Central Limit Theorem

Interviews

$$\begin{cases} X \simeq \text{Gaussian Distribution} \, (\mu, \sigma^2) \\ Y \not\simeq \text{Gaussian Distribution} (\mu, \sigma^2) \end{cases}$$

$$\boxed{\{ x_1, x_2, --- \; x_{100} \} \in X, Y} \qquad \boxed{n \approx 50}$$

$X_1 = \{ x_1, x_2, x_7, --- , x_{50} \} \qquad \bar{X}_1 \smile$

$X_2 = \{ x_2, x_7, x_{10}, --- , x_{47} \} \qquad \bar{X}_2 \smile$
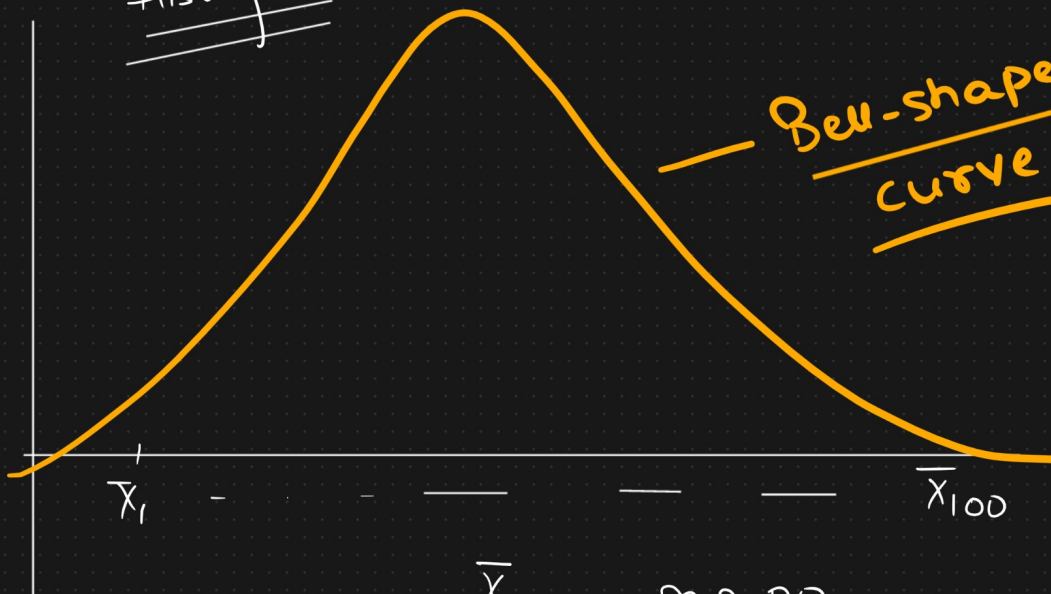
$\vdots$

$$\boxed{n \geqslant 30}$$

$X_{100} = \{ x_2, x_4, x_7 ---- , x_{100} \} \qquad \bar{X}_{100} \smile$

Histogram   CLT (Central Limit Theorem)

— Bell-shape curve

$\bar{X}_1$ - - —— —— —— $\bar{X}_{100}$

$$\underset{\text{mean}}{\bar{X}} \qquad \underset{\text{Variance}}{n \approx 50}$$

$$N \simeq \left(\underline{\mu}, \frac{\sigma^2}{n} \right)$$

<u>Economics</u>

↳ <u>Average income of</u>
        <u>'Rohtak'</u>

           └ <u>CLT Theorem</u>

              ⇓

<u>Random</u> <u>Sample data</u>
          (Result)

Population data