Chapter 02

Descriptive Statistics using Minitab

Biostatistics

By

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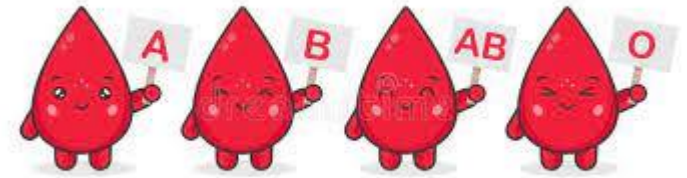**First Semester 2023-2024**

Make a Simple Frequency Table
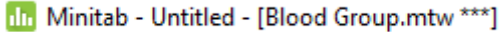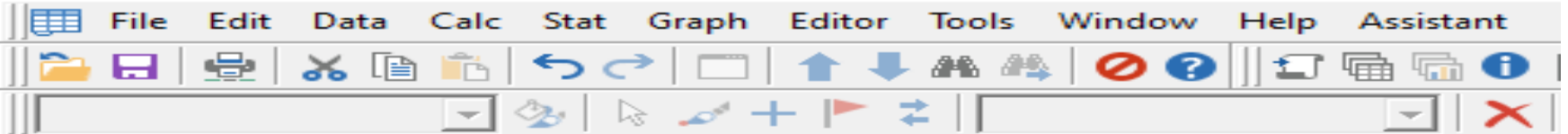## (*Qualitative or Discrete Variable*)

Example

A random sample of 25 patients selected from the King Abdullah University Hospital (KAUH) were given a blood test to determine their blood group. The results are given in the following data set:

|				
A	B	B	AB	O
O	O	B	AB	B
B	B	O	A	O
A	O	O	O	AB
AB	A	O	B	A

Steps

1. Start your **Minitab** program by double click on the icon Minitab 17 .
2. Click above row 1 and name the column (C1) **Blood Group** then press Enter.
3. Type in all of the blood groups from the data set given above down C1 of the worksheet.
   A B B AB O O O B AB B B B O A O A O O O AB AB A O B A
4. From menu bar Select **File > Save Worksheet As…** .
5. In **File name** write the name Blood Group and determine the place where you want to save your data (Desktop, Folder, ….) then press on **Save** to complete the process. A name on the top left corner will appear as follows: Minitab - Untitled - [Blood Group.mtw ***] and the worksheet will be as follows:

File   Edit   Data   Calc   Stat   Graph   Editor   Tools   Window   Help   Assistant

↓	C1-T	C2	C3	C4	C5	C6	C7
	Blood Group						
1	A						
2	B						
3	B						
4	AB						
5	O						
6	O						
7	O						
8	B						
9	AB						
10	B						
11	B						
12	B						
13	O						
14	A						
15	O						
16	A						
17	O						
18	O						
19	O						
20	AB						
21	AB						
22	A						
23	O						
24	B						
25	A						

3

6. From menu bar Select **Stat > Tables > Tally Individual Variables…** .
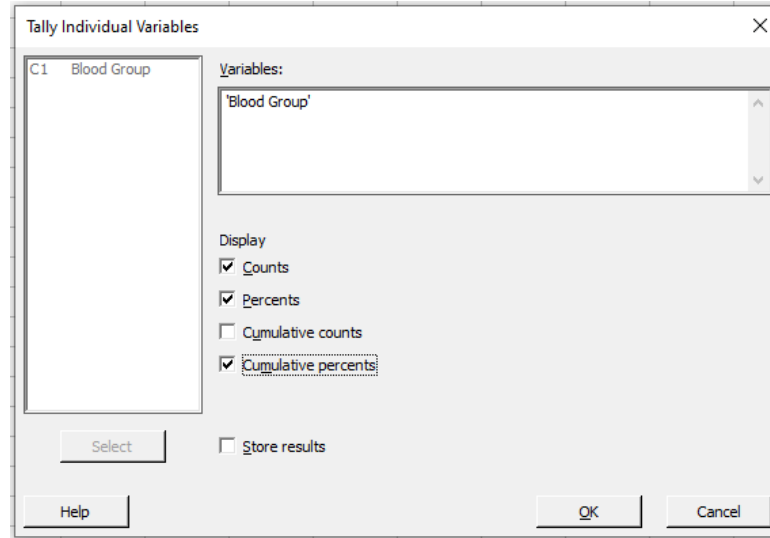
7. Double click C1 in the variable list.
8. Click the boxes for the statistics you would like. Here Counts, Percents and Cumulative Percents are checked.
9. Click **OK**.
10. Click the Menu to cut, copy, … . The results will be displayed in the session window as shown below:
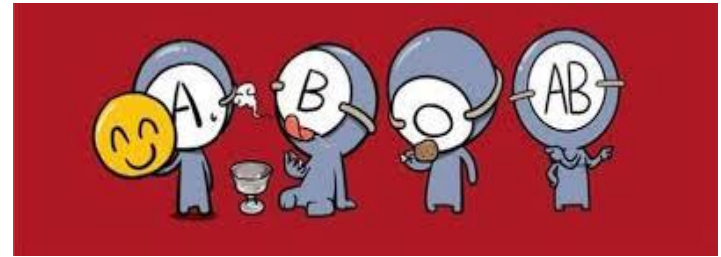

Tally for Discrete Variables: Blood Group

Tally

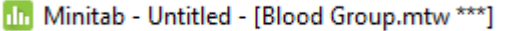| Blood Group	Count	Percent	CumPct
A	5	20.00	20.00
AB	4	16.00	36.00
B	7	28.00	64.00
O	9	36.00	100.00
N=	25		

Constructing Graphs
(*Bar Chart*)

Example

A random sample of 25 patients selected from the King Abdullah University Hospital (KAUH) were given a blood test to determine their blood group. The results are given in the following data set:
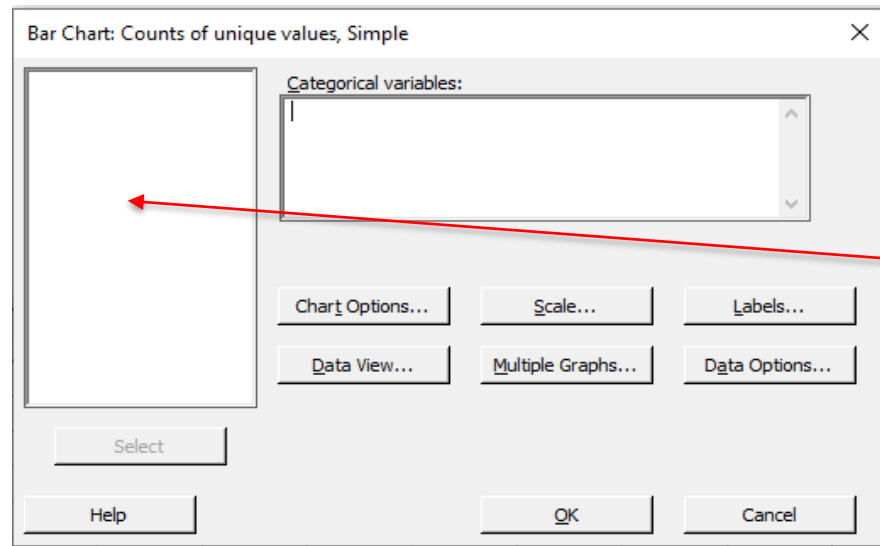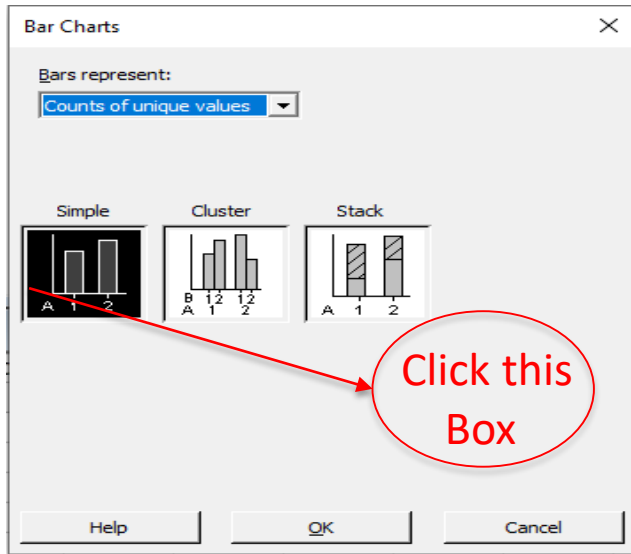
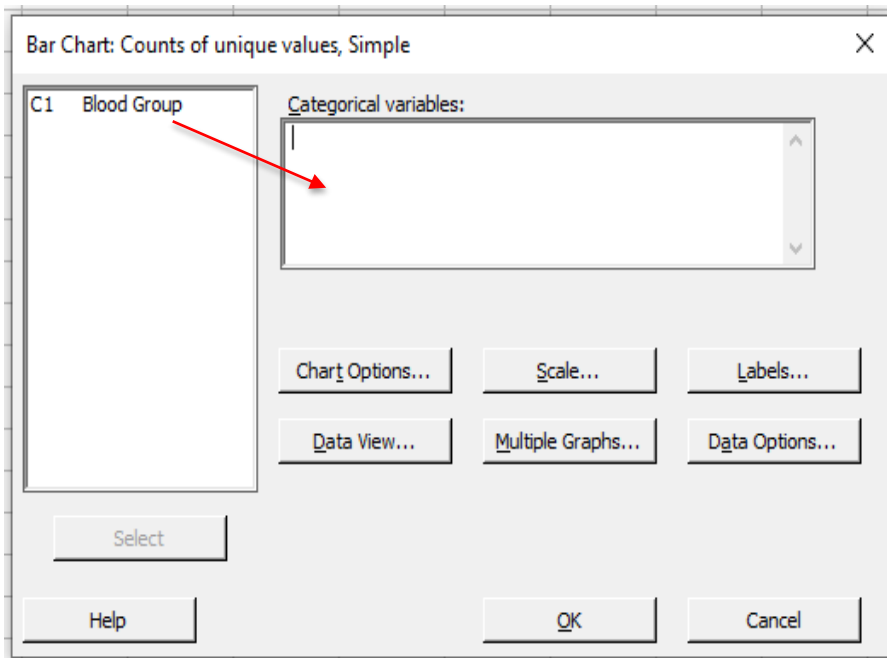|				
A	B	B	AB	O
O	O	B	AB	B
B	B	O	A	O
A	O	O	O	AB
AB	A	O	B	A

Steps

1. Start your **Minitab** program by double click on the icon Minitab 17 .
2. Click above row 1 and name the column (C1) **Blood Group** then press Enter.
3. Type in all of the blood groups from the data set given above down C1 of the worksheet.
   A B B AB O O O B AB B B B O A O A O O O AB AB A O B A
4. From menu bar Select **File > Save Worksheet As…** .
5. In **File name** write the name Blood Group and determine the place where you want to save your data (Desktop, Folder, ….) then press on **Save** to complete the process. A name on the top left corner will appear as follows: Minitab - Untitled - [Blood Group.mtw ***] and the worksheet will be as follows:
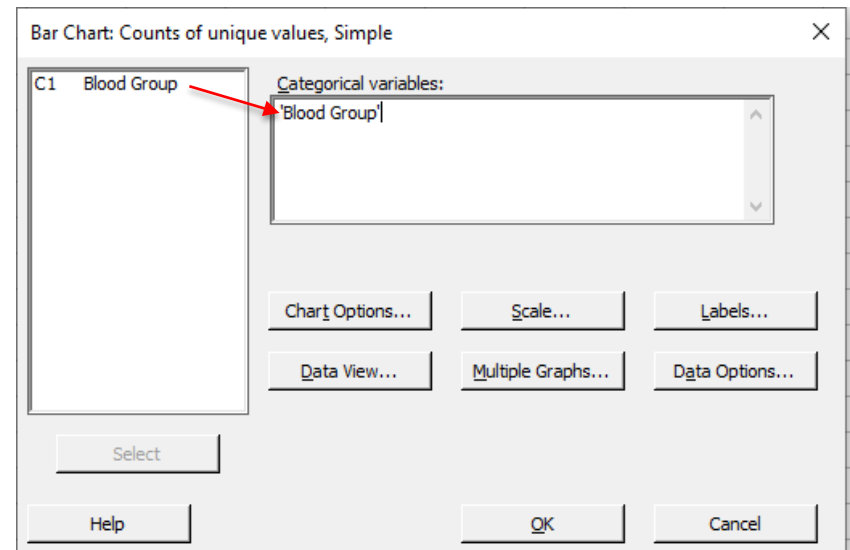
6. From menu bar Select **Graph > Bar Chart**.

Bar Charts

Bars represent:
Counts of unique values ▼

Simple   Cluster   Stack

Click this Box

Help   OK   Cancel

Bar Chart: Counts of unique values, Simple

Categorical variables:

Click this Box

Chart Options...   Scale...   Labels...

Data View...   Multiple Graphs...   Data Options...

Select

Help   OK   Cancel

7. No files will be listed until you click in the dialog box (*Categorical variables:*) to get:

Bar Chart: Counts of unique values, Simple

C1   Blood Group

Categorical variables:

Chart Options...   Scale...   Labels...

Data View...   Multiple Graphs...   Data Options...

Select

Help   OK   Cancel

8. Double click C1 to select the variable.

Bar Chart: Counts of unique values, Simple

C1   Blood Group

Categorical variables:
'Blood Group'

Chart Options...   Scale...   Labels...

Data View...   Multiple Graphs...   Data Options...

Select

Help   OK   Cancel

9. Click **OK**.
10. Right click on the graph to Copy Graph, … . The bar graph will be displayed in a graph window as shown below:
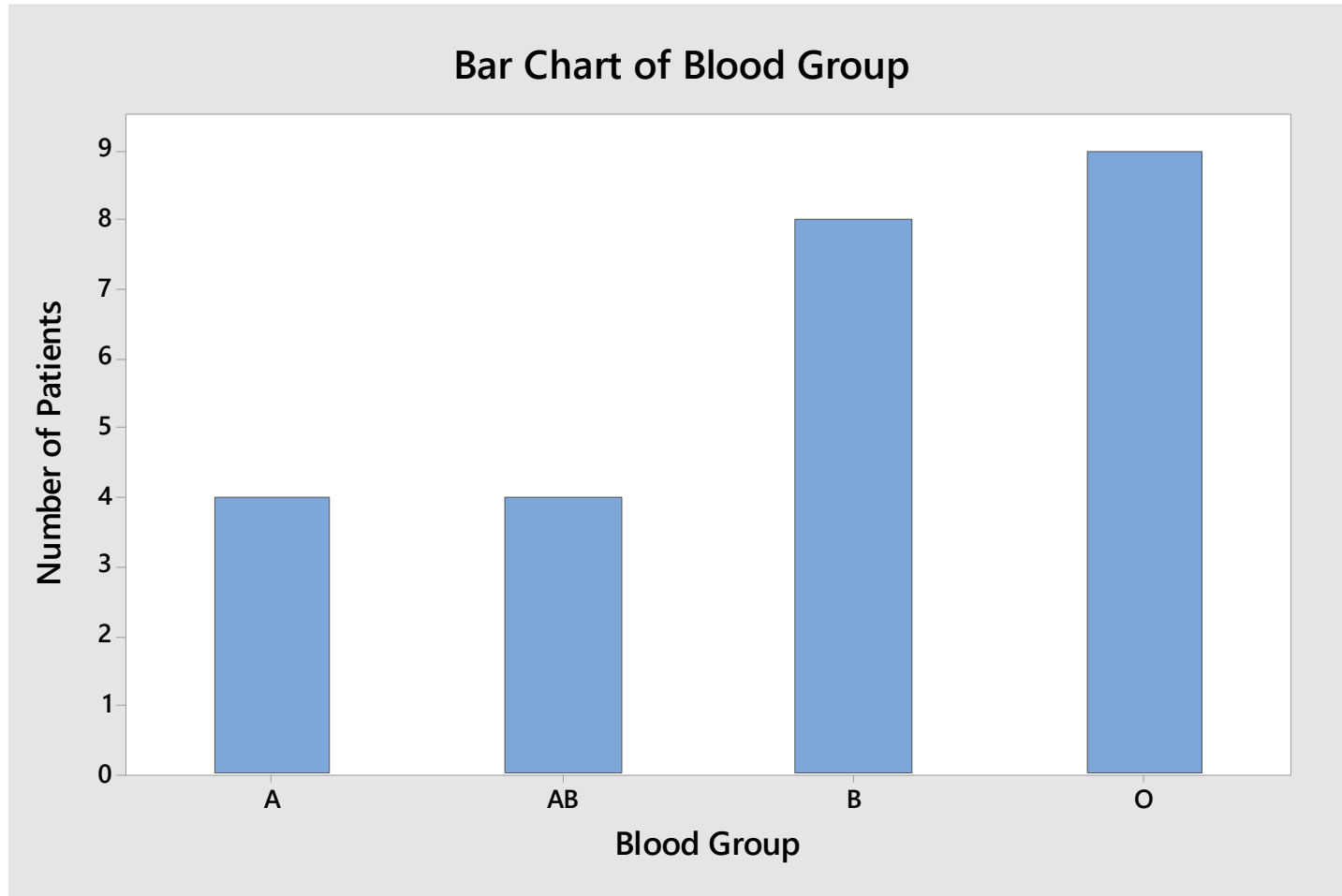
Figure (1): The blood groups for a random sample of 25 patients selected from KAUH

Finding Descriptive Statistical Measures
(*Measures of Center, Variation and Percentiles*)

Example

The weights (*in kg*) for a random sample of size n = 30 patients selected from a certain hospital in Jordan are given as follows:

52	58	75	79	57	65
62	77	56	59	51	53
51	66	55	68	63	78
50	53	67	65	69	66
69	57	73	72	75	55

Steps

1. Start your **Minitab** program by double click on the icon Minitab 17 .
2. Click above row 1 and name the column (C1) **Weight** then press Enter.
3. Type in all of the customers weights from the data set given above down C1 of the worksheet.
4. From menu bar Select **File > Save Worksheet As…** .
5. In **File name** write the name Patients Weights and determine the place where you want to save your data (Desktop, Folder, ….) then press on **Save** to complete the process.
6. From menu bar Select:

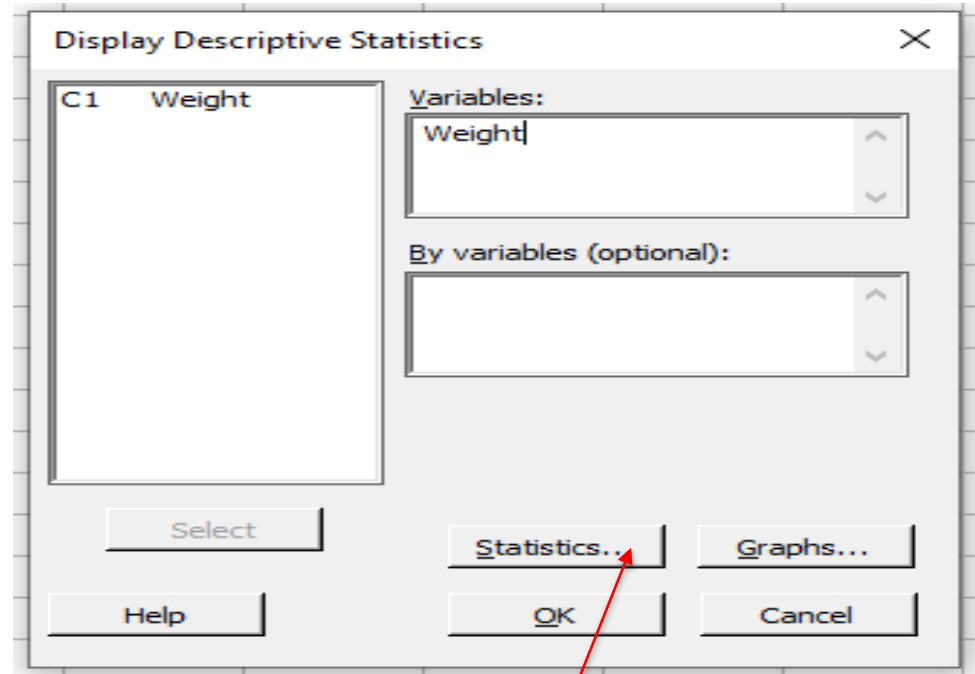**Stat > Basic Statistics > Display Descriptive Statistics…** .

7. Double click C1 to select the variable.
8. Click on **OK**.

The results will be displayed in the session window as shown below:

Click this to Choose Descriptive Measures

Descriptive Statistics: Weight

Statistics

Variable	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Weight	30	0	63.20	1.64	9.01	50.00	55.00	64.00	69.75	79.00

Notation: More statistics can be calculated and displayed as shown in the session window given below:
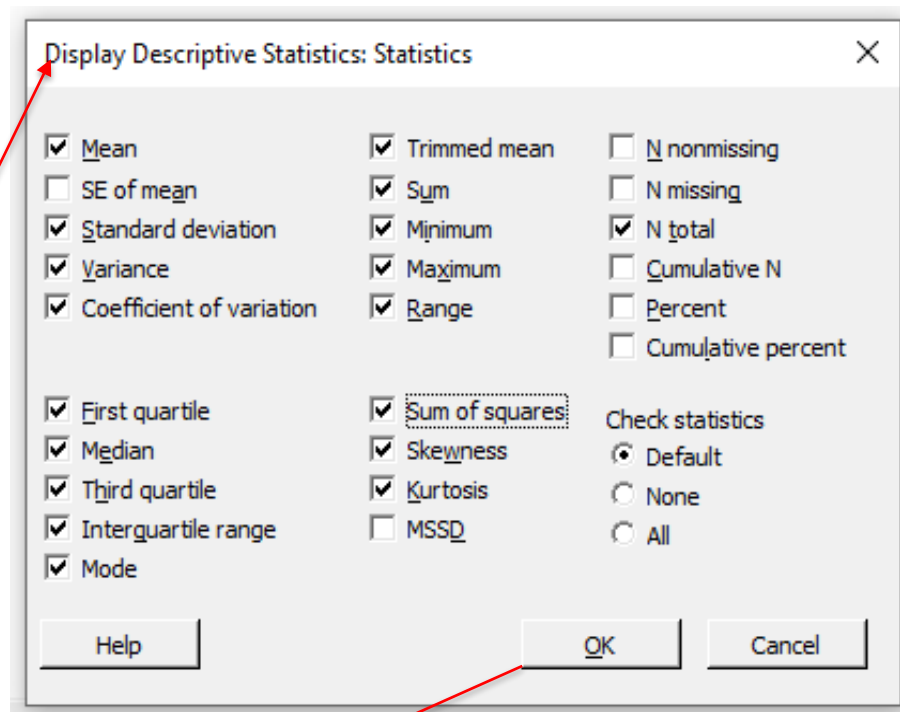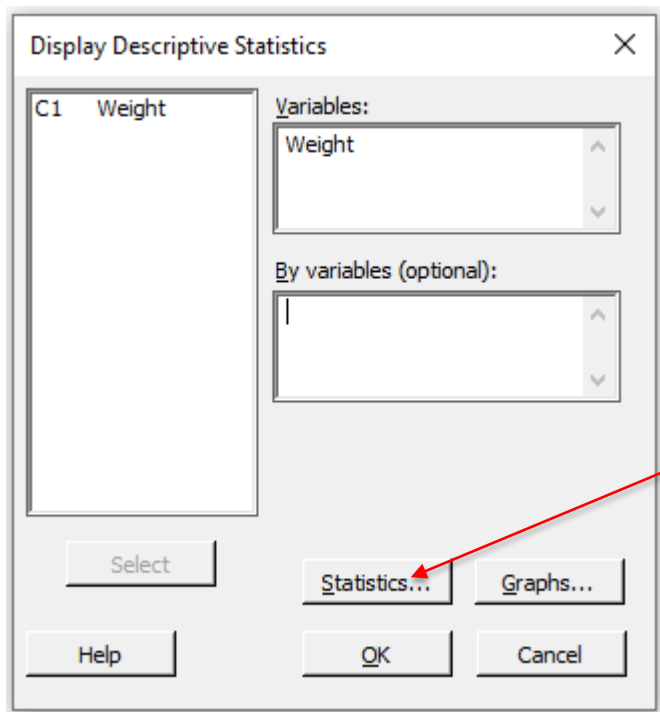
Descriptive Statistics: Weight
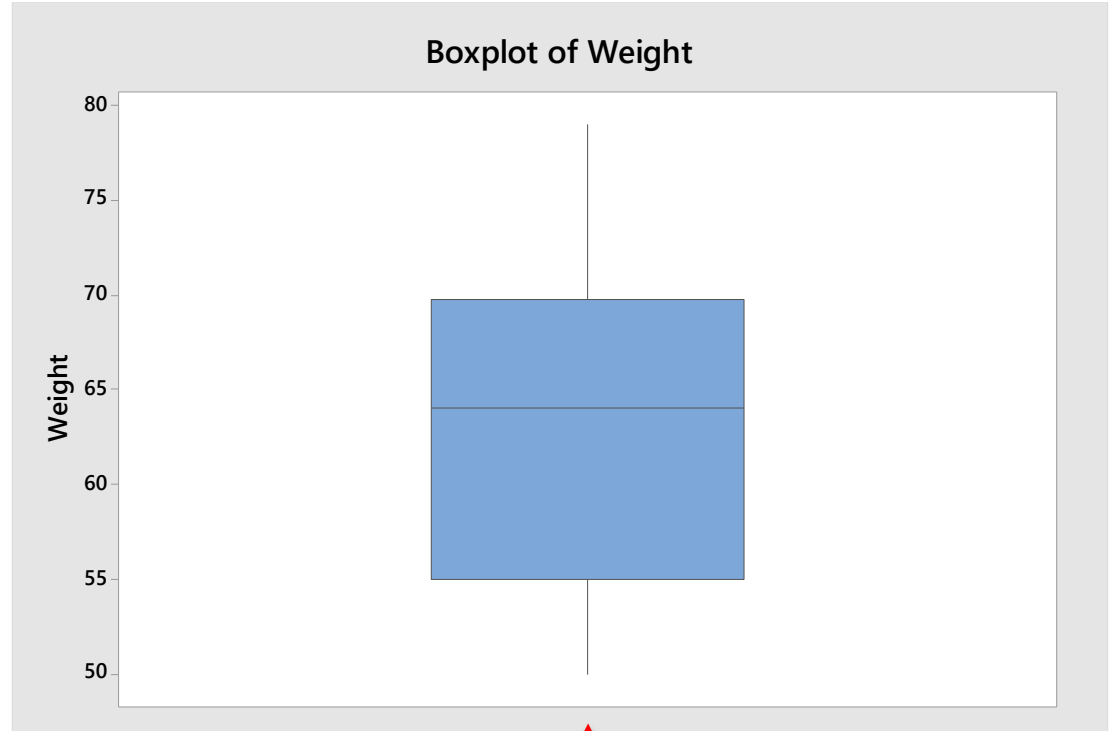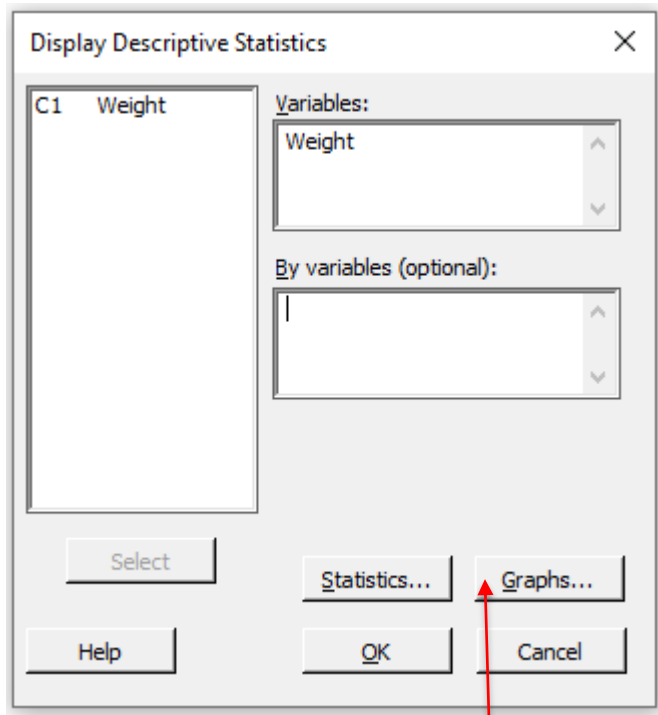
Statistics

Variable	Total Count	Mean	TrMean	StDev	Variance	CoefVar	Sum	Sum of Squares	Minimum	Q1
Weight	30	63.20	63.00	9.01	81.13	14.25	1896.00	122180.00	50.00	55.00

Variable	Median	Q3	Maximum	Range	IQR	Mode	N for Mode	Skewness	Kurtosis
Weight	64.00	69.75	79.00	29.00	14.75	51, 53, 55, 57	2	0.19	-1.20

Notation: The graphical summary will be displayed in a separate window as shown in the session window given below: