

# Sampling distribution of mean

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10:00 AM

## Sampling distribution of mean

- Average height of a person with age 30-35 years (in India)

- 30-35 years  $\rightarrow 10 \times 10^5$  people

- Exact way is :- You ask everybody their height

$$\text{Exact average height} = \frac{\sum_{i=1}^{10 \times 10^5} x_i}{10 \times 10^5}$$

add these numbers

- Instead you fix a sample size = 30 people

randomly select 30 people

ask their heights

$x_1, x_2, \dots, x_{30}$

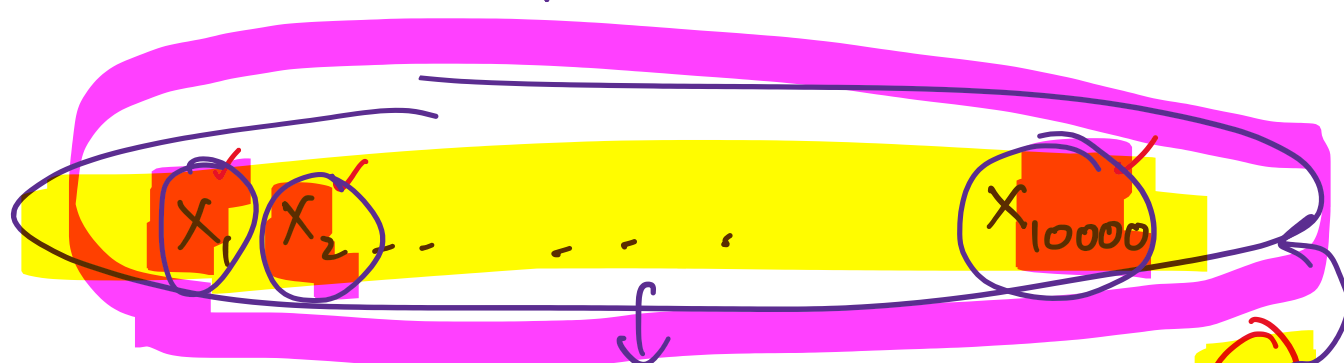
$$= \frac{\sum_{i=1}^{30} x_i}{30}$$

- again select 30 people

$$x_2 = \frac{\sum x_i}{30}$$

$\vdots$

Keep on doing this 10000 times



These are random numbers, let  $\bar{x}$  be the variable

$\bar{x}$  is called sampling distribution of means with sample size 30.

