

CHAPTER 14

Statistics

Method of calculating median for grouped frequency distribution:

In grouped data, we may not be able to find the middle observation by looking at the cumulative frequencies as the middle observation will be some value in a class interval. It is necessary to find the value inside a class that divides the whole distribution into two halves.

To find this class, we find the cumulative frequencies of all classes. Locate the class whose cumulative frequency is just

greater than (and nearest to) $\frac{n}{2}$. If 'n' is the total number of observations. This class is called the median class.

After finding the median class, we use the following formula for calculating the median.

$$\text{Median} = l + \left(\frac{\frac{n}{2} - C.f}{f} \right) \times h$$

Where, l = Lower boundary of median class

n = Number of observations

P. C. f = Cumulative frequency of class preceding the median class

f = Frequency of median class

h = Class size (Size of the median class)

Note:

- If the given data is in discontinuous form, then convert it into continuous form for calculating the median.
- If ' n ' is the total number of observations and $\frac{n}{2}$ is exactly equal to any cumulative frequency, then median class will be corresponding to the cumulative frequency.