

$$x = 9, 12, 13, 16, 19, 12, 18, 0, 9, 12, 6$$

$$\text{Mean} = \frac{\sum_{i=1}^n x_i}{n}$$

$$= \frac{9+12+13+16+19+12+18+0+9+12+6}{11} = \frac{126}{11} = 11.45$$

$$\text{Median: odd} = \left(\frac{n+1}{2} \right)^{\text{th}} \text{ term} = \left(\frac{11+1}{2} \right) = \frac{12}{2} = 6^{\text{th}} \text{ term} = 12$$

$$\text{Mode} \Rightarrow 0, 6, 9, 9, 12, 12, 12, 13, 16, 18, 19 \Rightarrow 12$$

$$\text{Range} = \max(x) - \min(x)$$

$$= 19 - 0$$

$$= 19$$

$$\text{Variance} = \frac{\sigma^2 = \sum (x_i - \bar{x})^2}{n}$$

$$= (9 - 11.45)^2 + (12 - 11.45)^2 + (13 - 11.45)^2 + (16 - 11.45)^2 + (19 - 11.45)^2 + (12 - 11.45)^2 + (18 - 11.45)^2 + (0 - 11.45)^2 + (9 - 11.45)^2 + (12 - 11.45)^2 + (6 - 11.45)^2$$

$$= \frac{246.436}{11}$$

$$\sigma^2 = 26.9487 \approx 27 \text{ (approx)}$$

$$\text{S.D} \Rightarrow \sqrt{\sigma^2} = \sqrt{27} = 5.19$$

x	f	cf
6	5	5
1	2	7
10	5	
12	9	
14	10	

$$\text{Mean } \bar{X} = \frac{\sum x_i f_i}{\sum f_i} \Rightarrow \frac{30 + 2 + 50 + 108 + 140}{31} = \frac{330}{31}$$

$$\text{Mean} = 10.64$$

$$\text{Median} = \frac{N}{2} = \frac{31}{2} = 15.5^{\text{th}} \text{ term}$$

$$\text{Median} = L + \left(\frac{\frac{N}{2} - CF}{f} \right) \times h$$

x	f	cf
1	2	2
6	5	7
10	5	12
12	9	21
14	10	31

$$\text{Median} = 11 + \left(\frac{15.5 - 12}{9} \right) \times 2$$

$$= 11.78$$

$$\text{Mode} : 14$$

$$\text{Range} = \text{max}(x) - \text{min}(x)$$

$$= 14 - 1 = 13$$

$$\sigma^2 = \frac{\sum fx^2}{N} - \bar{x}^2$$

$$= \frac{3938}{31} - (10.64)^2$$

$$\boxed{\sigma^2 = 13.74}$$

$$S.D = \sqrt{\sigma^2}$$

$$= \sqrt{13.74}$$

$$\boxed{S.D = 3.708}$$