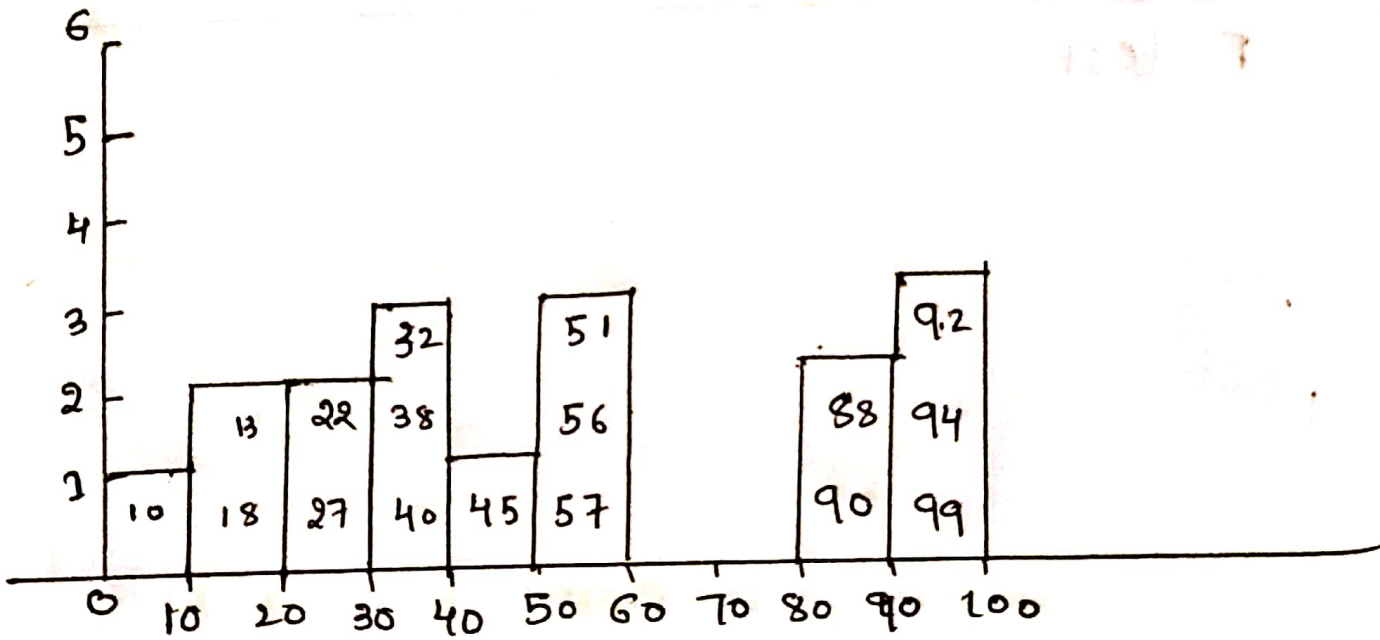
Full stack Data analytics.

assignment -1

Q1) Plot a histogram

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



Q2) In a Quant test of CAT Exam, the population SD is known to be 100 a sample of 25-test taken has mean 520 construct 80% CI about mean.

Given data

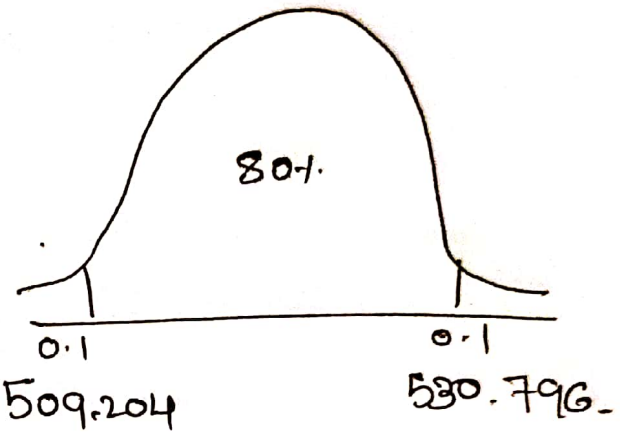
$\bar{x} = 520$

$\sigma = 100$

CI = 80%

$\alpha = 0.2$

$n = 25$



CI = point estimate + margin error

$= \bar{x} \pm Z \cdot \alpha/2 \cdot \frac{\sigma}{\sqrt{n}}$

$= 520 \pm 2 \frac{0.2}{2} \times \frac{100}{\sqrt{25}}$

$= 520 \pm 2\ 0.1 \times 20$

$= 520 \pm 0.5398 \times 20$

$= 530.796$

$= 520 - 0.5398 \times 20$

$= 509.204$

Assignment-3 [10th July] | name:- Deraj. Sabnis.

→ a car company believs that the percentage
93) of residents in city ABC that owns a vehicle is 60.1 or less. A Sales manager disagrees with this. He conducts a hypothesis testing surveying 250 residents and found that 170 respended yes to owning a vehicle.

(a) State the null & Alternate hypothesis.

(b) At 10.1 significance level is there enough evidence to support the idea that ~~ve~~ vehicle ownership in ABC is 60.1. or less.

⇨

$n = 250 \qquad x = 170$

(i) Null hypothesis

$H_0 : p_0 = 60.1.$

$H_i : p_0 \neq 60.1.$

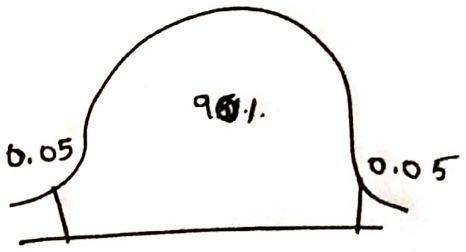
$\hat{p} = \frac{x}{n} = \frac{170}{250} = 0.68.$

$q_0 = 1 - p_0$

$q_0 = 1 - 0.6$

$= 0.4$ or $40.1.$

$p = 60.1. = \frac{60}{100} = 0.6.$

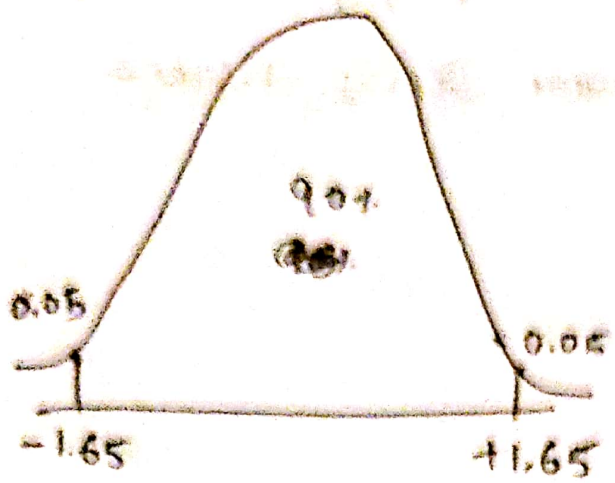


$\alpha = 0.1$

$1 - 0.05 = 0.95.$

By referring z table we get.

z score : 1.65



formula for z test

$$= \frac{\hat{p} - p_0}{\sqrt{\frac{p_0 \times q_0}{n}}} = \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}}$$

$$= \frac{0.08}{\sqrt{\frac{0.24}{250}}} = \frac{0.08}{0.03} = 2.6$$

hence the null hypothesis rejected.

$$2.58 > 1.65$$

94) Value of ~~percentile~~ 99 percentile

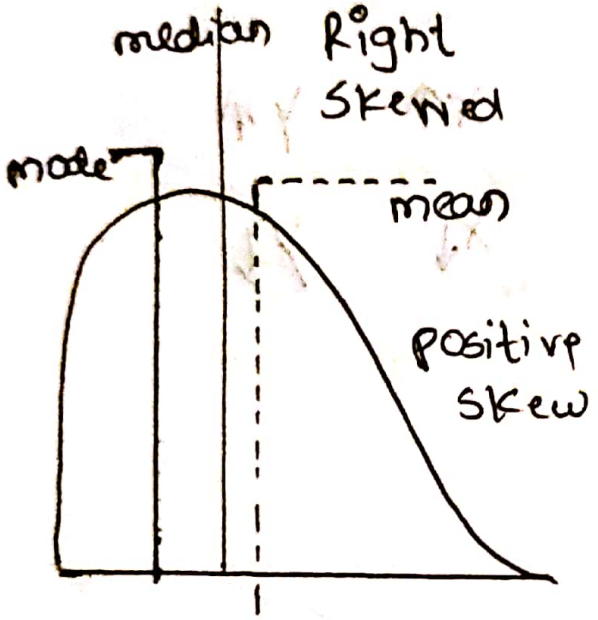
a- {2, 2, 3, 4, 5, 5, 5, 6, 7, 8, 8, 8, 8, 8, 9, 9, 10, 11, 11, 12}.

$$99\text{-}1 = \frac{99}{100} \times (20+1).$$

$$= 20.79.$$

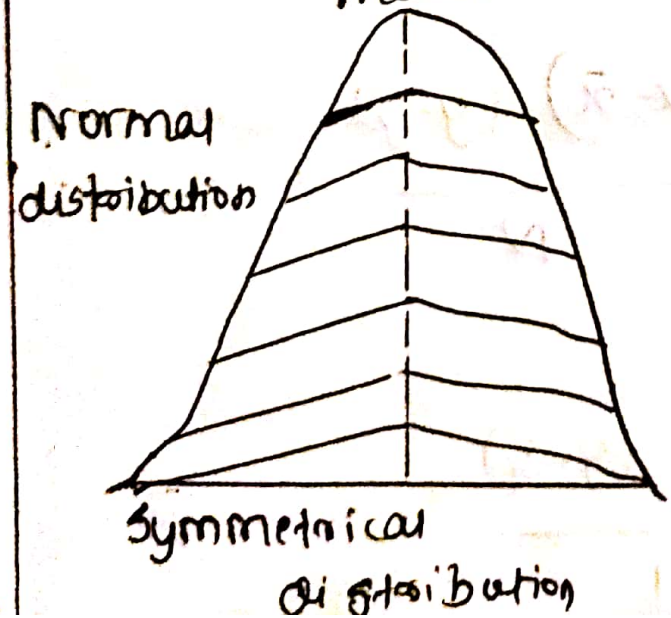
Statistics:- Left & Right skewed distribution and Relation with mean median mode

95)



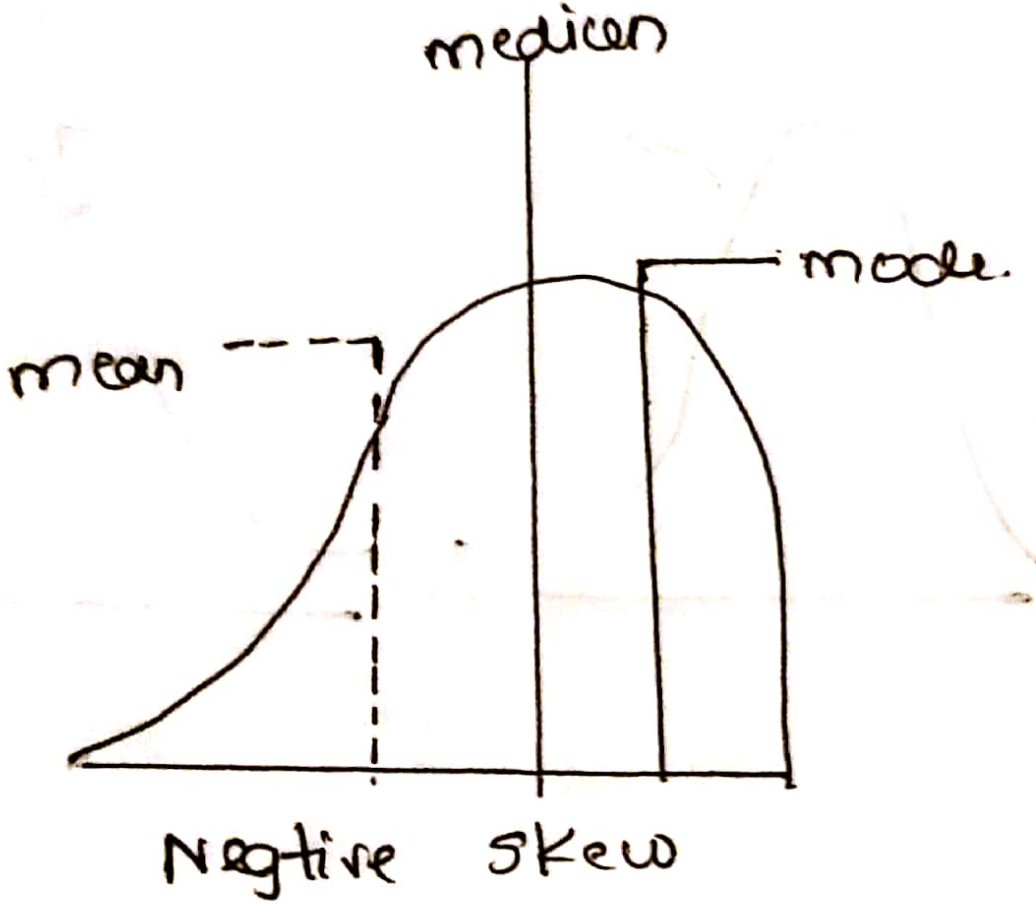
Ex:- wealth distribution
lengths of comment.

mean > median > mode



mean = median = mode

Ex:- Age, Weight, Height
IRIS.



mode > median > mean

Eg:- Life span of Human