

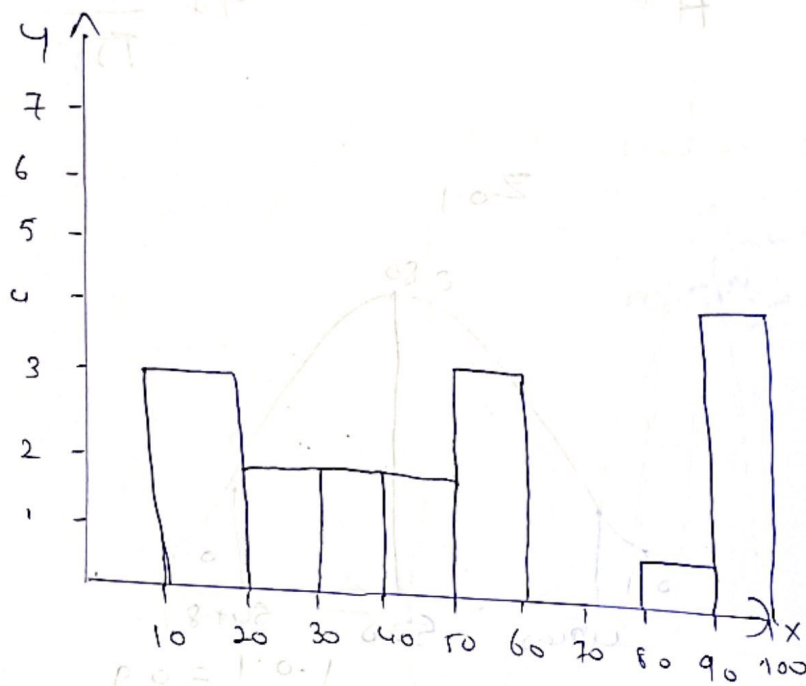
Assignment

1.) Plot a histogram

10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56,
57, 88, 90, 92, 94, 99

Taking Bins = 10 Bin Size = $\frac{100}{10} = 10$

no of groups ≥ 10



2.) In a Quant test of CAT Exam, the population Standard deviation is known to be 100. A sample of 25 tests mean = 520, C.I = 80% about the mean

$$\sigma = 100$$

$$\text{Sample mean } \bar{x} = 520$$

$$n = 25$$

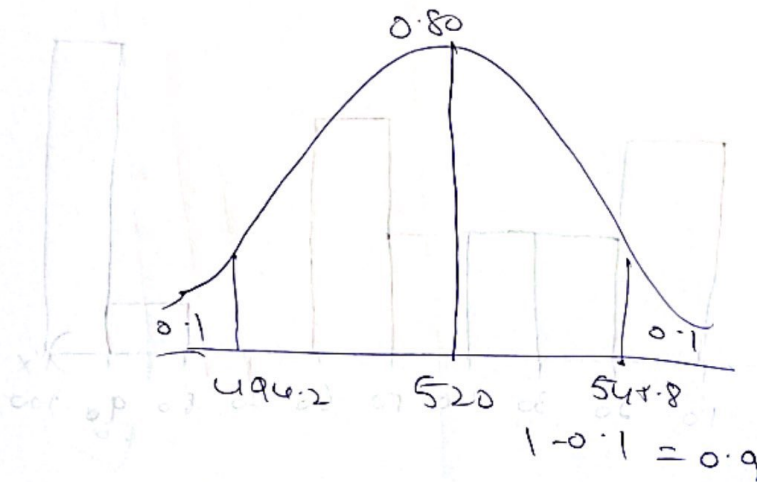
we use z-test

$$\alpha = 1 - 0.80 = 0.2$$

$$\begin{array}{l} \text{Lower fence} \\ \text{and} \\ \text{higher fence} \end{array} = \bar{x} \pm Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

$$H.F = 520 + Z_{0.1} \frac{100}{\sqrt{25}}$$

$$Z_{0.1}$$



Find S.D. for 0.9 from z-table
we get ≈ 1.29

$$H.F = 520 + 1.29 \times \frac{100}{5} = 545.8$$

$$L.F = 520 - 1.29 \times 20 = 494.2$$

3.) Percentage of citizens in ABC
are 60% or less \rightarrow population data
 $n = 1250$

170/200 responded yes to owning a
vehicle

null hypothesis $P_1 = P_2$

Alternate hypothesis $P_1 < P_2$

$$Z_{\text{score}} = \frac{\hat{P}_1 - P_2}{\sqrt{\hat{P}(1-\hat{P}) \times \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

$$\alpha = 10\% \quad (I = 90\%)$$

$$P_1 = 60/100 = 0.6 \quad P_2 = 170/200 = 0.85$$

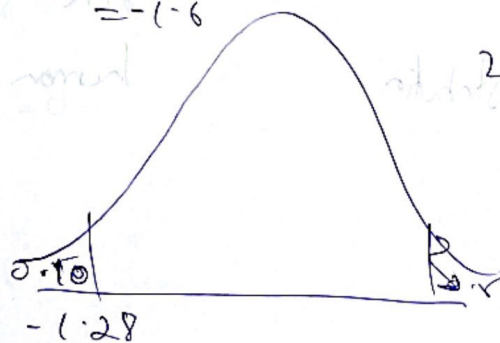
$$\hat{P} = \frac{n_1 + n_2}{n_1 + n_2} = \frac{60 + 170}{100 + 200} = 0.65$$

$$= \frac{0.6 - 0.85}{\sqrt{0.65(1-0.65) \times \left(\frac{1}{100} + \frac{1}{200} \right)}}$$

$$= \frac{-0.25}{\sqrt{0.2275 \times 0.015}} = \frac{-0.25}{0.185} = -1.35$$

one tail
test

$$= -1.6$$



$$Z_{0.90} =$$

claim is false
People ~~own~~ not
own vehicle
less than 60%.

$-1.6 < -1.28$ Reject null hypothesis

4.) what is the value of 99 percentile?

2, 2, 3, 4, 5, 5, 5, 6, 7, 8, 8, 8, 8, 8, 9, 9, 10, 11, 11, 12

= value of the p

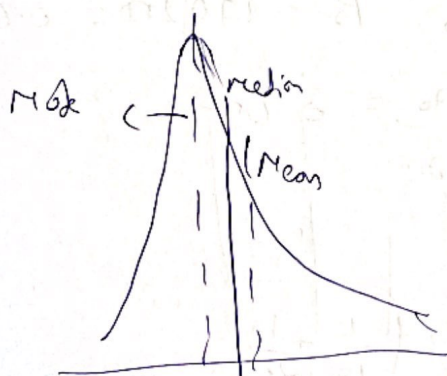
$$\frac{\text{Percentile}}{100} \times (n+1)$$

$$= \frac{99}{100} \times (20) = \frac{20 \cdot 79}{100} \text{ index}$$

value of 99th percentile = 12

5.) Relationship between mean median mode

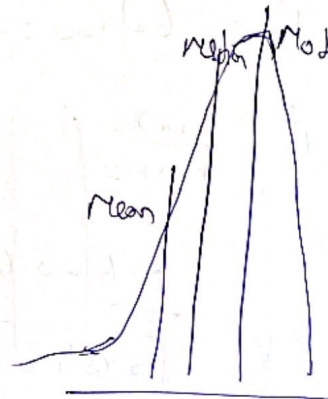
Right skewed



Mean > Median > Mode

Example:
wealth distribution

Left skewed



Mean < Median < Mode

life span of
human being