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Median:

Median is that central tendency which divides the scores of a group into two equai parts in such way that the scores of one part are more than it and the scores of another part are less than it.

Example: Suppose, the marks of 5 students in a test of 50 marks follows- 40, 21, 17, 38 and 41

Now, arranging the scores in ascending order:

17, 21, 38, 40, and 41

Just look at the scores. Among them, 38 is the score which has two more than it and two scores less than it. So, the median of this group is 38.

Therefore, median can be defined in the following way: *Median is that score of a group which lies right midway when the scores are arranged in rank order and on the either side of which 50% of the scores are distributed.*

Characteristics of Median:

1. Median is the exact mid value of scores of a group arranged in rank order. So, it is suitable for comparison and analysis of other scores in the group.

2. When deviation of scores of a group is abnormal or the value of some scores is too high or too low as compared to other scores, then median is more useful than mean.

3. Median is more useful for qualitative analysis of scores of a group as compared to other central tendencies mean and mode.

4. The median displayed by a group's scores in graph can also be used to analyse the scores of other group by median.

Limitations of Median:

1. Median can be found out for the scores of a group and not for the scores of two groups.

2. Median is the fixed value of scores of a group, so it is necessary to arrange all scores in rank order. In case of a large group, it requires more time and energy.

Use and Importance of Median in the Field of Education:

Though in the field of education generally mean is used but in some cases median is more significant:

1. When the distribution of scores of a group is not normal.

2. When all scores of a group are not received.

3. When we have to find out the situation of a particular person in a group, whether he comes in the first 50% or last 50%.

4. When there is scarcity of time to calculate mean.

5. When it is required in conclusion propounding of educational researches.

Calculating Median from Unclassified Scores:

Tne simplest method to calculate median is to arrange the scores of students in rank order, that is, to arrange the scores from minimum to maximum and to take out the mid score.

Example:

The scores of 7 students in an examination of 50 marks are- 15, 8, 24, 30, 21, 19 and 33. Find out the median of the scores.

Calculation:

On arranging the scores in rank order-

8, 15, 19, 21, 24, 30, 33.

The score in midway is 21, which has 3 scores above it and 3 below it.

Md=21

Note:

When the number of students is even, the average of two mid scores is taken.

Example:

The scores of 8 students in an examination of 50 marks are 23, 15, 8, 12, 24, 26, 33 and 31. Find out the median of these scores.

Calculation:

On arranging the scores in rank order:

8, 12, 15, 23, 24, 26, 31, 33.

The mid scores among them are 23 and 24 both having 3-3 scores above and below each.

Median (Md) = (23+24)/2=23.5

Note:

Look at the above two examples. In them, the median is the mid score of the one-half of the mid two scores. We can display it by the following formula:

$Md = \{(N+1)/2\}^{th} score$

Where, Md stands for median and N is the number of students.

Example:

The scores of 7 students in an examination of 50 marks are- 15, 8, 24, 30, 21, 19 and 33. Find out the median of the scores.

Calculation:

On arranging the scores in rank order-

8, 15, 19, 21, 24, 30, 33.

$Md = \{(N+1)/2\}^{th} score$

$Md = \{(7+1)/2\}^{th} score$

$Md = 4^{th} score$

$Md = 21$

Example:

The scores of 8 students in an examination of 50 marks are 23, 15, 8, 12, 24, 26, 33 and 31. Find out the median of these scores.

Calculation:

On arranging the scores in rank order:

8, 12, 15, 23, 24, 26, 31, 33.

$Md = \{(N+1)/2\}^{th}$ score

$Md = \{(8+1)/2\}^{th}$ score

$Md = 4.5^{th}$ score,

that is, average of 4th and 5th scores.

$Md = (23+24)/2 = 23.5$

Calculating Median of Classified Scores:

When the number of students is large, it becomes difficult to arrange their scores. In that condition, we prepare a frequency distribution table for calculation of median. Under it, at first we calculate the cumulative frequencies in the frequency distribution table, and with its help we find out the class in which the $(N/2)$th score falls. After this, the following formulae are used to calculate median of the scores.

Example:

C. I.	f	cf
65-69	1	50
60-64	3	49
55-59	4	46
50-54	7	42
45-49	9	35
40-44	11	26
35-39	8	15
30-34	4	7
25-29	2	3
20-24	1	1
	N=50	

Median, Md = L +{(N/2-Fb)/f} x Ci

Where,
L - stands for lower limit of the class containing median.
N - stands for the number of students.
Fb - indicates the total of frequencies occurring before the class containing median.
f - stands for frequencies of the class containing median, and
Ci - stands for class interval or the size of classes.

Median,
$Md = L + \{(N/2 - Fb)/f\} \times Ci$
L=39.5, N/2=50/2=25, f=11, Fb=15, Ci=5.

$Md = L + \{(N/2 - Fb)/f\} \times Ci$
$Md = 39.5 + \{(25-15)/11\} \times 5$
$Md = 39.5 + (10/11) \times 5$
$Md = 39.5 + (50/11)$
$Md = 39.5 + 4.55$
$Md = 44.05$

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