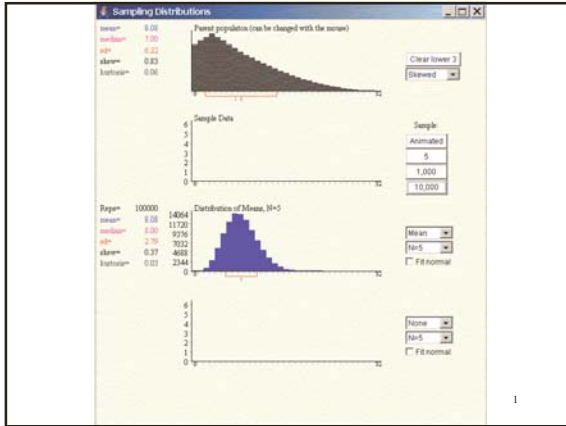


Stat 101L: Lecture 32



Population

- *Shape: Not normal, skewed right
- *Center: Mean, $\mu = 8.08$
- *Spread: Standard Deviation, $\sigma = 6.22$

2

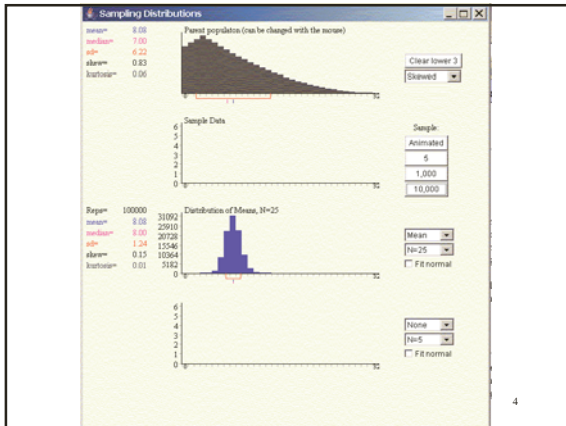
Distribution of \bar{y}

- *n = 5
- *Shape: Approximately normal
- *Center: Mean, $\mu = 8.08$
- *Spread: Standard Deviation,

$$SD(\bar{y}) = \frac{\sigma}{\sqrt{n}} = \frac{6.22}{\sqrt{5}} = 2.78$$

3

Stat 101L: Lecture 32



Population

- * Shape: Not normal, skewed right
- * Center: Mean, $\mu = 8.08$
- * Spread: Standard Deviation, $\sigma = 6.22$

5

Distribution of \bar{y}

- * $n = 25$
- * Shape: Approximately normal
- * Center: Mean, $\mu = 8.08$
- * Spread: Standard Deviation,

$$SD(\bar{y}) = \frac{\sigma}{\sqrt{n}} = \frac{6.22}{\sqrt{25}} = 1.24$$

6

Stat 101L: Lecture 32

Central Limit Theorem

- * When selecting random samples from a population with a distribution that is not normal, the distribution of \bar{y} will be approximately normally distributed.
- * The larger the sample the better the approximation.

7

Conditions

- * Random sampling condition
 - Samples must be selected at random from the population.
- * 10% condition
 - When sampling without replacement, the sample size should be less than 10% of the population size.

8

Summary

- * Distribution of \bar{y}
 - Shape: Approximately normal
 - Center: μ
 - Spread: $SD(\bar{y}) = \frac{\sigma}{\sqrt{n}}$

9
