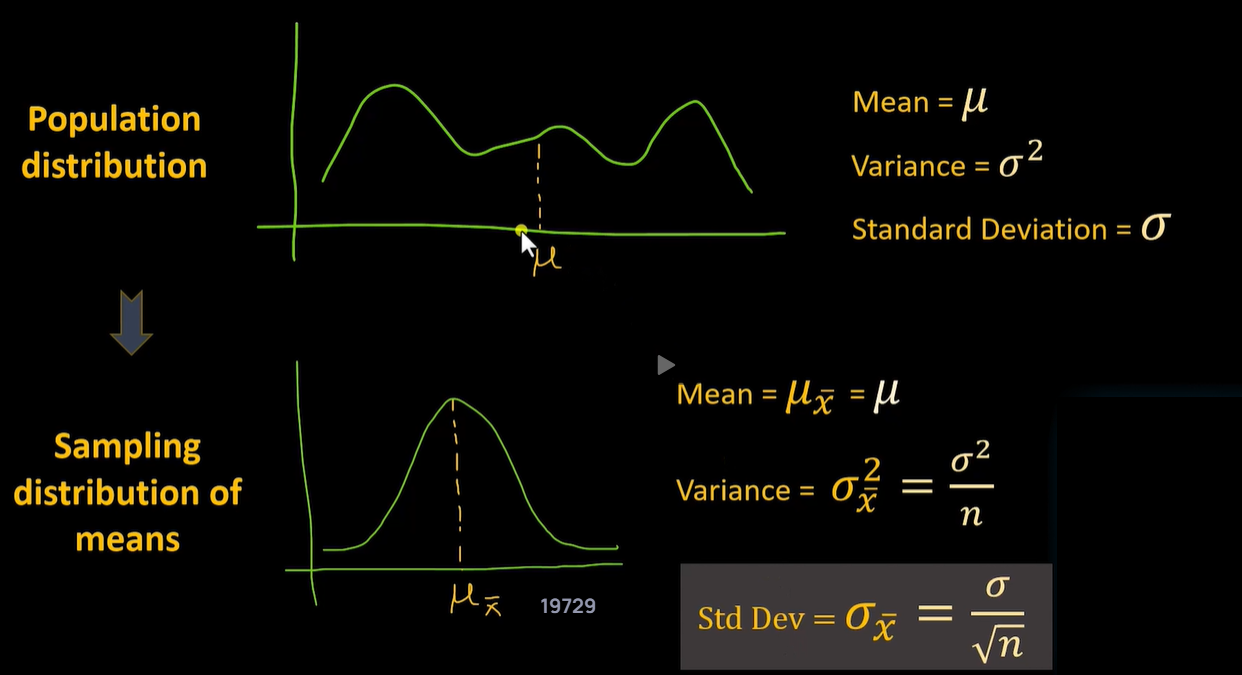


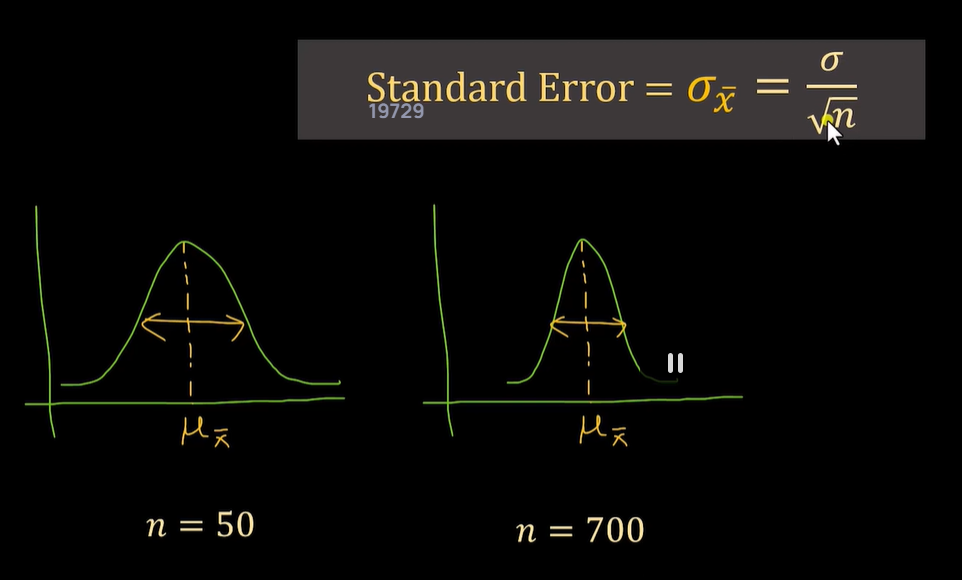


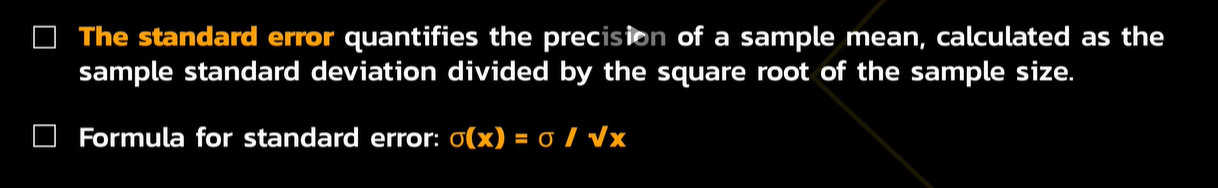




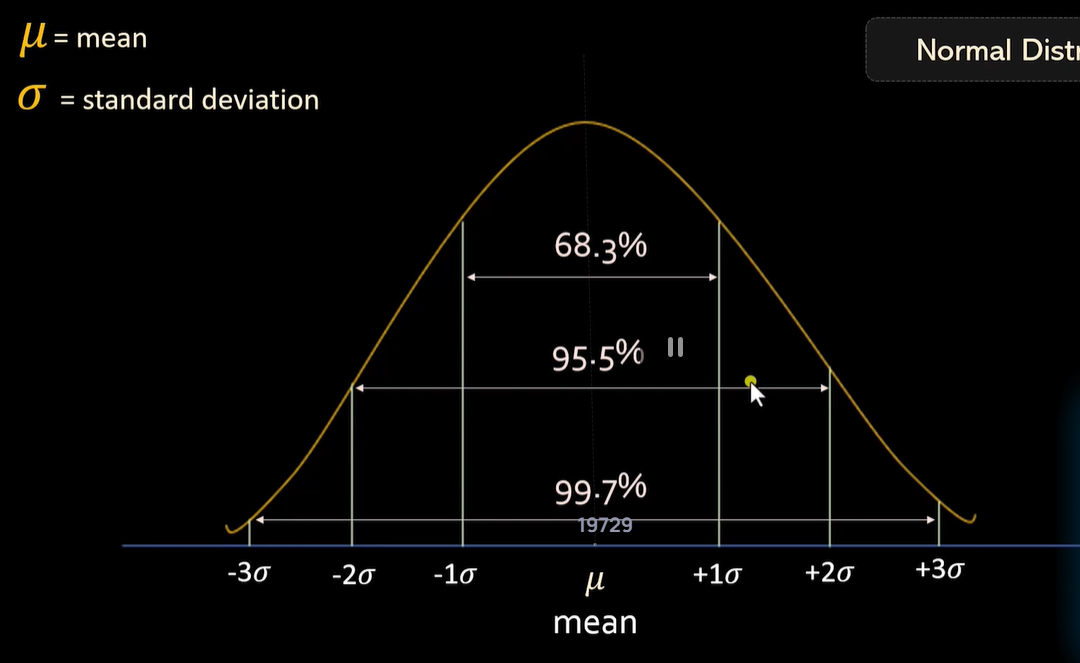


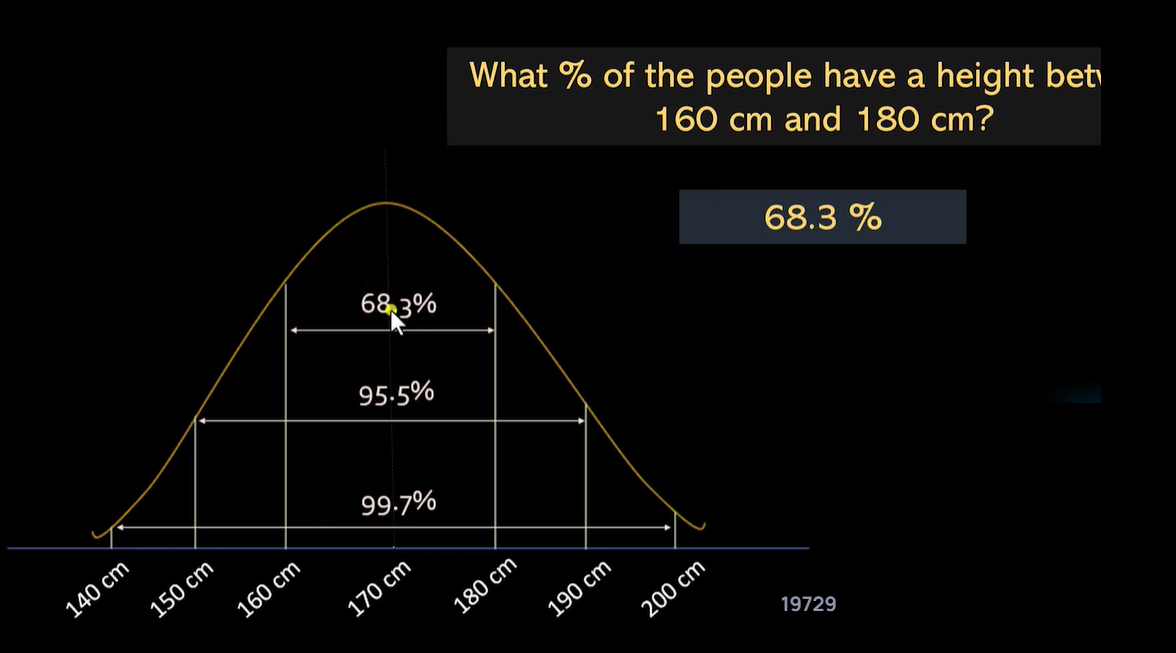


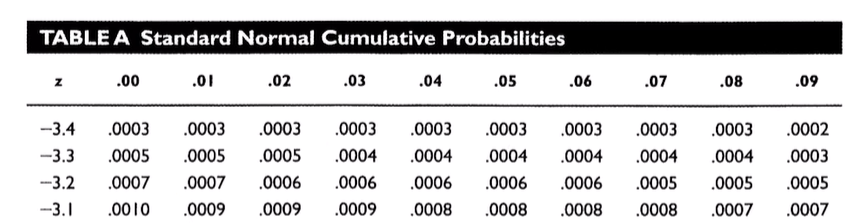




**Z-score**







**Confidence interval**

