



# INEURON ASSIGNMENT

## session - 2022-23

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- ❑ SUBJECT - STATISTICS
- ❑ COURSE - FULL STACK DATA ANALYTICS
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2) A Car Company believes that the Percentage of residents in City ABC that own a vehicle is 60% or less. A sales manager disagree with this. He conduct survey of 250 residents and found that 170 responded yes to owning a vehicle.

a) State the Null hypothesis.

b) A 10% significance level. is there enough evidence to support the idea that vehicle ownership in city ABC is 60% or less.

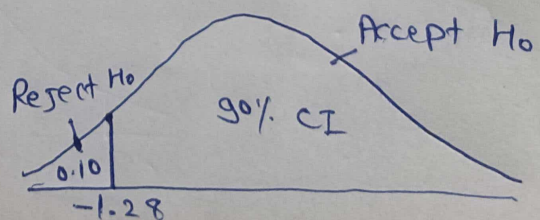
1]  $H_0 = 60\%$

$H_1 \neq 60\%$

$n = 250, x = 170, P_0 = 0.60,$   
 $q_0 = 1 - P_0 = 0.4$

$\hat{p} = \frac{x}{n} = \frac{170}{250} = 0.68.$

2)  $\alpha = 0.10, CI = 90\%$



Z-test with proportion,

$$Z = \frac{\hat{p} - P_0}{\sqrt{\frac{P_0 q_0}{n}}}, \quad Z = \frac{0.68 - 0.60}{\sqrt{\frac{0.6 \times 0.4}{250}}}$$

$$Z = \frac{0.08}{\sqrt{\frac{0.24}{250}}} = \frac{0.08}{\sqrt{0.00096}} = \frac{0.08}{0.030983866} \\ = 2.5819.$$

$\therefore 2.58 > 1.28$ , Hence we accept Null hypothesis  $H_0$ .

i.e.  $\rightarrow$  The percentage of Residents in city ABC that owns a vehicle is 60%.