Q) A Car Co. belives that the % of residents in City ABC that owns a vechile is 60% or less. A Sales Manager Disagree with this. He Conducts a hypothesis testing survey 250 residents and Found that 170 Responded yes to owning a ~~value~~ vechile.

(i) State H_0 & H_1,

(ii) All 10% S.V. is level is there enough evidence to support the idea that vehicle ownership is city ABC is 60% or less.

Ans = (i) $H_0 \Rightarrow P_0 \geq 60$ $\quad n = 250 \quad x = 170$

$H_1 \Rightarrow P_0 < 60$ $\quad \hat{P} = \frac{x}{n} = \frac{170}{250} = 0.68$

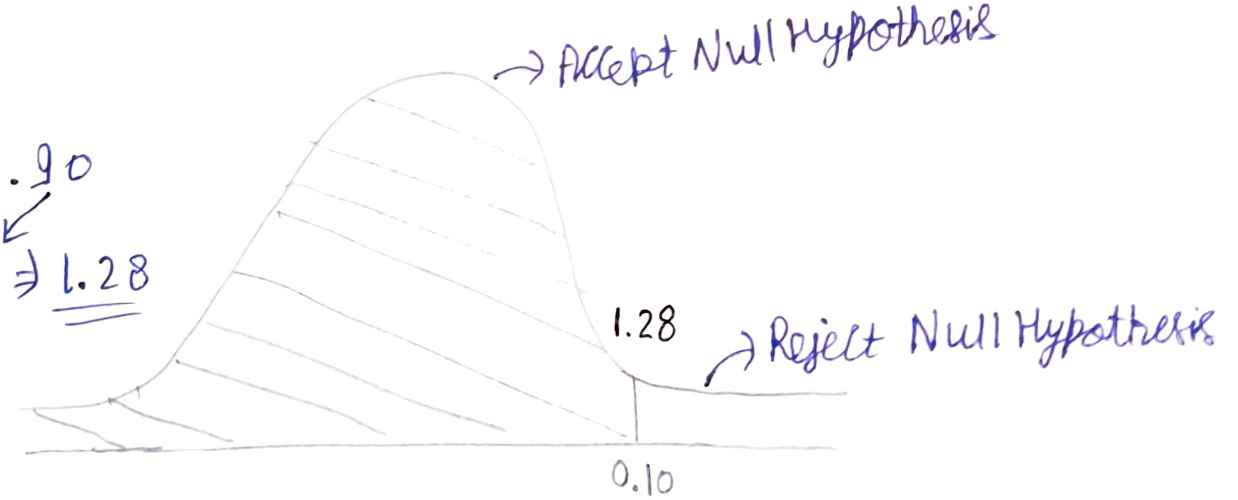
$q_0 = 1 - P_0 = 1 - 60\% \Rightarrow 0.40$

(ii) $\alpha = 0.10$

(iii)

$1 - .10 = .90$

z score of $.90 \Rightarrow 1.28$

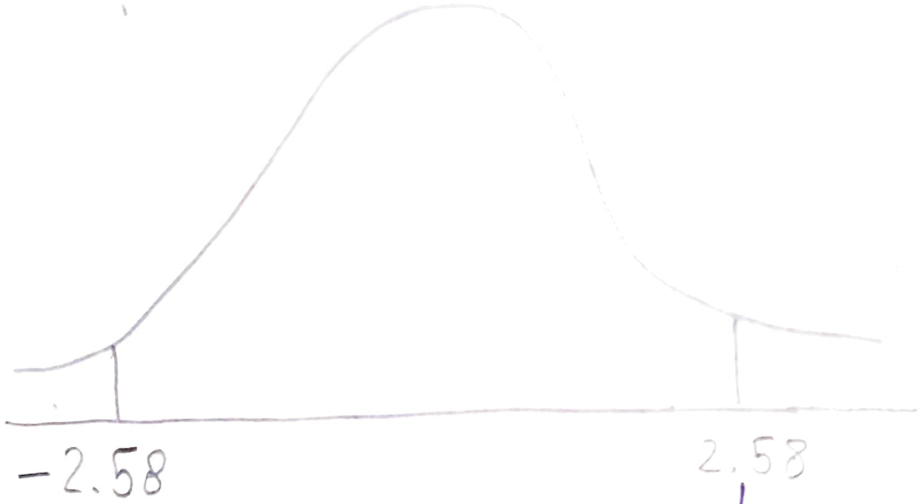


(iv) $Z\text{-test} = \frac{\hat{P} - P_0}{\sqrt{\frac{P_0 q_0}{n}}} \Rightarrow \frac{0.68 - 0.60}{\sqrt{\frac{0.60 \times 0.40}{250}}}$

$= \frac{0.08}{0.031} \Rightarrow 2.58$

Decision $\Rightarrow 2.58 > 1.28$ Reject Null Hypothesis (as it is greater)

P- Value



↳ z-score = 0.99506

$1 - 0.99506 \Rightarrow 0.00494$

$\Rightarrow \quad 0.00494 < 0.10$

Reject Null Hypothesis
(as it is smaller than S. I which is 0.10)