Central Tendencies

1. Mean of

[Rest of the questions in Python Assignment Jupyter Notebook]

(a) 9, 7, 11, 13, 2, 4, 5, 5

$$M = \frac{9+7+11+13+2+4+5+5}{8} = \frac{56}{8} = 7$$

(b) 2.2, 10.2, 14.7, 5.9, 4.9, 11.1, 10.5

$$M = \frac{59.5}{7} = 8.5$$

(c) $1\frac{1}{4}, 2\frac{1}{2}, 5\frac{1}{2}, 3\frac{1}{4}, 2\frac{1}{2}$

$$M = \frac{15}{5} = 3$$

5. Mean of $[6, 8, x+2, 10, 2x-1, 2]$ is 9.

$$\Rightarrow \frac{26 + x+2 + 2x-1}{6} = 9$$

$$\Rightarrow \frac{3x - 27}{6} = 9$$

$$\Rightarrow 3x - 27 = 54$$

$$\Rightarrow 3x = \frac{27(1+2)}{3}$$

$$\Rightarrow x = 27$$

so list is $[6, 8, 29, 10, 53, 2]$

6. Find the mean of the distribution

Age in years	12	10	15	14	8
Number of boys	5	3	2	6	4

14×6 = 84

$$\text{Mean} = \frac{\sum f \cdot M}{\sum f} = \frac{12\times5 + 10\times3 + 15\times2 + 14\times6 + 8\times4}{5+3+2+6+4}$$

$$= \frac{60 + 30 + 30 + 84 + 36}{20}$$

$$\text{Mean of distribution} = \frac{240}{20} = 12$$

(6) Marks obtained by 40 students

Marks	25	30	15	20	24
No of Students	8	12	10	6	4

$$\text{Mean of pupils} = \frac{\Sigma f.M}{\Sigma f} = \frac{200+360+150+120+96}{40}$$

$$= 926/40$$

$$= 23.15$$

7. Mode of the following

(a) [12, 8, 4, 8, 1, 8, 9, 11, 9, 10, 12, 8]

[1, 8, 8, 8, 8, 4, 9, 9, 10, 11, 12, 12]

Mode = 8

(b) [15, 22, 17, 19, 22, 17, 29, 24, 17, 15]

[15, 15, 17, 17, 17, 19, 22, 22, 24, 29]

Mode : 17

(c) [0, 3, 2, 1, 3, 5, 4, 3, 42, 1, 2, 0]

= [0, 1, 1, 2, 2, 3, 3, 3, 4, 5, 42]

Mode = 3

(d) [1, 7, 2, 4, 5, 9, 8, 3]

= [1, 2, 3, 4, 5, 7, 8, 9]

No mode for the list.

8. List in ascending order: [17, x, 24, x+7, 35, 36, 46]

Median is 25

x will be 18 so the list will be [17, 18, 24, 25, 35, 36, 46]

9. If numbers are not in ascending

10. When to use mode.

a) Yes, mode is used

b) Mean can be used to represent the distribution in cases (a) and (c)

c) Yes, mode or median can be used, median can be used if no outliers.

d) Mode is used.