ASSIGNMENT

9th July

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**A car company believes that the percentage of residents in city ABC that owns a vehicle is 60% or less. A sales manager disagrees with this . He conducts a hypothesis testing surveying 250 residents and found that 170 responded yes to owning a vehicle.**

**A. State Null hypothesis and Alternate hypothesis**

**B. At 10% significance level, is there enough evidence to support the idea that vehicle ownership in city ABC is 60% or less**

# Solution :

A. Null hypothesis is: H0 ≤60

Alternate hypothesis: Ha > 60

Since the Alternate hypothesis has to show only greater than 60, this is a **1 tail test**.

Significance value is = 0.10 , **represents the area**

**Z – test :**

n = 250

P0 = 60 =0.6

P` = 0.68

q0 = 0.4

Z- Test value proportions = 2.6

Area representing H0  = 1 – 0.10 = 0.90

Using z table to find the z score ; closest one is 1.29 = 0.90147

Since 2.6 is greater than 1.29 , the **Null hypothesis is rejected.**

**P- Value Method**

Z- test = 2.6

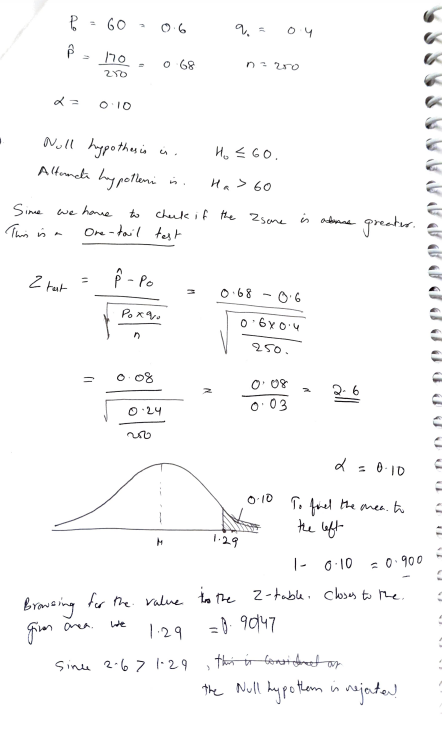
From the z-table

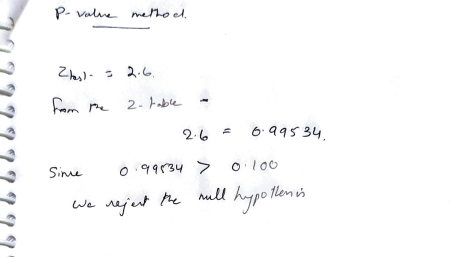
2.6 = 0.99534

0.99534 > 0.10 , hence **Null hypothesis is rejected**

**I am having difficulty understanding z-score and its relation to area under the curve. So please let me know the mistake I have made if any.**

*Please review and let me know if I have made any wrong assumptions, also if you can share the appropriate answer/ method to address this problem statement, that would be helpful.*

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