Data Mining Test

(2.) X = 23, 45, 67, 85, 23, 25, 35, 67, 12, 23, 45, 88, 23

Y = 45, 23, 45, 45, 56, 34, 56, 67, 34, 56, 23, 45, 88

After sorting:-

X = 12, 23, 23, 23, 23, 25, 35, 45, 45, 67, 67, 85, 88

$$\text{Mean}(X) = \frac{12 + 23\times4 + 25 + 35 + 45\times2 + 67\times2 + 85 + 88}{13}$$

$$= \frac{12 + 92 + 60 + 90 + 134 + 173}{13}$$

$$= \frac{561}{13} = 43.1$$

Mode(X) = 23

$$\text{Median}(X) = \frac{(13+1)}{2}\text{ th data} = \frac{14}{2} = 7^{\text{th}}\text{ data}$$

$$= 35$$

⇒ As we can see that Mean(X), Mode(X) & Median(X) is not same.

So, set(X) is asymmetric.

(2) Y= 45, 23, 45, 45, 56, 34, 56, 67, 34, 56, 23, 45, 88

After sorting:-

Y = 23, 23, 34, 34, 45, 45, 45, 45, 56, 56, 56, 67, 88

$$\text{mean}(Y) = \frac{23\times2 + 34\times2 + 45\times4 + 56\times3 + 67 + 88}{13}$$

$$= \frac{46 + 68 + 180 + 168 + 155}{13}$$

$$= \frac{617}{13} = 47.46$$

Mode(Y) = 45

Median(Y) = $\frac{(13+1)}{2}$ th term = 7th term

= 45

We can see that

mode(Y) = median(Y) = 45

and mean(Y) ≈ mode(Y).

So, set(Y) is symmetric.

① CAC1 in ascending order:-

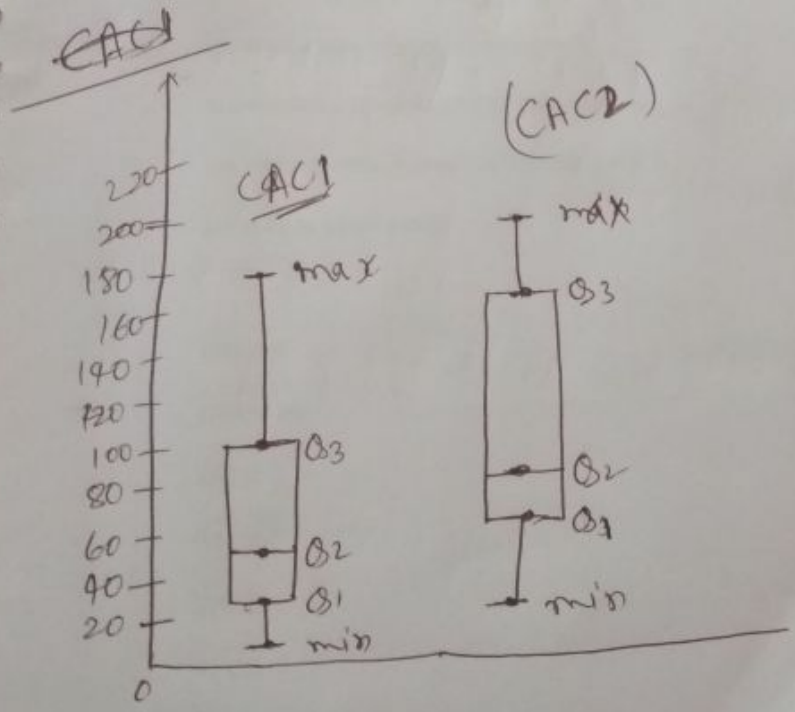
12, 14, 21, 33, 45, 55155, 77, 88, 102, 135, 180

CAC2 in ascending order :-

22, 33, 35, 66, 67, 58, 89, 99, 145, 165, 167, 190, 195

CAC1 median = 55 (Q_2) → $Q_1 = 27$, $Q_3 = 102$

median (CAC2) = 89 (Q_2) → $Q_1 = 66$, $Q_3 = 166$



→ After analyzing box-plot of both the set, we can say that,

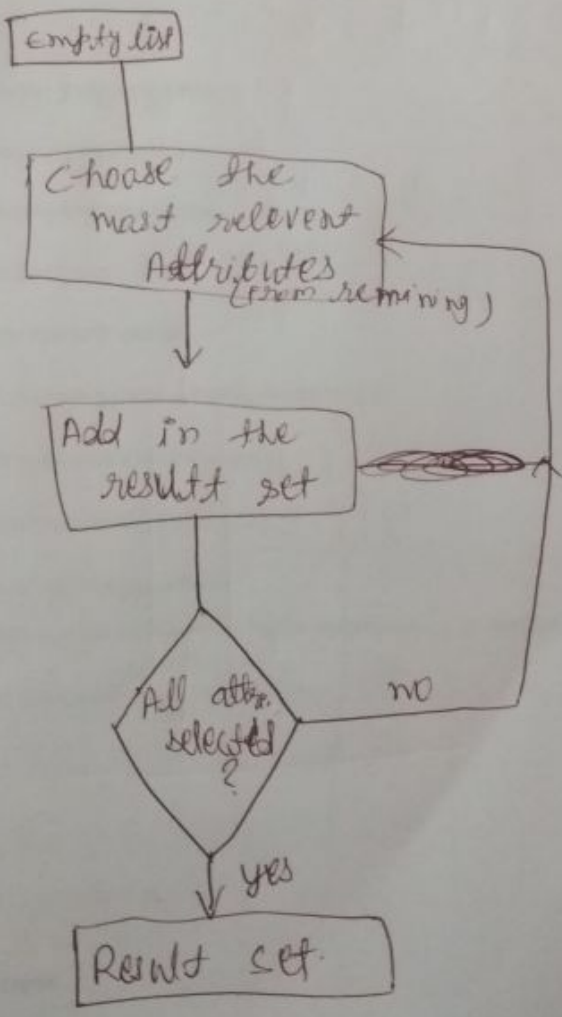
→ CAC1 is not that scattered. Student gets less marks also.

→ Margin of max and min is also high.

→ CIA 2 data is scattered in full graph and in this component students score very well.

→ ~~Marks~~ Margin is high between max score & min score.

④ (a) Forward selection:-



(2) (i) Data in ascending :-

16, 16, 19, 20, 20, 21, 22, 22, 23, 25, 25, 25, 25, 30, 33, 35, 35, 35, 35, 36, 40, 45, 46, 52, 55, 65, 70, 80, 90, 100.

Partition into length of 5:-

	Mean
Bin 1 = 16, 16, 19, 20, 20	18
Bin 2 = 21, 22, 22, 25, 25	23
Bin 3 = 25, 25, 30, 33, 33	29
Bin 4 = 35, 35, 35, 35, 36	35
Bin 5 = 40, 45, 46, 52, 55	48
Bin 6 = 65, 70, 80, 90, 100.	81

Replacing :-

Bin 1 = 18	18	18	18	18
Bin 2 = 23	23	23	23	23
Bin 3 = 29	29	29	29	29
Bin 4 = 35	35	35	35	35
Bin 5 = 48	48	48	48	48
Bin 6 = 81	81	81	81	81