

9.5 Measures of Central Tendency

Measures that tend to be close to the center of the data are:

1. Mode
2. Median
3. Mean (average)

1

1. Mode (M_o): the most frequent value in the data.

Ex 1 (Raw data):

22, 24, 24, 25, 26, 26, 26, 31, 32

Ex 2: Mode is the only measure of central tendency that we can use for qualitative variables.

Hair color	Frequency
Red	1
Blond	5
Brown	7
Black	3

2

1. Mode (M_o): the most frequent value in the data.

Ex 3 (Grouped data):

Age	Frequency
[10,14[	7
[14,18[	4
[18,22[	9
[22,26[	4

3

2. Median (M_d): the middle value in an ordered group of data.

Case 1: n(number of data entries) is odd:

22, 24, 24, 25, 26, 28, 29, 31, 32

2. Median (M_d): the middle value in an ordered group of data.

Case 2: n(number of data entries) is even:

22, 24, 24, 25, 28, 29, 31, 32

2. Median (M_d): the middle value in an ordered group of data.

Ex 3:

Value	Frequency
2	10
4	6
5	2
6	9
9	5
Total	32

Ex 4:

Value	Frequency
20	2
25	8
30	4
40	9
50	6
Total	29

6

2. Median (M_d): the middle value in an ordered group of data.

Ex 5: (Grouped data)

Class of marks	Frequency
[0,20[	4
[20,40[	8
[40,60[	10
[60,80[	7
[80,100]	1
Total	30

3. Mean (\bar{x}): /average the sum of the data divided by the number of data.

Ex 1: (Raw data) find the mean of

21, 31, 24, 26, 32, 42, 25

3. Mean (\bar{x}): /average the sum of the data divided by the number of data.

Ex 2: (Frequency table)
find the mean age

Age	Frequency	Total age
12	2	2(12)=24
13	4	4(13)=52
14	3	3(14)=42
Total	9	118

3. Mean (\bar{x}): /average the sum of the data divided by the number of data.

Ex 3: (Grouped data)
find the mean height

Height	Frequency	Midpoint	Total height
[100,110[	8	105	8(105)=840
[110,120[	2	115	2(115)=230
[120,130[	7	125	7(125)=875
Total	17		1945

3. Mean (\bar{x}): /average the sum of the data divided by the number of data.

Ex 4: (Weighted data)
find John's mean mark

Term	Weighting	John's mark
1	0.14	65%
2	0.14	70%
Mid exam	0.075	70%
3	0.285	85%
Final exam	.36	63%

Practice: page 281 # 1-4
page 283 # 5,6
page 284 # 7

