STATISTICS

(Session-7)

Data Analysis is divided into two parts **:**

1 . Central tendency

2 . Data dispersion

Now, let us know how to divide the data

For example , we have 100 points are there

1 , 2 , 3 , 4 , 5 …….. , 100

- it can be divide as :

50 and 50 : 50 – 50

We can divide in the fillowing ways :

- Percentile
- Decile
- Quartile

PERCENTILE :

- Percentile means data divide into 100 parts.
- Percent : cent means century : 100.
- 1 percentile , 2p , 3p , - - - - - , 90p.

For example , Assume that ,

You have written a CAT Exam.

The Total number of students appear CAT Exam is : 1000

Total maximum Marks of CAT Exam is : 100

Nanish have written an Exam , he got : 75 Marks

CAT Exam given him a percentile : 90 percentile Marks

Defination : There are 90 percentage scorers or students are less than him .

Out of 1000 students 900 students have got Marks less than him (75M)

Only 10 percentage of students greater than his Marks

Means , Only 100 members of students got greater than 75 Marks

Percentage VS Percentile :

Percentage says that out of 100 Marks How many you got.

Percentile says how many students got better than your Marks .

If your percentile is 95 , means there are only 5% of students are better than you

Case – 1 : If Marks = 75 and got percentile = 60 , means paper is (Easy).

Case – 2 : If Marks = 35 and got percentile = 90 , means paper is (Hard).

Data points :

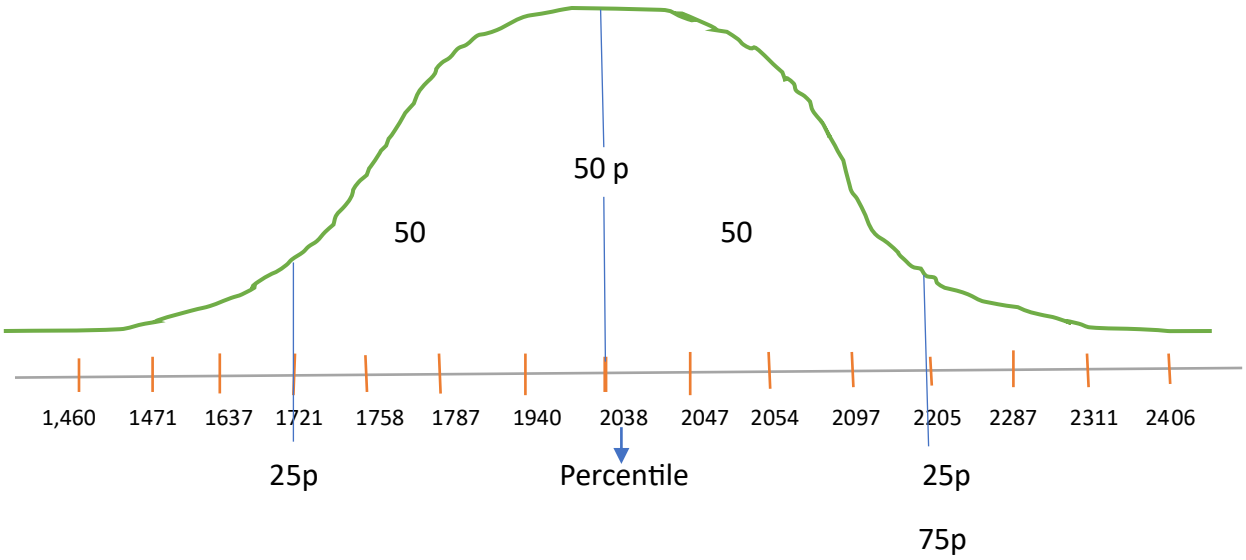
$2,038 $1,758 $1,721 $1,637 $2,097 $2047 $2,205 $1,787

$2,287 $1,940 $2,311 $2,054 $2,406 $1,471 $1,460

Calculate : 50p

(1) $1,460 (2) $1,471 (3) $1,637 (4) $1,721 (5) $1,758 (6) $1,787 (7) $1,940 (8) $2,038

(9) $2047 (10)$2054 (11)$2097 (12)$2205 (13)$2287 (14)$2311 (15)$2406



- 50 p means only 50 percentage values greater than that value

$$\mathbf{15} * \frac{\mathbf{50}}{\mathbf{100}} = \mathbf{7.5}$$

After 7.5 , 8 will come

So the 8th point is = 2038

- 25 p means only 75 percentage values greater than that value

$$\mathbf{15} * \frac{\mathbf{25}}{\mathbf{100}} = \mathbf{3.75}$$

After 3.75 there is 4 will come

So the 4th point is = 1721

- 75p means only 25 percentage values greater than that value

$$\mathbf{75} * \frac{\mathbf{50}}{\mathbf{100}} = \mathbf{11.25}$$

After 11.25 there is 12 will come

So the 12th point is = 2205

(1) $1,460 (2) $1,471 (3) $1,637 (4) $1,721 (5) $1,758 (6) $1,787 (7) $1,940 (8) $2,038

(9) $2047 (10)$2054 (11)$2097 (12)$2205 (13)$2287 (14)$2311 (15)$2406

$$50_{\mathrm{p}} = 15 * \frac{50}{100} = 7.5 = 8$$

$$25_{\mathrm{p}} = 15 * \frac{25}{100} = 3.75 = 4$$

$$75_{\mathrm{p}} = 15 * \frac{75}{100} = 11.25 = 12$$

$$\mathbf{L_p = N * \frac{L_p}{100}}$$

$$\mathrm{L_p} = (\mathrm{N} + 1) * \frac{\mathrm{L_p}}{100}$$

$$50_{\mathrm{p}} = (15 + 1) * \frac{50}{100} = 7.5 = 8$$

Location of a percentile : $\mathbf{L_p = (N + 1) * \frac{p}{100}}$

QUARTILE :

- Quartile is equal to 4 parts
- which means the data divided into 4 parts , where as percentile is equal to 100 parts
- which means the data divided into 100 parts

Suppose 0 to 100 :

Q_1 : 0 to 25 Q_2 : 25 to 50 Q_3 : 50 to 75 Q_1 : 75 to 100

- But we know that asymptodes never touch the real line
- In statistics we cannot say perfectly or exactly 100 or 0 , Means we cannot say zero existance or 100 existance without data

So , 0 as min and 100 as max

Q_1 : min to 25 Q_2 : 25 to 50 Q_3 : 50 to 75 Q_1 : 75 to max

Q_1 = 25p

Q_2 = 50p

Q_3 = 75p