SPSS Report

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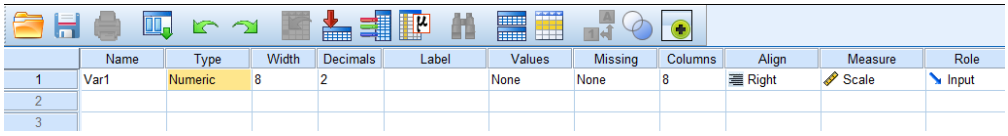
SPSS Report

[27/8/2021]

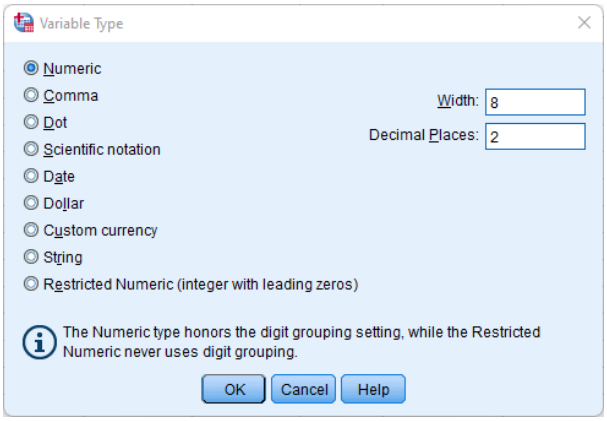
Variable View



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Var1	Numeric	8	2		None	None	8	Right	Scale	Input
2											
3											

`Name` - Name of the variable.

`Type` - The types of values the variable can take.



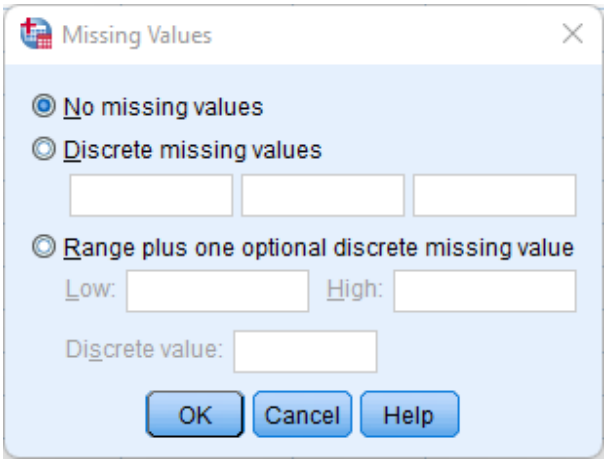
Variable type selector popup window

`Width` - Specifies the column width for the display of variables in the Data Editor.

`Decimals` - No. of decimal places permitted by the variable.

`Label` - Description for the variable.

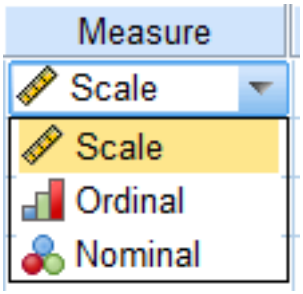
`Values` - Values which can be taken by the variable.



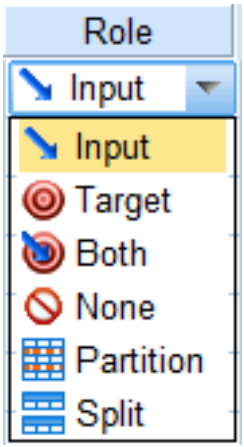
Missing values editor

`Align` - Alignment of the values in the cell of the Data Editor view.

`Measure` - SPSS measurement levels are limited to nominal(i.e. categorical), ordinal(i.e. ordered like 1st, 2nd, 3rd…), or scale. Essentially, a scale variable is a measurement variable.



`Role` - Specifies the variable's role in analysis.



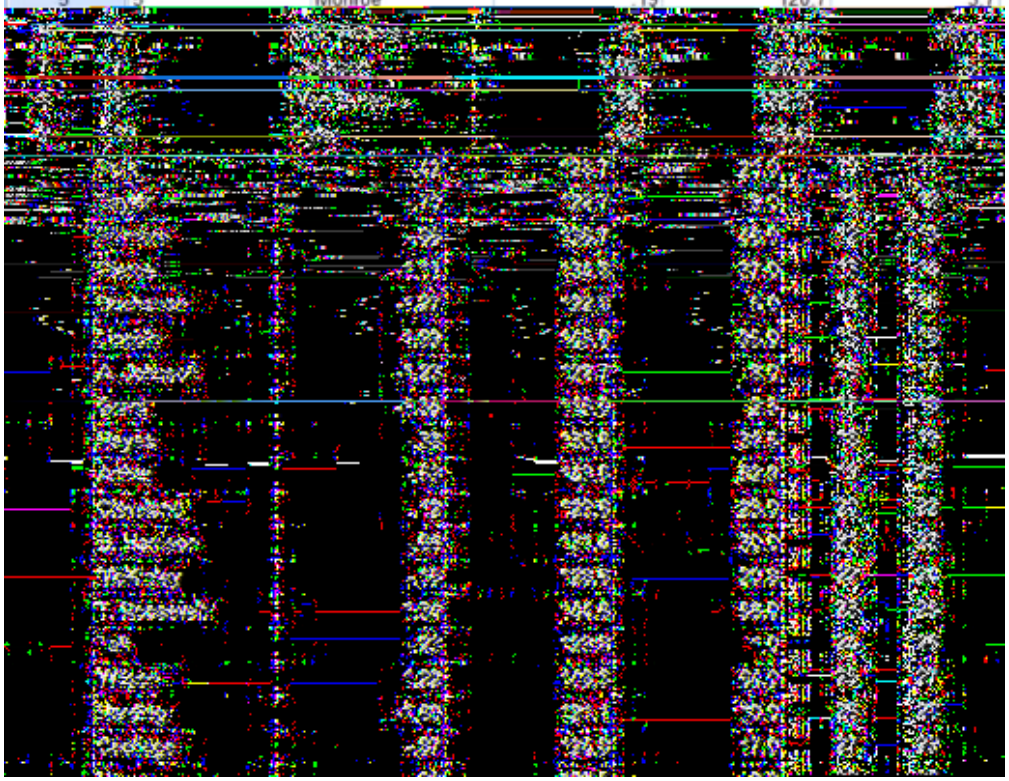
Classwork

Variable View

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	President	String	25	0		None	None	8	Left	Nominal	Input
2	MB_Rating	Numeric	25	2	M B Rating of p...	None	None	8	Right	Scale	Input
3	IQ	Numeric	25	1		None	None	8	Right	Scale	Input

Data View

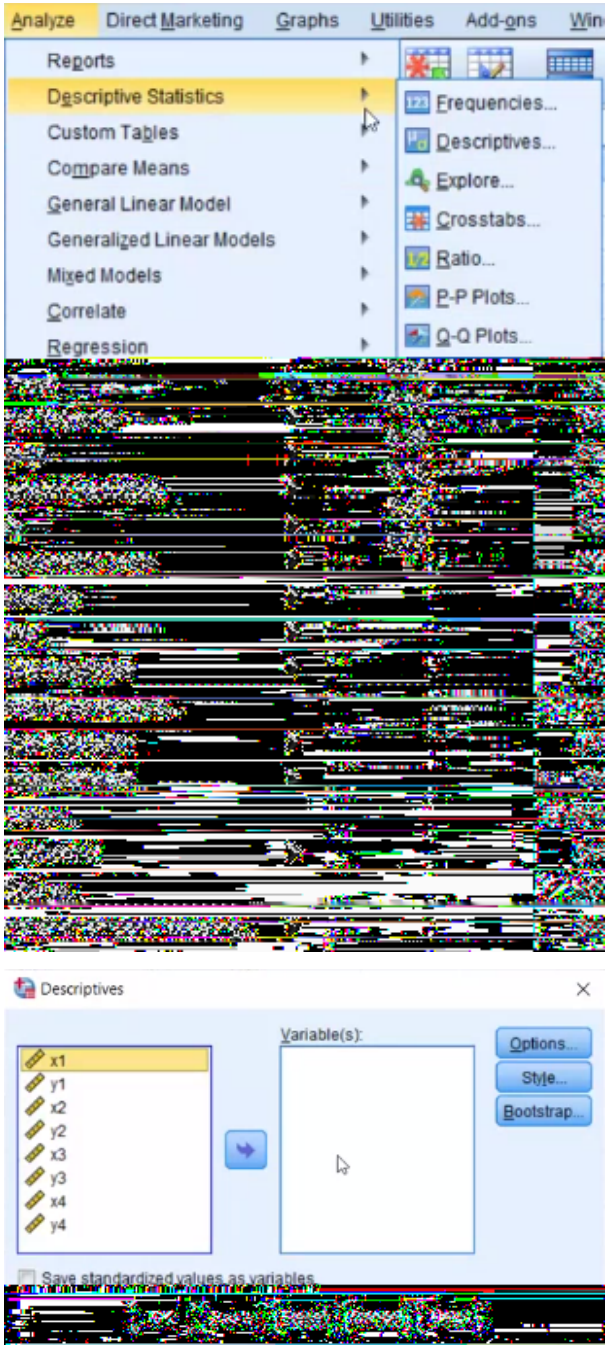
	V1	president	mbrating	IQ	Openness
1	1	Washington	1.87	130.0	14.0
2	2	J. Adams	.59	150.0	61.0
3	3	Jefferson	1.52	160.0	99.1
4	4	Madison	.23	150.0	62.0
5	5	Monroe	.19	120.7	3.7



[1/9/2021]

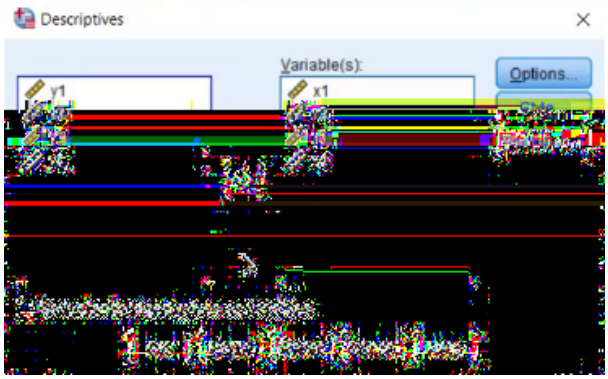
Descreptive Analysis

The Descriptives menu lies under `Analyze` ⟶ `Descriptive Statistics` ⟶ `Descriptives...`

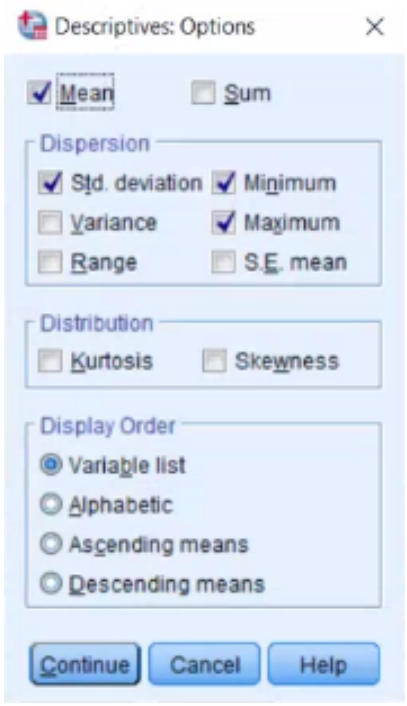


The descriptives popup window

Once the window is open, select the variables you want to perform the analysis on and click the arrow in the middle to move them to the variables side.



The descriptives window after moving the variables



Options available for desvriptive analysis

Chart Builder

To build a graph, `Chart Builder` is used which is available under `Graphs` ⟶ `Chart Builder`

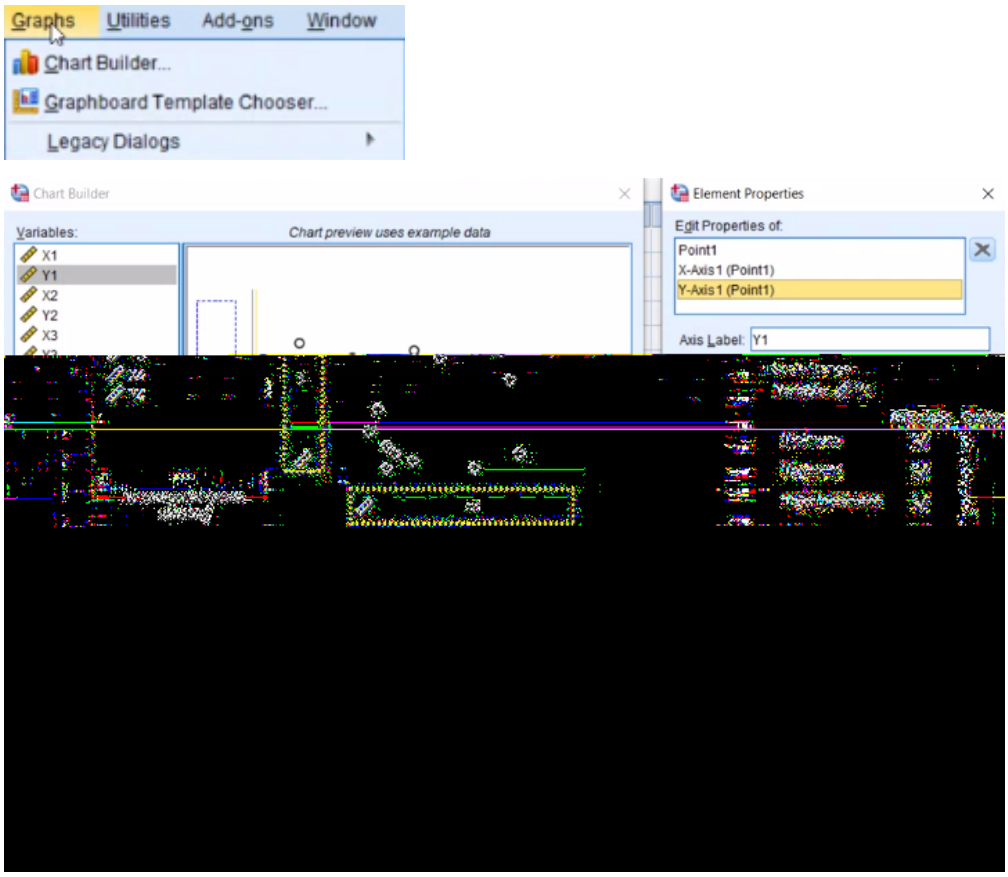


Chart Builder Window

`Variables` - A list of variables which can be used to build the graph.

`Gallery` - Types of plots for the user to choose from.

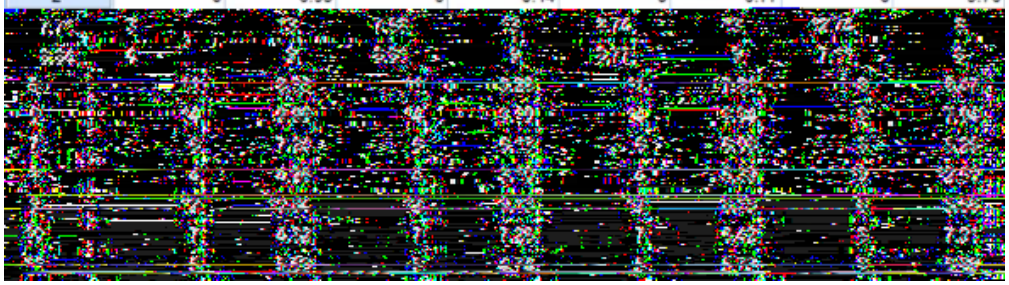
`Element Properties` - This window allows the variables to be modified in the graph.

Scatterplot Alternate Method `Graphs` $\longrightarrow$ `Legacy Dialogs` $\longrightarrow$ `Scatter/Dot...`

Classwork

Data View

	x1	y1	x2	y2	x3	y3	x4	y4
1	10	8.04	10	9.14	10	7.46	8	6.58
2	8	6.95	8	8.14	8	6.77	8	5.76



Output View

Descriptives

```
[DataSet1] C:\Users\Abhirup Moitra\Pictures\anscombe.sav
```

Descriptive Statistics

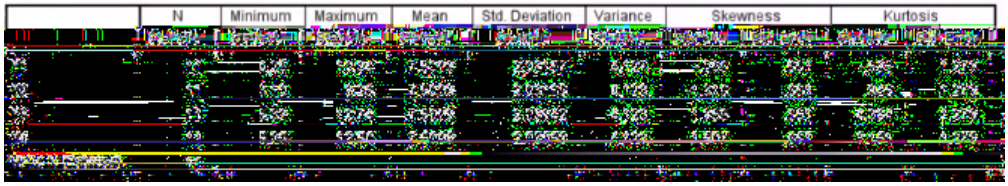
	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
X1	11	4.00	14.00	9.0000	3.31662	11.000	.000	.661	-1.200	1.279
X2	11	4.00	14.00	9.0000	3.31662	11.000	.000	.661	-1.200	1.279
X3	11	4.00	14.00	9.0000	3.31662	11.000	.000	.661	-1.200	1.279
X4	11	8.00	19.00	9.0000	3.31662	11.000	3.317	.661	11.000	1.279
Valid N (listwise)	11									

```
DESCRIPTIVES VARIABLES=Y1 Y2 Y3 Y4
  /STATISTICS=MEAN STDDEV VARIANCE MIN MAX KURTOSIS SKEWNESS.
```

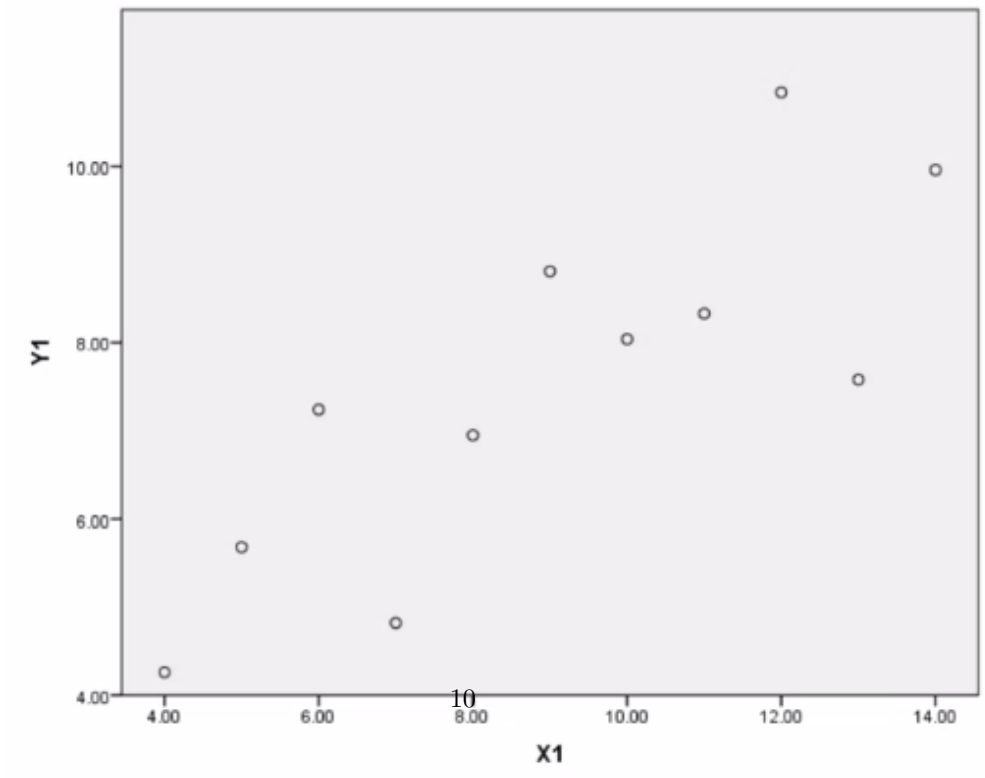
Descriptives

Descriptive Statistics

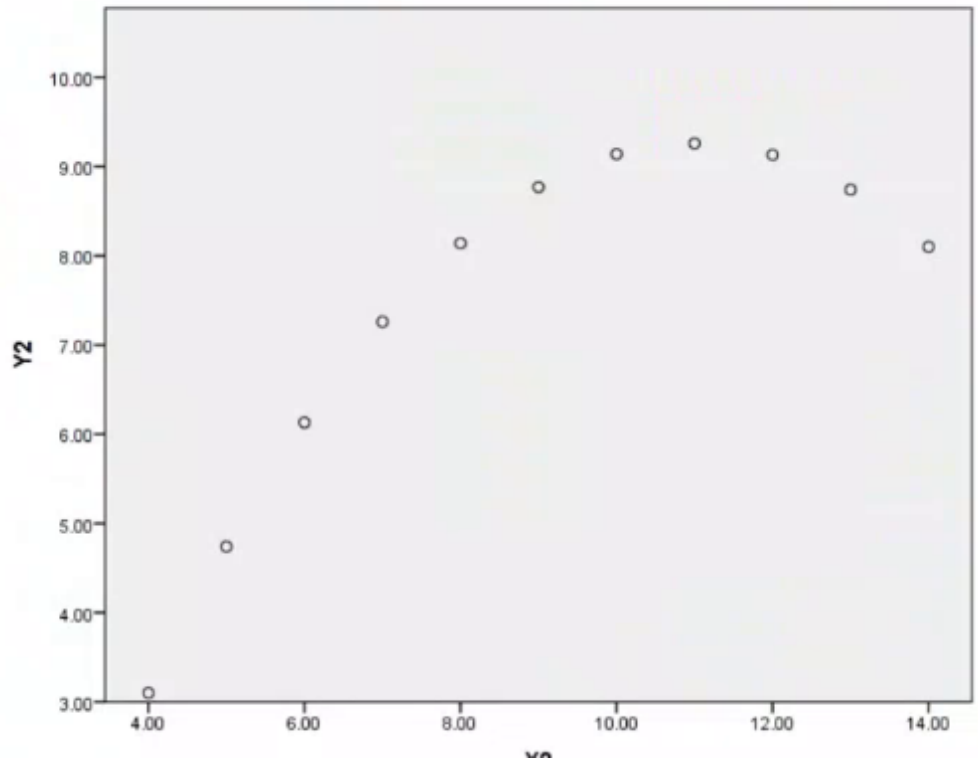
	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis

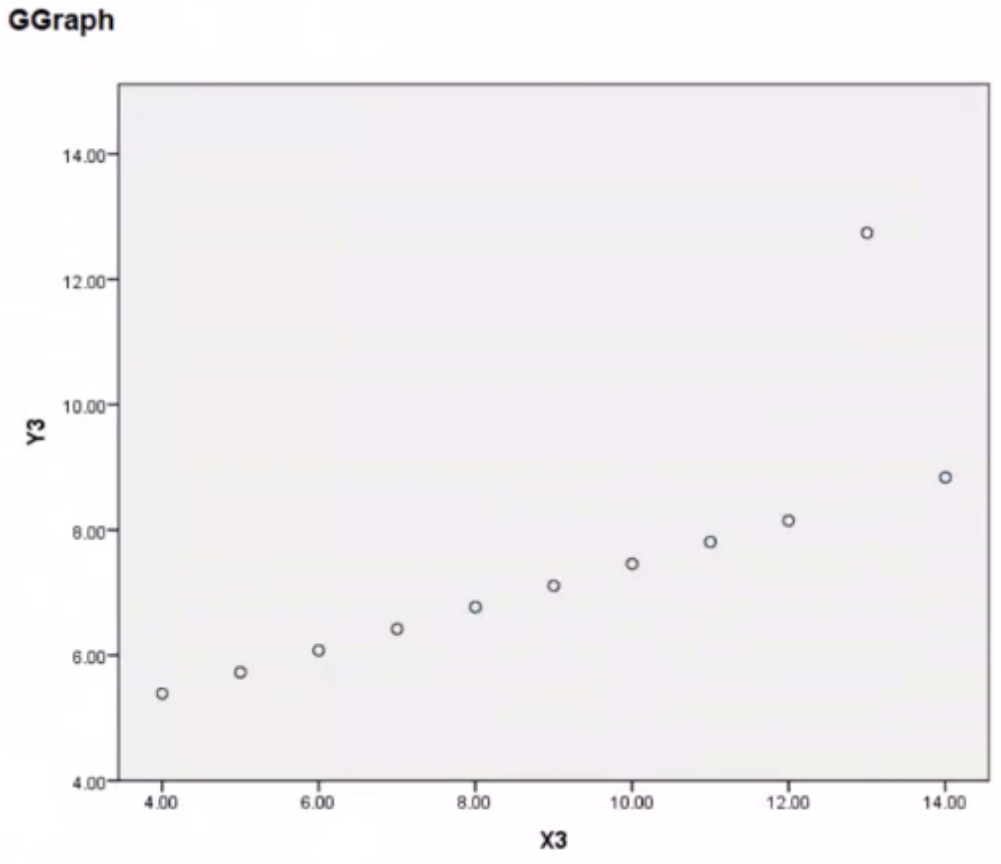


GGraph



GGraph

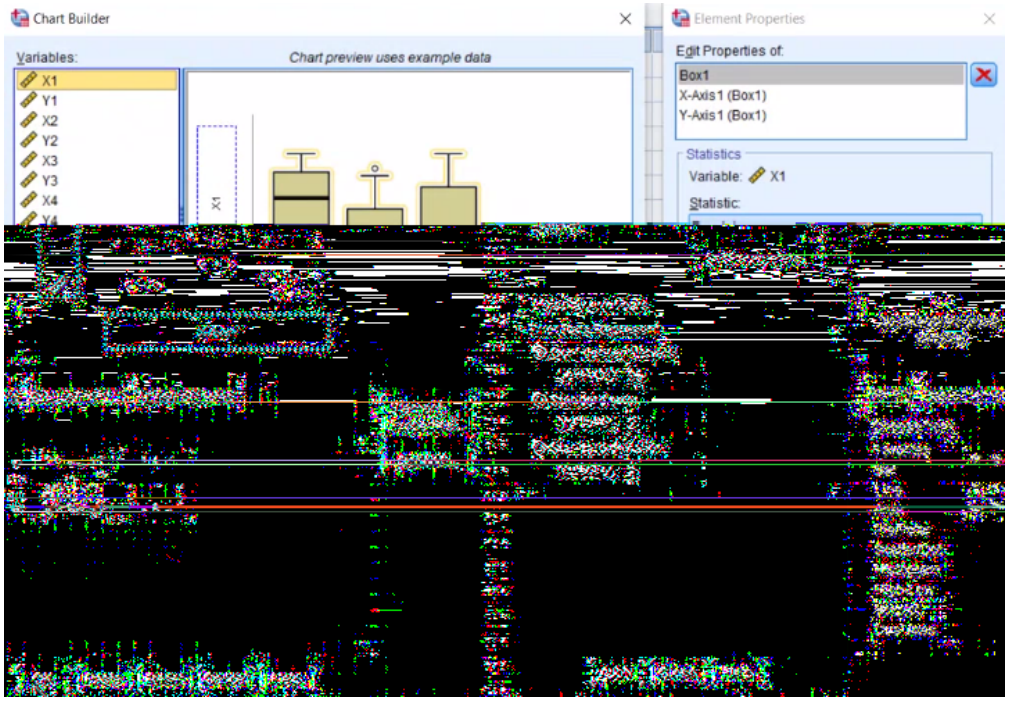




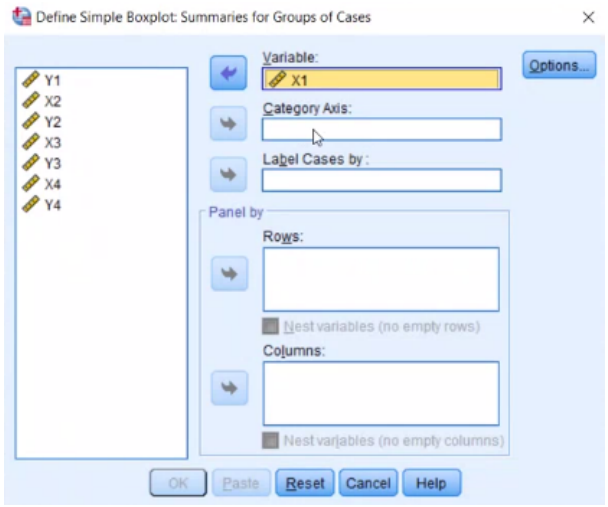
[3/9/2021]

Outlier Detection with Boxplots

The `Boxplot` option is available in `Chart Builder` under `Gallery`



Alternate Method `Graphs` ⟶ `Legacy Dialogs` ⟶ `Boxplot`



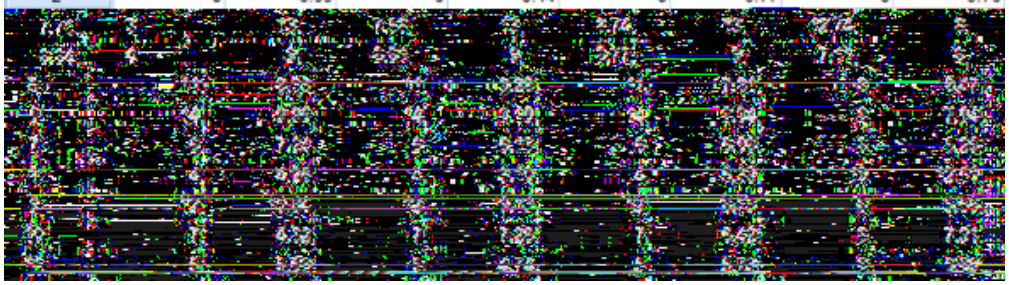
Legacy Boxplot window

`Panel by` - Separates into different boxes based on variables in this option

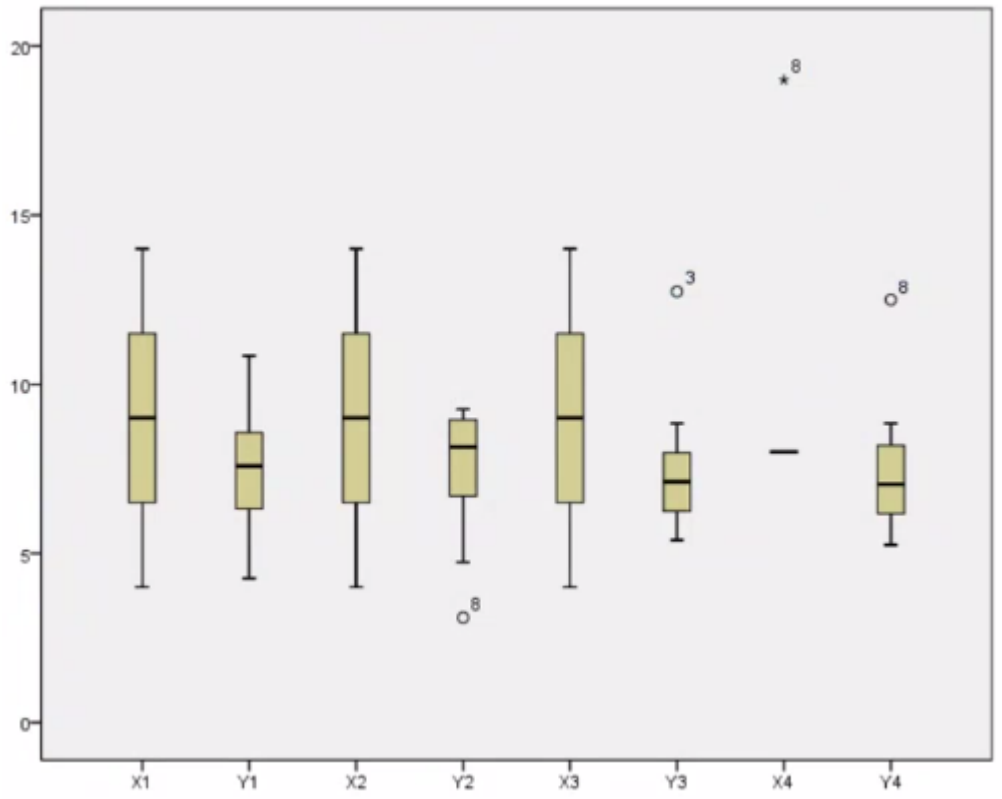
Classwork 1

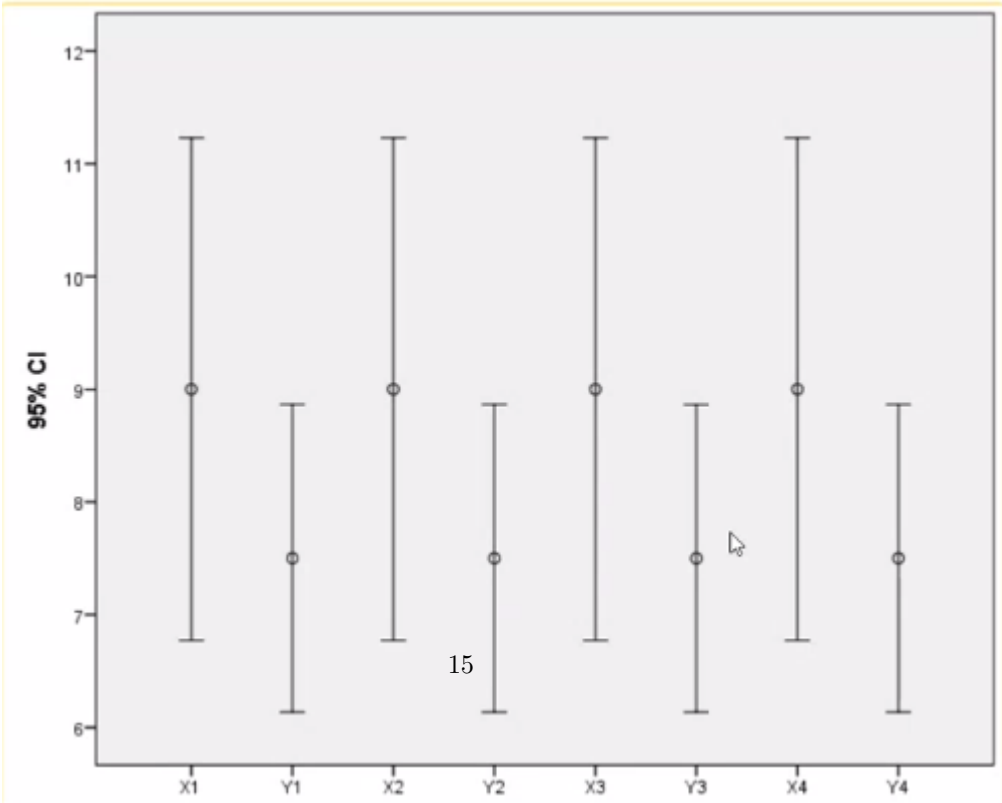
Data View

	x1	y1	x2	y2	x3	y3	x4	y4
1	10	8.04	10	9.14	10	7.46	8	6.58
2	8	6.95	8	8.14	8	6.77	8	5.76



Output View


20
15
10
5
0
X1
Y1
X2
Y2
X3
Y3
X4
Y4

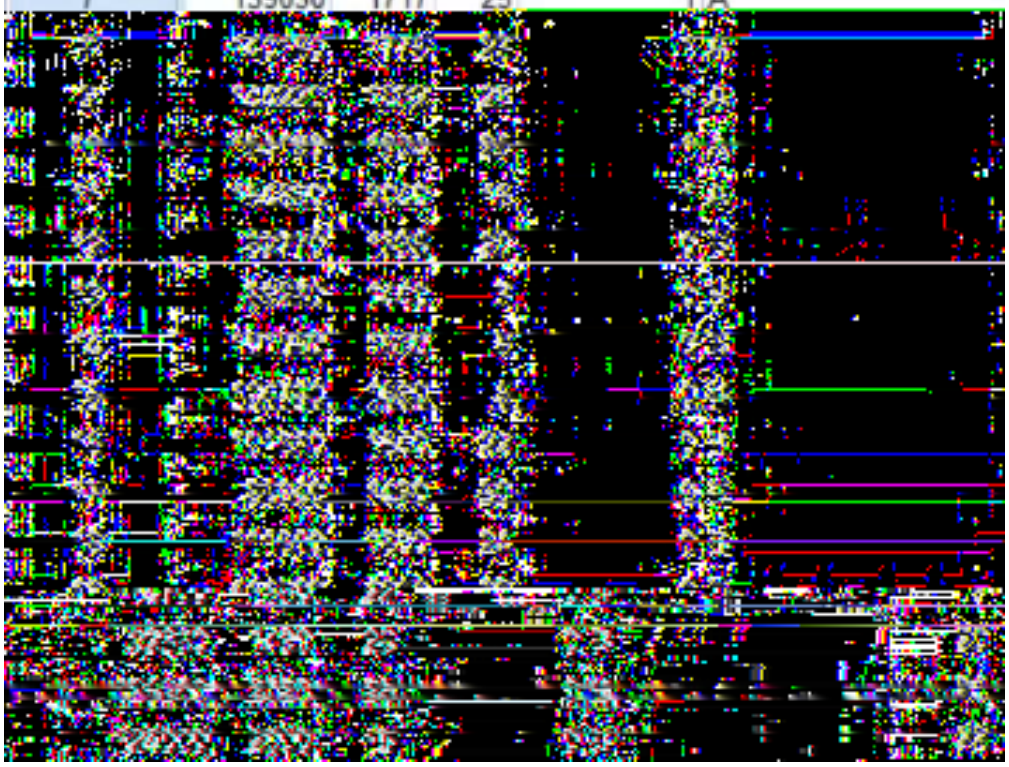

95% CI
12
11
10
9
8
7
6
X1
Y1
X2
Y2
X3
Y3
X4
Y4

95% Confidence interval plot

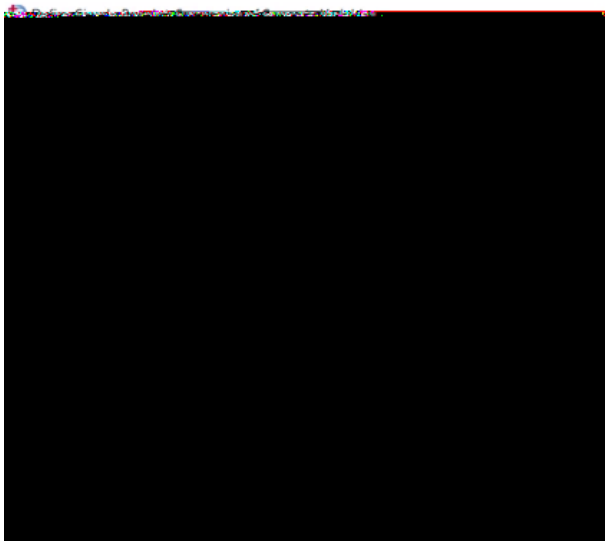
Classwork 2

Data View

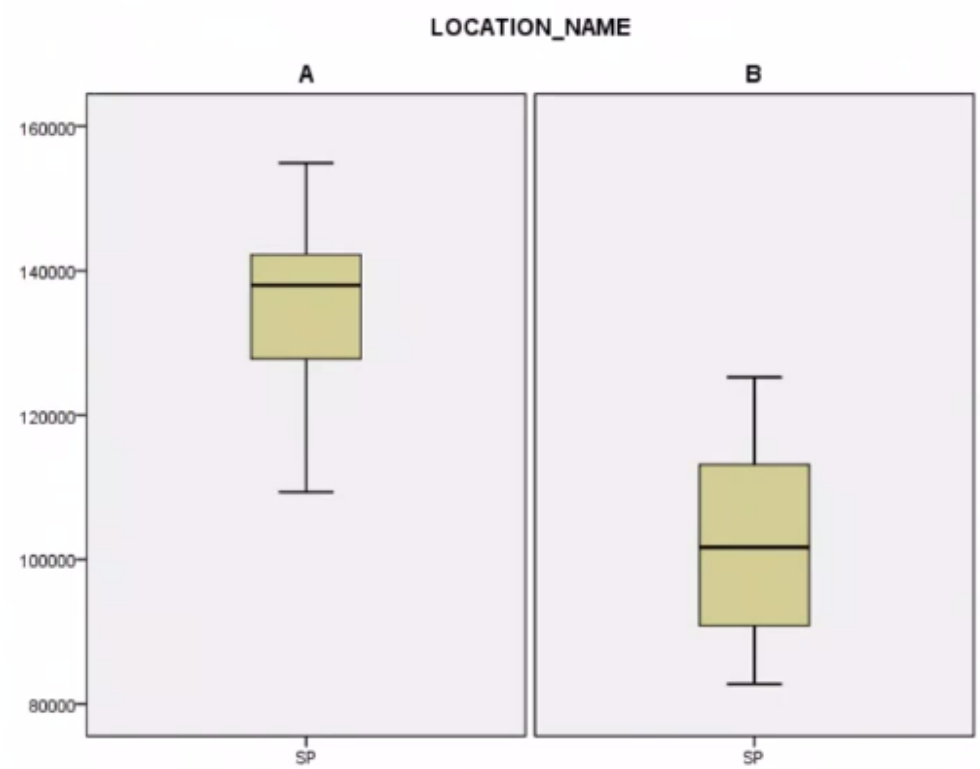
	SP	SIZE	AGE	LOCATION	LOCATION_NAME
1	109360	1404	20	1	A
2	137980	1477	2	1	A
3	131230	1503	5	1	A
4	130230	1552	4	1	A
5	125410	1608	23	1	A
6	124370	1633	34	1	A
7	139030	1717	25	1	A



Boxplot Window



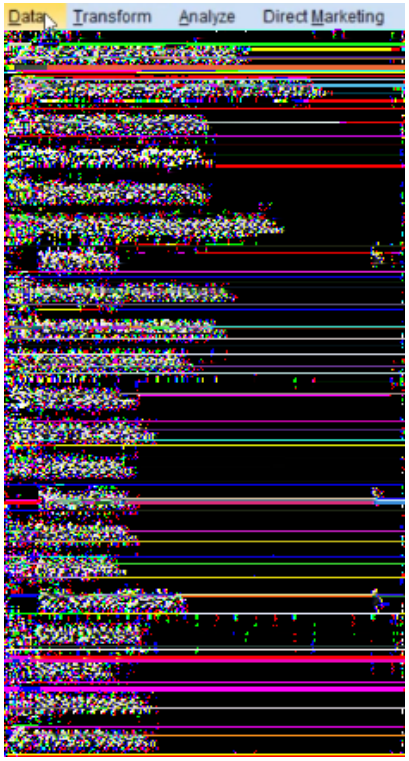
Output View



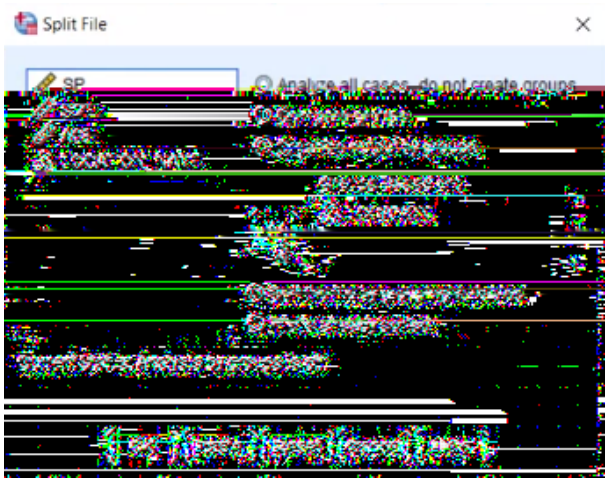
[8/9/2021]

Splitting Files into Groups

To split the data w.r.t some variable, we use `Split File` under `Data`⟶`Split File...`



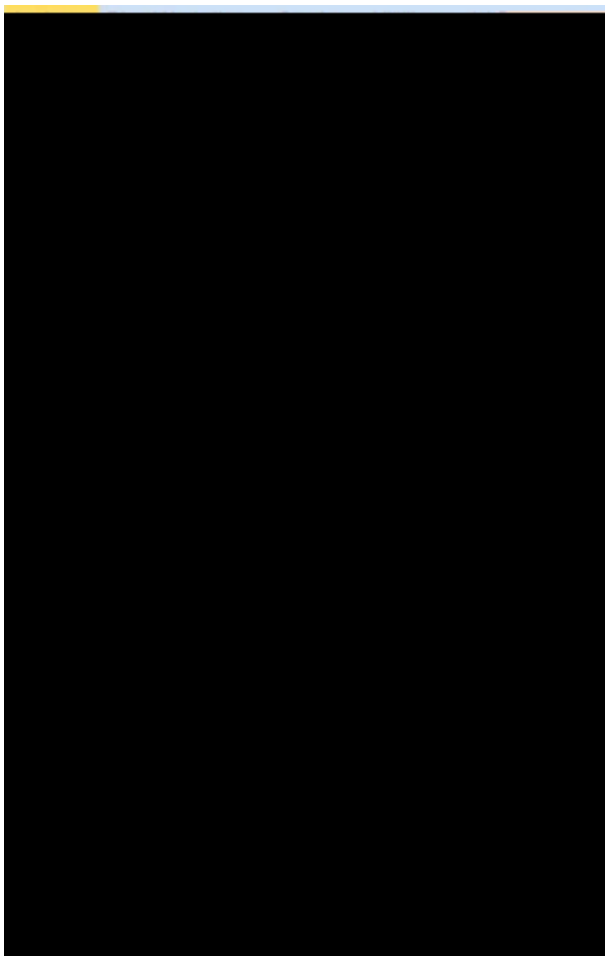
To split the file based on a variable, the variables must be in the `Group Based on:` dialogue.

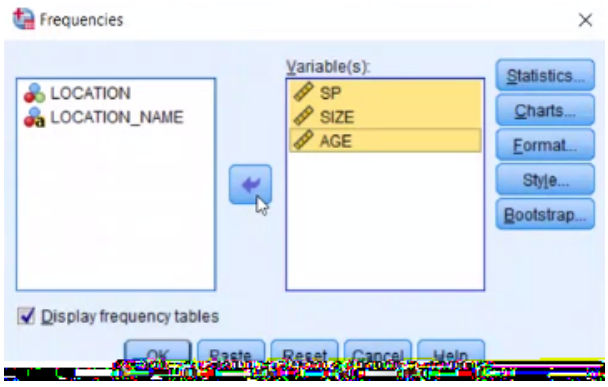


Frequencies for Descriptive Statistics

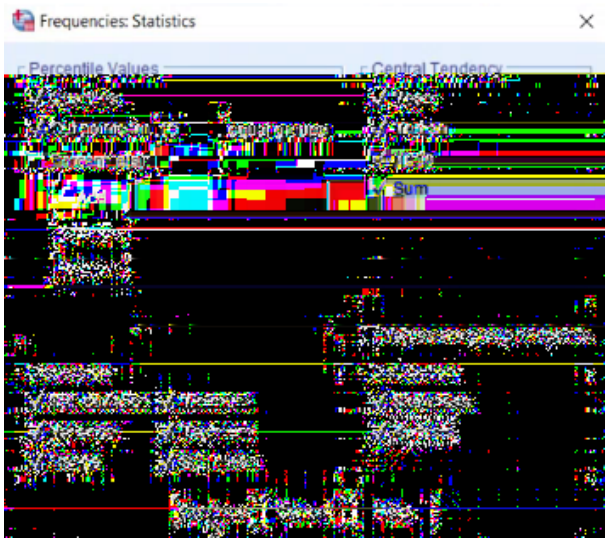
To display the descriptive statistics of a dataset in a vertical tabular form, an alternative method exists i.e. by using the `Frequencies...` dialogue.

The `Frequencies` window is under `Analyze`⟶`Descriptive Statistics`⟶`Frequencies...`





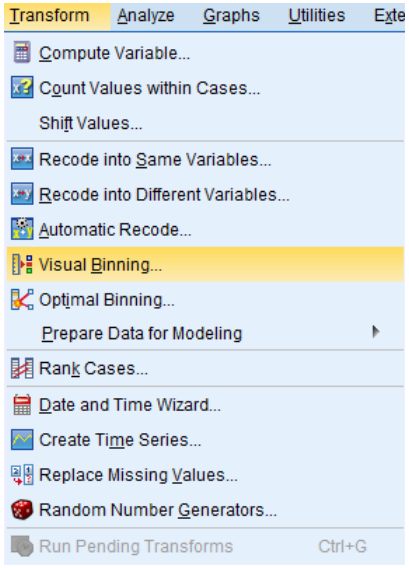
Variable selector window

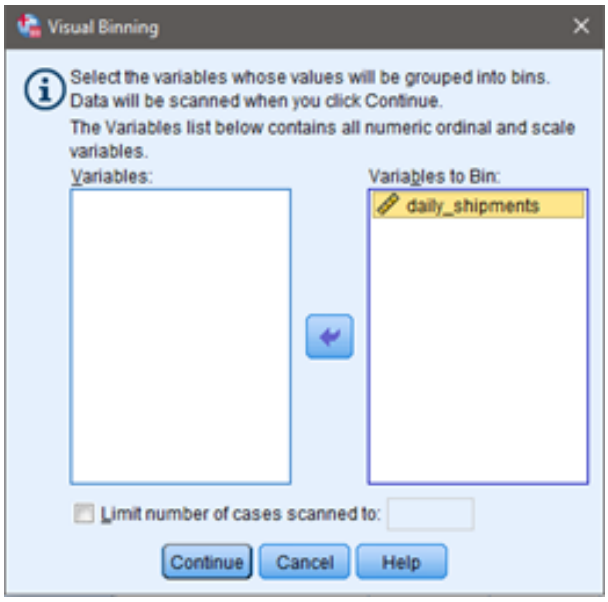


Stats selector window

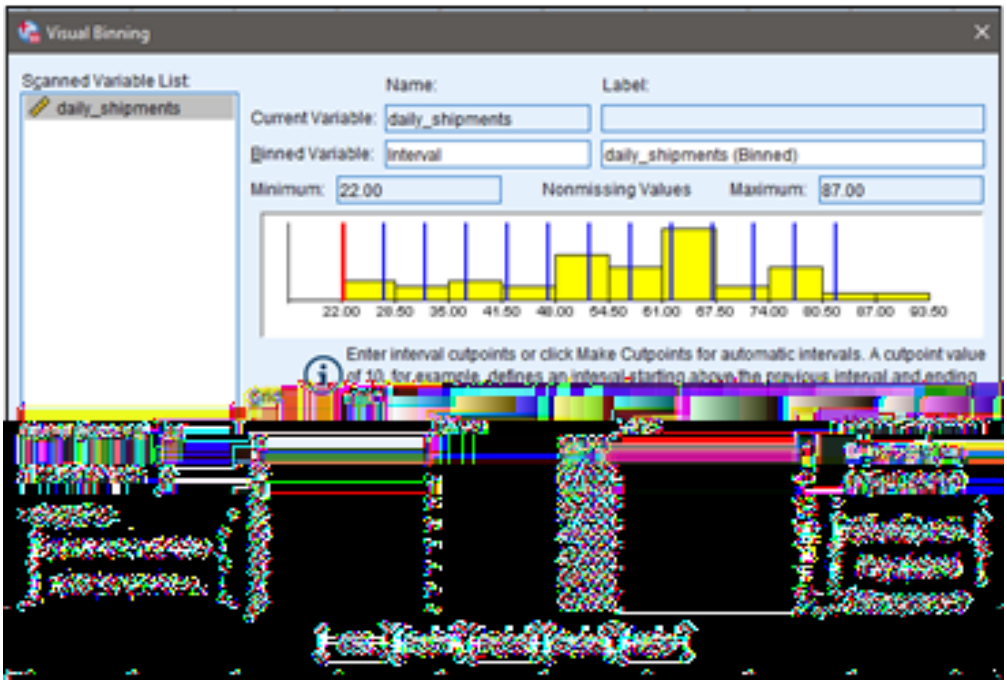
Visual Binning

To create class intervals for continous data, we use the `Visual Binning` dialogue under `Transform`⟶`Visual Binning`



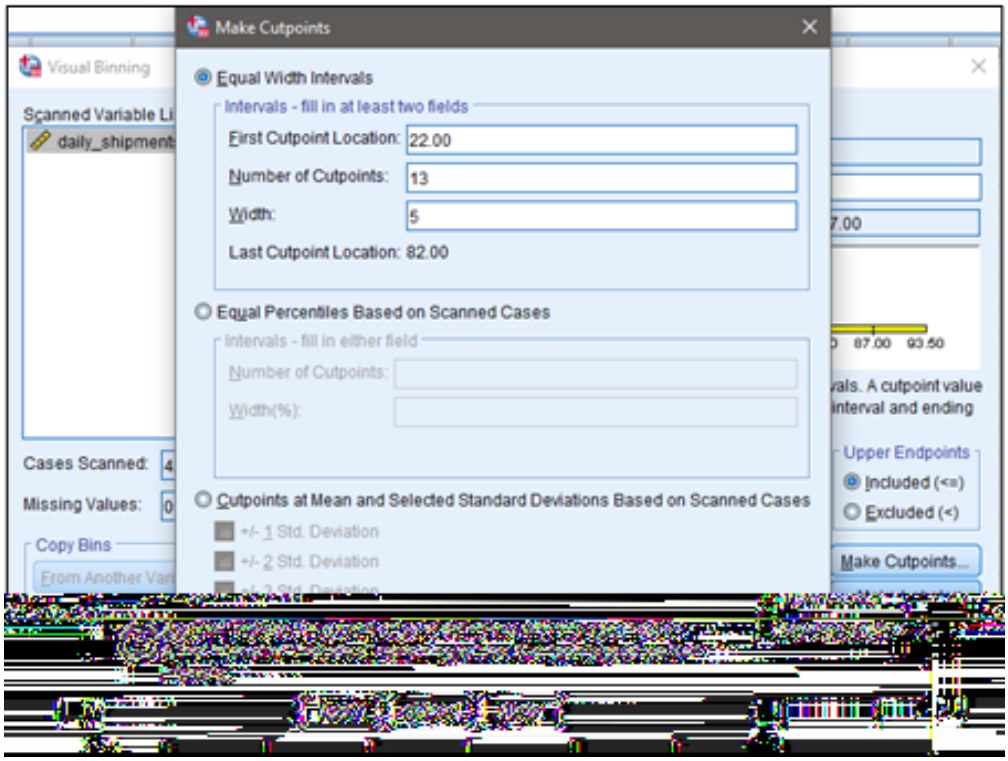


Variable Selector Window



Visual Binning Window

To specify the cutpoint properties, use the `Make Cutpoint` options

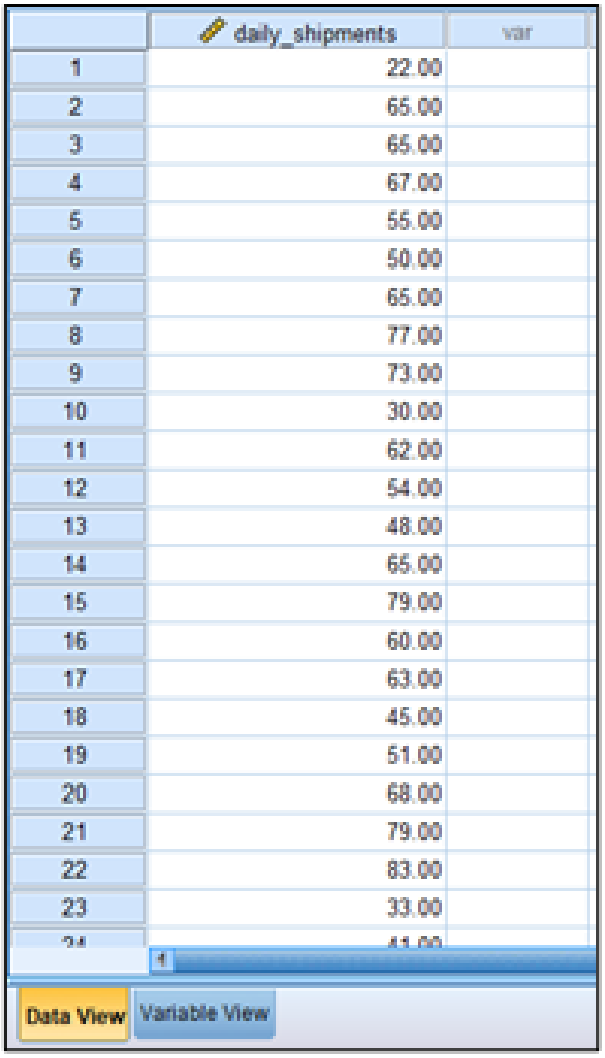


Classwork 1

Variable View

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	daily_shipm...	Numeric	8	2		None	None	18	Right	Scale	Input
2											

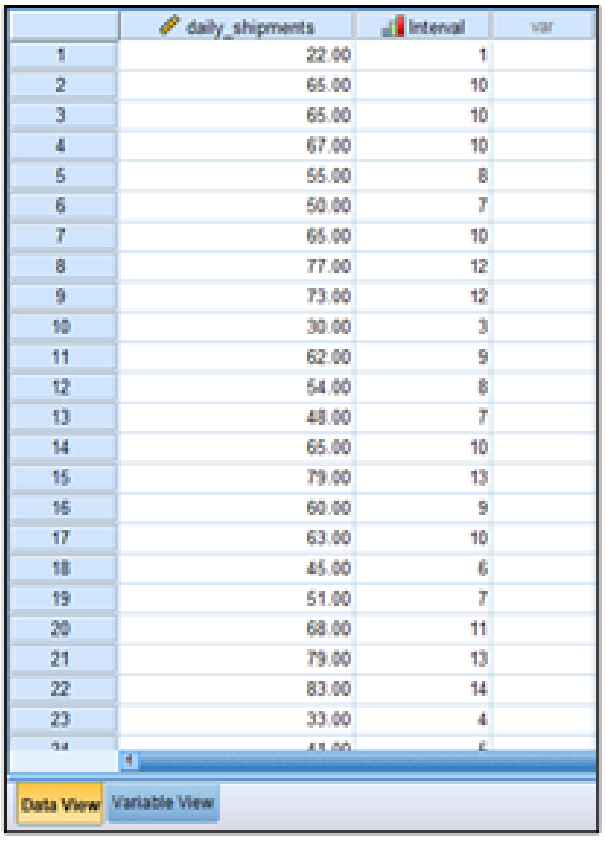
Data View



	daily_shipments	var
1	22.00	
2	65.00	
3	65.00	
4	67.00	
5	55.00	
6	50.00	
7	65.00	
8	77.00	
9	73.00	
10	30.00	
11	62.00	
12	54.00	
13	48.00	
14	65.00	
15	79.00	
16	60.00	
17	63.00	
18	45.00	
19	51.00	
20	68.00	
21	79.00	
22	83.00	
23	33.00	
24	41.00	

Data View | Variable View

Post Binning Data View



	daily_shipments	Interval	var
1	22.00	1	
2	65.00	10	
3	65.00	10	
4	67.00	10	
5	55.00	8	
6	50.00	7	
7	65.00	10	
8	77.00	12	
9	73.00	12	
10	30.00	3	
11	62.00	9	
12	54.00	8	
13	48.00	7	
14	65.00	10	
15	79.00	13	
16	60.00	9	
17	63.00	10	
18	45.00	6	
19	51.00	7	
20	68.00	11	
21	79.00	13	
22	83.00	14	
23	33.00	4	

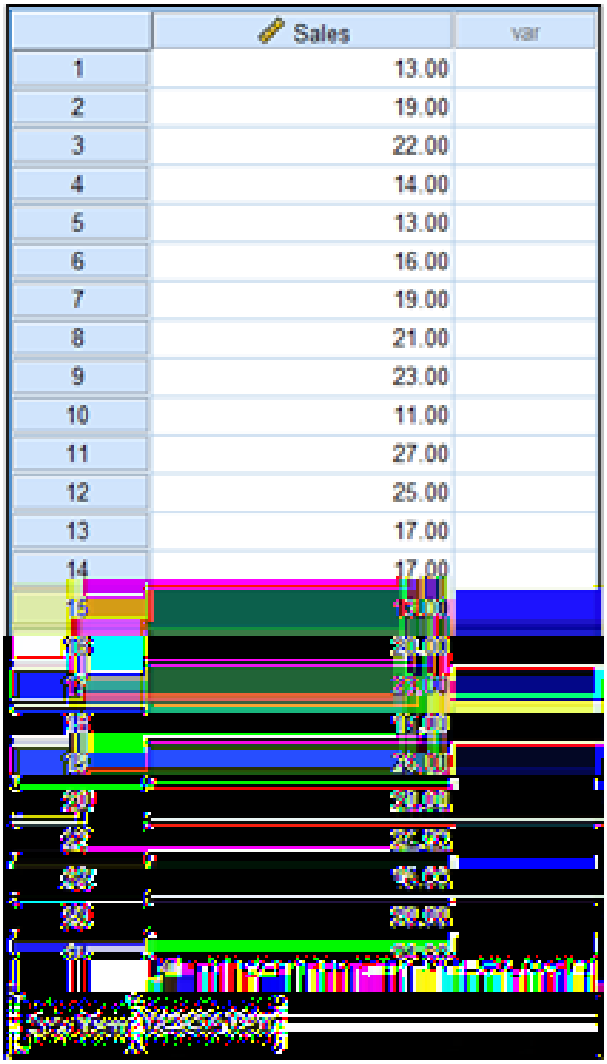
Data View | Variable View

Classwork 2

Variable View

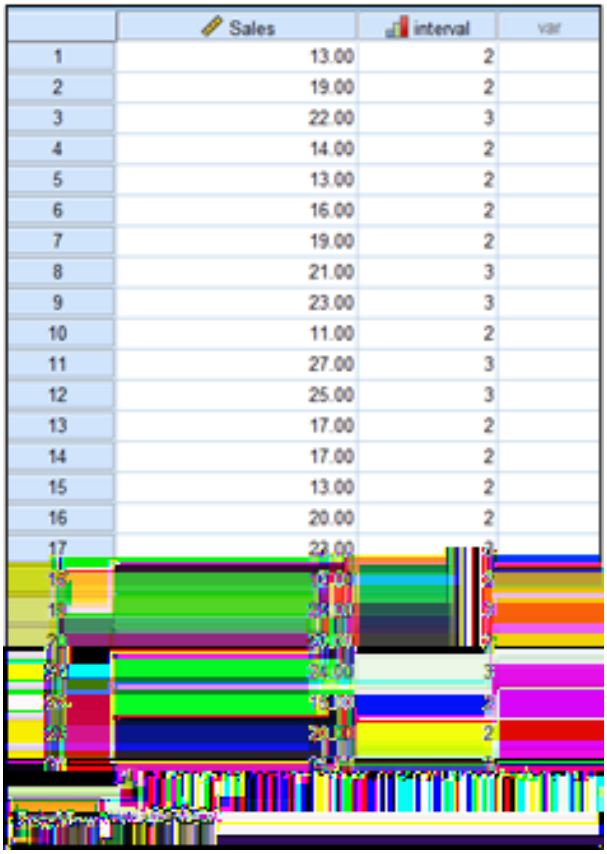
	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Sales	Numeric	8	2		None	None	18	Right	Scale	Input
2											

Data View



	Sales	var
1	13.00	
2	19.00	
3	22.00	
4	14.00	
5	13.00	
6	16.00	
7	19.00	
8	21.00	
9	23.00	
10	11.00	
11	27.00	
12	25.00	
13	17.00	
14	17.00	

Post Binning Data View

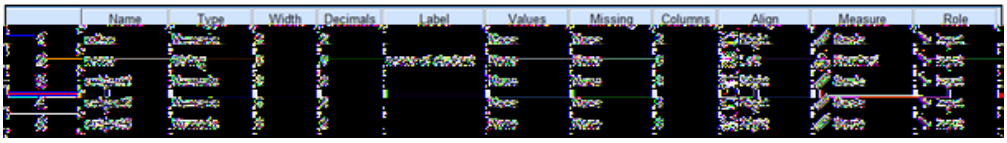


	Sales	interval	var
1	13.00	2	
2	19.00	2	
3	22.00	3	
4	14.00	2	
5	13.00	2	
6	16.00	2	
7	19.00	2	
8	21.00	3	
9	23.00	3	
10	11.00	2	
11	27.00	3	
12	25.00	3	
13	17.00	2	
14	17.00	2	
15	13.00	2	
16	20.00	2	
17	22.00	3	

[10/9/2021]

Classwork 1

Variable View



Data View

	rollno	name	subject1	subject2	subject3
1	1	Aditi	89.00	87.00	78.00
2	2	Anushka	56.00	76.00	98.00
3	3	Ritika	78.00	75.00	89.00
4	4	Rishika	67.00	88.00	76.00
5	5	Aish	75.00	99.00	56.00
6	6	Laxmi	67.00	79.00	56.00
7	7	Safalya	89.00	68.00	46.00
8	8	Shoumit	78.00	77.00	76.00
9	9	Abhirup	80.00	66.00	65.00
10	10	Shougata	97.00	96.00	76.00

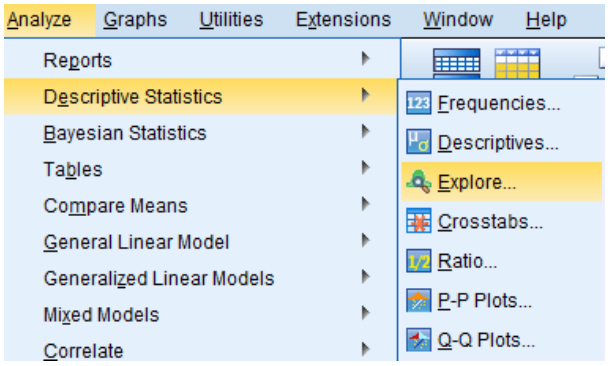
Output View

Descriptive Statistics

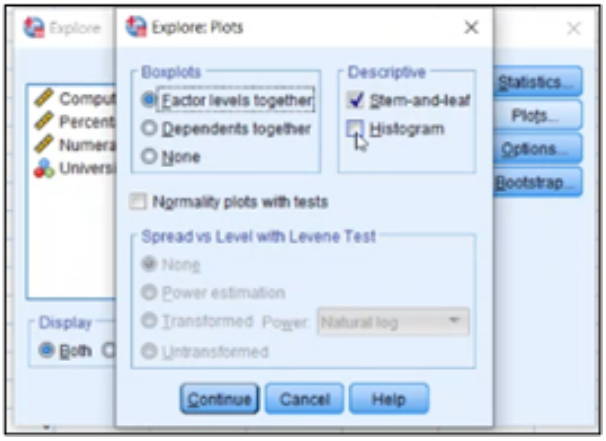
	N	Minimum	Maximum	Mean	Std. Deviation
subject1	10	56.00	97.00	77.6000	12.20382
subject2	10	66.00	99.00	81.1000	11.10005
subject3	10	46.00	98.00	71.6000	15.93180
Valid N (listwise)	10				

Normality Check

To check if the data is normal or not, the `Explore` option under `Analyze`⟶`Descriptive Statistics`⟶`Explore`



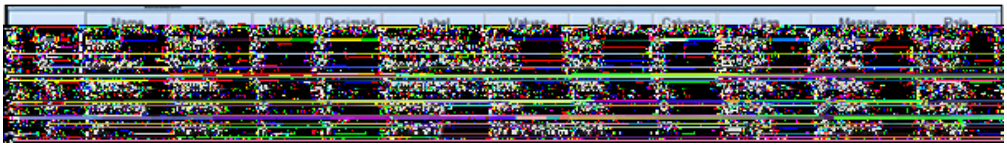
Explore Window



Plot Selector Window

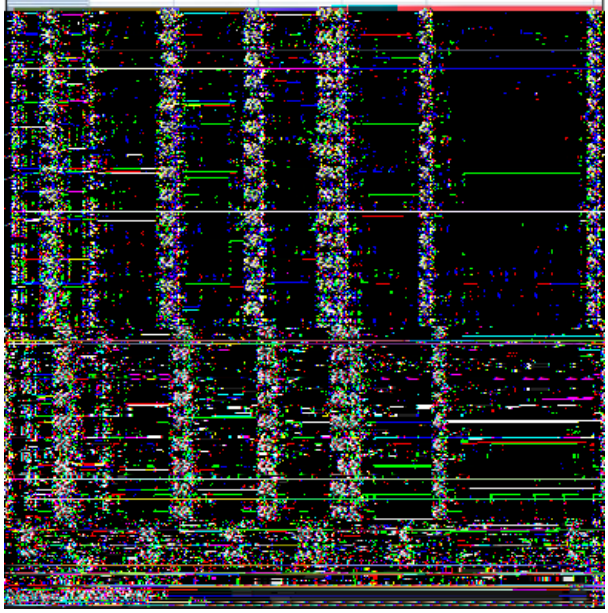
Classwork 2

Variable View



Data View

	exam	computer	lectures	numeracy	uni
1	18	54	75.0	7	0
2	30	47	8.5	1	0
3	40	58	69.5	6	0



Output View

Explore

[DataSet1] D:\AUK_STAT\SEM 5\spss_dataset\Data File _ SPSSExam.sav

Case Processing Summary

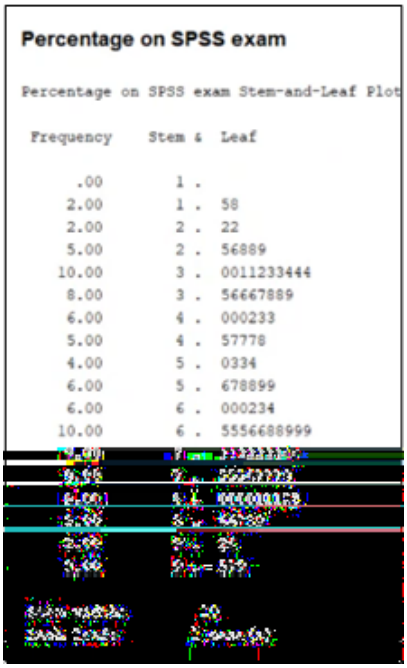
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Percentage on SPSS exam	100	100.0%	0	0.0%	100	100.0%

Descriptives

			Statistic	Std. Error
Percentage on SPSS exam	Mean		58.10	2.132
	95% Confidence Interval for Mean	Lower Bound	53.87	
		Upper Bound	62.33	
	5% Trimmed Mean		58.12	
	Median		60.00	
	Variance		454.354	
	Std. Deviation		21.316	
	Minimum		15	
	Maximum		99	
	Range		84	
	Interquartile Range		37	
	Skewness		-.107	.241
	Kurtosis		-1.105	.478

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Percentage on SPSS exam	.102	100	.012	.961	100	.005



Percentage on SPSS exam

Percentage on SPSS exam Stem-and-Leaf Plot

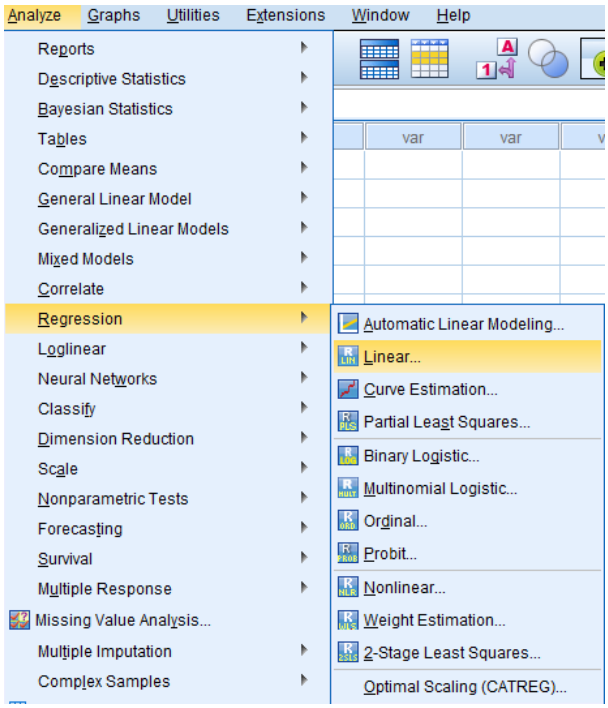
Frequency	Stem &	Leaf
.00	1 .	
2.00	1 .	58
2.00	2 .	22
5.00	2 .	56889
10.00	3 .	0011233444
8.00	3 .	56667889
6.00	4 .	000233
5.00	4 .	57778
4.00	5 .	0334
6.00	5 .	678899
6.00	6 .	000234
10.00	6 .	5556688999

If the significance value is greater than 0.05 then the data is normal.

[16/9/2021]

Linear Regression

To fit a linear regresion model to your data, use the `Linear Regression` dialogue under`Analyze` $\longrightarrow$ `Regression` $\longrightarrow$ `Linear`



Linear Regression Window

Classwork

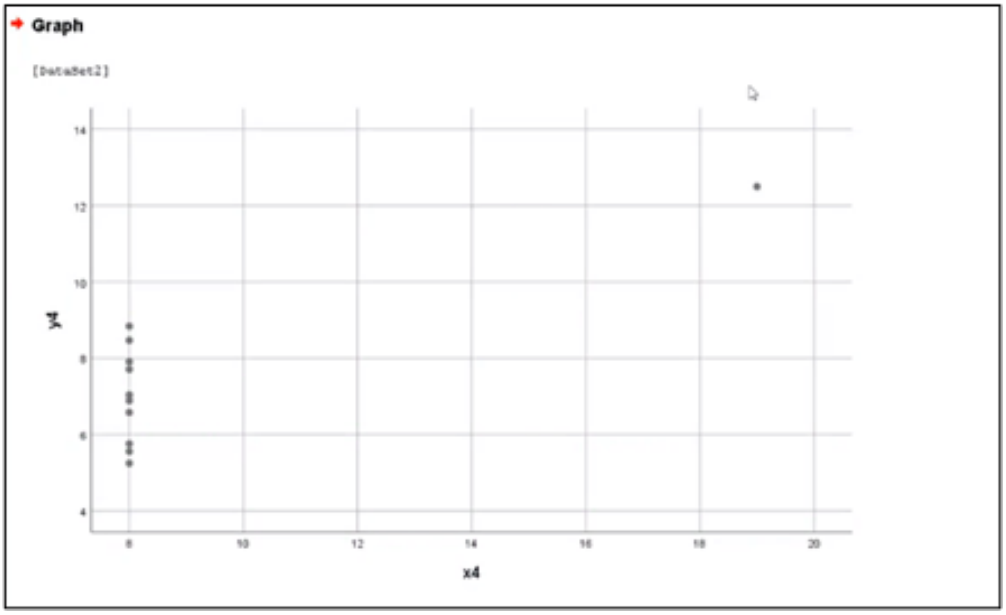
Variable View

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	x1	Numeric	8	0		None	None	8	Right	Scale	Input
2	y1	Numeric	8	0		None	None	8	Right	Scale	Input
3	x2	Numeric	8	0		None	None	8	Right	Scale	Input
4	y2	Numeric	8	0		None	None	8	Right	Scale	Input
5	x3	Numeric	8	0		None	None	8	Right	Scale	Input

Data View

	x1	y1	x2	y2	x3	y3	x4	y4
1	10	8	10	9	10	7	8	7
2	8	7	8	8	8	7	8	6
3	13	8	13	9	13	13	8	8
4	9	9	9	9	9	7	8	9
5	11	8	11	9	11	8	8	8
6	14	10	14	8	14	9	8	7
7	6	7	6	6	6	6	8	5
8	4	4	4	3	4	5	19	13
9	12	11	12	9	12	8	8	6
10	7	5	7	7	7	6	8	8
11	5	6	5	5	5	6	8	7

Scatter Output View



The coordinate with value of Y4 > 18 is an outlier. Hence we remove that coordinate

Processed Data View

	x1	y1	x2	y2	x3	y3	x4	y4
1	10	8	10	9	10	7	8	7
2	8	7	8	8	8	7	8	6
3	13	8	13	9	13	13	8	8
4	9	9	9	9	9	7	8	9

Output View

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	1.000	.003

a. Predictors: (Constant), x3

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.023	1	11.023	1160687.631	.000[b]
	Residual	.000	8	.000		
	Total	11.023	9			

a. Dependent Variable: y3

b. Predictors: (Constant), x3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.006	.003		1369.808	.000
	x3	.345	.000	1.000	1077.352	.000

a. Dependent Variable: y3

[20/9/2021]