

Lab: 1 Date: 2080/02/29

PROJECT 1.1: FOR UNGROUPED DATA

OBJECT:

ENTER THE FOLLOWING VALUES IN SPSS AND CALCULATE MEAN, S.D, RANGES, MODE, MEDIAN

WEIGHTS: 25, 35, 45, 55, 65, 75

WORKING EXPRESSIONS:

We have,

i.

Mean $(X) = \frac{\sum x}{n}$ Median $(Md) = \frac{n+1}{2}$ ii.

Standard Deviation (S.D.) = $\sqrt{\frac{\sum (X-X)2}{n}}$ iii.

iv. Range = max - min

Mode = maximum repetition of data v.

Standard error (S.E.) = $\frac{S.D.}{\sqrt{n}}$ vi.

Note: Where $\sum x$ represents the sum of all the items in the dataset and n represent the number of items in the given dataset.

PROCESS:

Solution:

- 1. Select Analyze → Descriptive statistics → Descriptives
- 2. Click the **Descriptives** \longrightarrow Move **Midvalue** into **Variables(s)**.
- 3. Click the Option. Select Mean, s.d., ranges, mode, median
- 4. Click **Ok**

From SPSS.

MEAN, S.D, RANGES, MODE, MEDIAN FROM THE GIVEN DATA IS SHOWN THROUGH THE TABLE

Statistics

Weights

N	Valid	6
	Missing	0
Mean		49.83
Std. Error	of Mean	7.705
Median		50.00
Mode		25ª
Std. Devi	ation	18.872
Variance		356.167
Range		50
Minimum	1	25
Maximun	1	75

RESULT:

From the above table, the following results were obtained:

- I. Average of the given data (Mean) = 49.83
- II. Median = 50.00
- III. Standard Deviation (S.D.)= 18.872
- IV. Range of a weight = 50
- V. Mode = 25 (Multiple modes exists. The smallest value is shown)



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PROJECT 1.2: FOR UNGROUPED DATA

OBJECT:

ENTER THE FOLLOWING VALUES IN SPSS AND CALCULATE MEAN, S.D, RANGES, MODE, MEDIAN

WEIGHT	MID VALUE	FREQUENCY	
20-30	25	4	
30-40	35	6 7 21	
40-50	45		
50-60	55		
60-70	65	23	
70-80	75	2	

WORKING EXPRESSIONS:

We have,

i. Mean
$$(X) = \frac{\sum x}{n}$$

i. Mean (X) =
$$\frac{\sum x}{n}$$

ii. Median (Md) = $\frac{n+1}{2}$

iii. Standard Deviation (S.D.) =
$$\sqrt{\frac{\sum (X-X)2}{n}}$$

iv.
$$Range = max - min$$

v. Mode = maximum repetition of data

vi. Standard error (S.E.) =
$$\frac{S.D.}{\sqrt{n}}$$

Note: Where $\sum x$ represents the sum of all the items in the dataset and n represent the number of items in the given dataset.

PROCESS:

Solution:

1. Enter the **Data Editor Window**.

- 2. Select **Data → Weight Cases.**
- 3. Move Frequency into Frequency Variable
- 4. Click Ok. Select Analyze → Descriptive statisti← Frequencies
- 5. Click the **frequencies** \implies Move **MidValue** into **Variable(s)**
- 6. Click the Statistics. Select Mean.
- 7. Click Continue. Click Ok.

From SPSS,

Statistics

Mid_value

N	Valid	63
	Missing	0
Mean		54.37
Median		55.00
Mode		65
Std. Devi	iation	12.556
Range		50

RESULT:

From the SPSS output table, the following results are obtained:

- i. Mean = 54.37
- ii. Median = 55.00
- iii. Mode = 65
- iv. Standard Deviation (S.D) = 12.556
- v. Range = 50



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PROJECT 1.3: ENTER THE FOLLOWING DATA IN SPSS

OBJECT: GIVEN DATA IS:

WEIGHT	MID VALUE	FREQUENCY	
20-30	25	4	
30-40	35	6	
40-50	45	7	
50-60	55	21	
60-70	65	23	
70-80	75	2	

WORKING EXPRESSIONS:

We have,

i. Mean
$$(X) = \frac{\sum x}{n}$$

i. Mean
$$(X) = \frac{\sum x}{n}$$

ii. Median $(Md) = \frac{n+1}{2}$

iii. Standard Deviation (S.D.) =
$$\sqrt{\frac{\sum (X-X)2}{n}}$$

iv. Range = max - min

Mode = maximum repetition of data v.

Standard error (S.E.) = $\frac{S.D.}{\sqrt{n}}$ vi.

Note: Where $\sum x$ represents the sum of all the items in the dataset and n represent the number of items in the given dataset.

PROCESS:

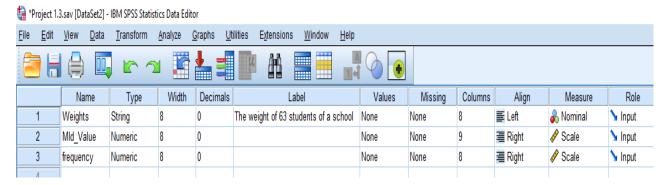
In this task, we will create four types of variables: Numeric, data, string and binary.

- 1. Click the **Type in data tab.**
- 2. Click the **Variable View** tab at the bottom of the window.

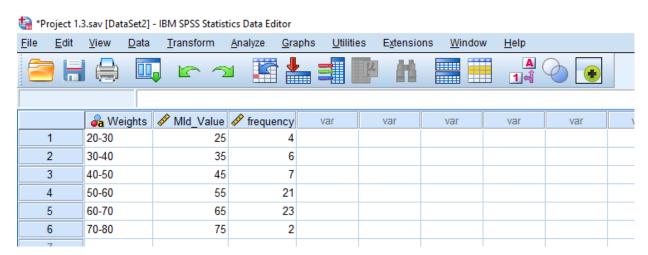
- 3. With the cursor in the Name column on the first row type: **Weight,** on the second row type: **Midvalue,** on the third row type: **Frequency.**
- 4. In the Type column, click the **Numeric** to open the Variable Type dialog box.
- 5. Select (Click) String.
- 6. Click Ok.
- 7. Press tab or Enter three times to move to **label column.**
- 8. Type "The weight of 63 students of a school".
- 9. Click the **Data View** tab at the bottom of the window.
- 10. Enter the values as follows. Then save file.

After following above process, following results were seen:

Variable View:



Data View:





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PROJECT 1.4: CONFIDENCE INTERVAL FOR POPULATION MEAN μ , (σ UNKNOWN AND LARGE n)

OBJECT:

ENTER THE FOLLOWING VALUES IN SPSS AND CREAT A CONFIDENCE INTERVAL ASSUMING NORMAL DISTRUBUTION

LENGTH: 125, 120, 121, 123, 122, 130, 124, 122, 120, 122, 118, 119, 123, 124, 122, 124, 121, 122, 138, 149, 123, 128, 122, 130, 120, 122, 124, 134, 137, 128, 122, 121, 125, 120, 132, 130, 128, 130, 122, 124

WORKING EXPRESSIONS:

i. Mean
$$(X) = \frac{\sum x}{n}$$

i. Mean
$$(X) = \frac{\sum x}{n}$$

ii. Median $(Md) = \frac{n+1}{2}$

iii. Standard Deviation (S.D.) =
$$\sqrt{\frac{\sum (X-X)2}{n}}$$

- Range = max miniv.
- Mode = maximum repetition of data v.
- Standard error (S.E.) = $\frac{S.D.}{\sqrt{n}}$ vi.
- Confidence Interval (C.I.)= $\overline{X} \pm Z \frac{S.D.}{\sqrt{n}}$ vii.

Note: Where $\sum x$ represents the sum of all the items in the dataset and n represent the number of items in the given dataset.

PROCESS:

- 1. Enter the **data**.
- 2. Select Analyze ⇒ Compare Means → One sample T test
- 3. Click **Options** → Type % (90, 95, 99)**confidence interval**
- 4. Click on Continue and then Click Ok.

From SPSS, the confidence interval after entering the given value in SPSS is:

One-Sample Test

Test Value = 0

				95% Confidence Interval of the Difference		rval of the Difference
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Length	128.879	39	.000	125.275	123.31	127.24

RESULT:

Using SPSS, the confidence interval of the given data is 125.275, 127.4 at 95% confident level.