Assignment 5

Q) A company of 100k employee want to order Large and X-L size tshirts. Earlier from sample of 500 people 300 people ordered Large size tshirt & 200 people ordered XL size t-shirt. construct C.I.

⇒ $n = 500$, For L size tshirt mean $\bar{x}_L = \frac{300}{500} = 0.6$

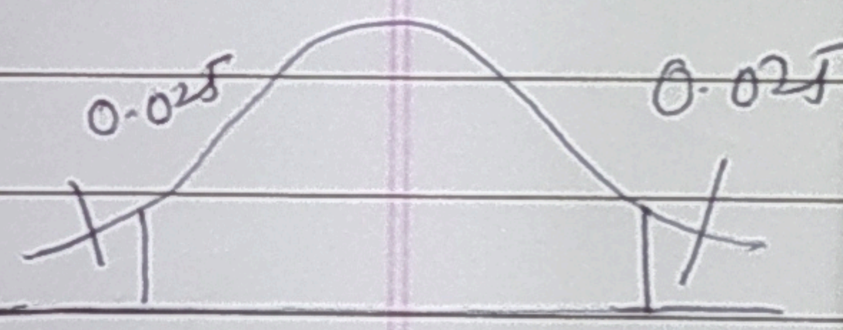
for XL size t shirt mean $\bar{x}_{XL} = \frac{200}{500} = 0.4$

$$C.I = \bar{x}_L \pm Z_{\frac{\alpha}{2}} \sqrt{\frac{\bar{x}_L \times \bar{x}_{xL}}{n}}$$

Assume C.I = 95%. $\alpha = 1 - 0.95 = 0.05$

value@0.975 from z table

$\Rightarrow$ 1.96.



for Large t-shirt = $0.6 \pm Z_{0.025} \sqrt{\frac{0.6 \times 0.4}{500}}$

$= 0.6 \pm 1.96 \sqrt{0.00048}$

$= 0.6 \pm 0.04294$

Range = 0.64294 to 0.55710

i.e 64.29% to 55.71%

For 100k employee

Large size tshirts needs to order = 64290 to 55710

For XL tshirt = $0.4 \pm 1.96 \sqrt{0.00048} = 0.4 \pm 0.04294$

$= 0.4429$ to 0.3570

i.e. 44.29% to 35.70%.

For 100K employee

XL size tshirt needs to order 44290 to 35700