Chapter 3: Data Description

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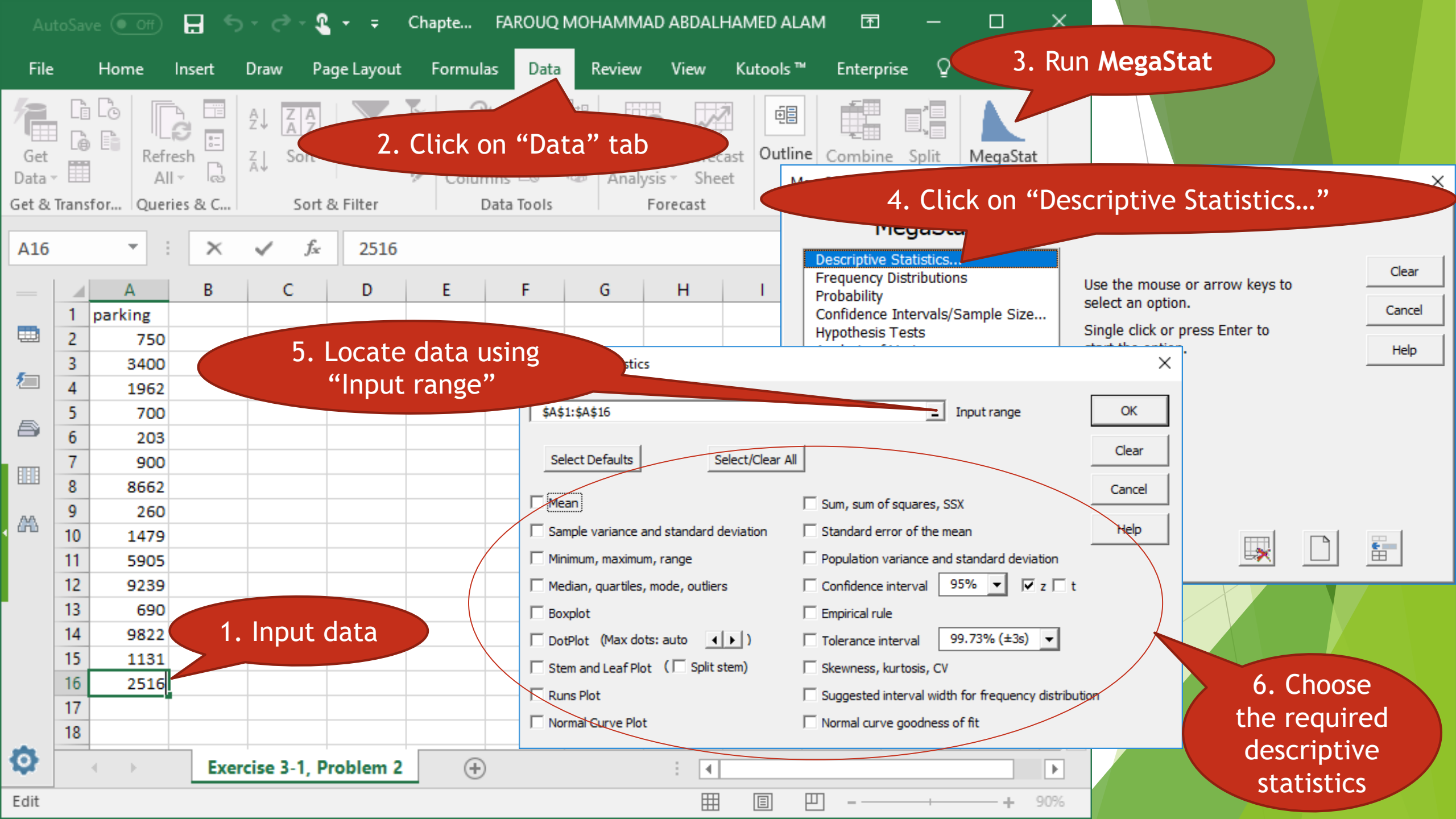
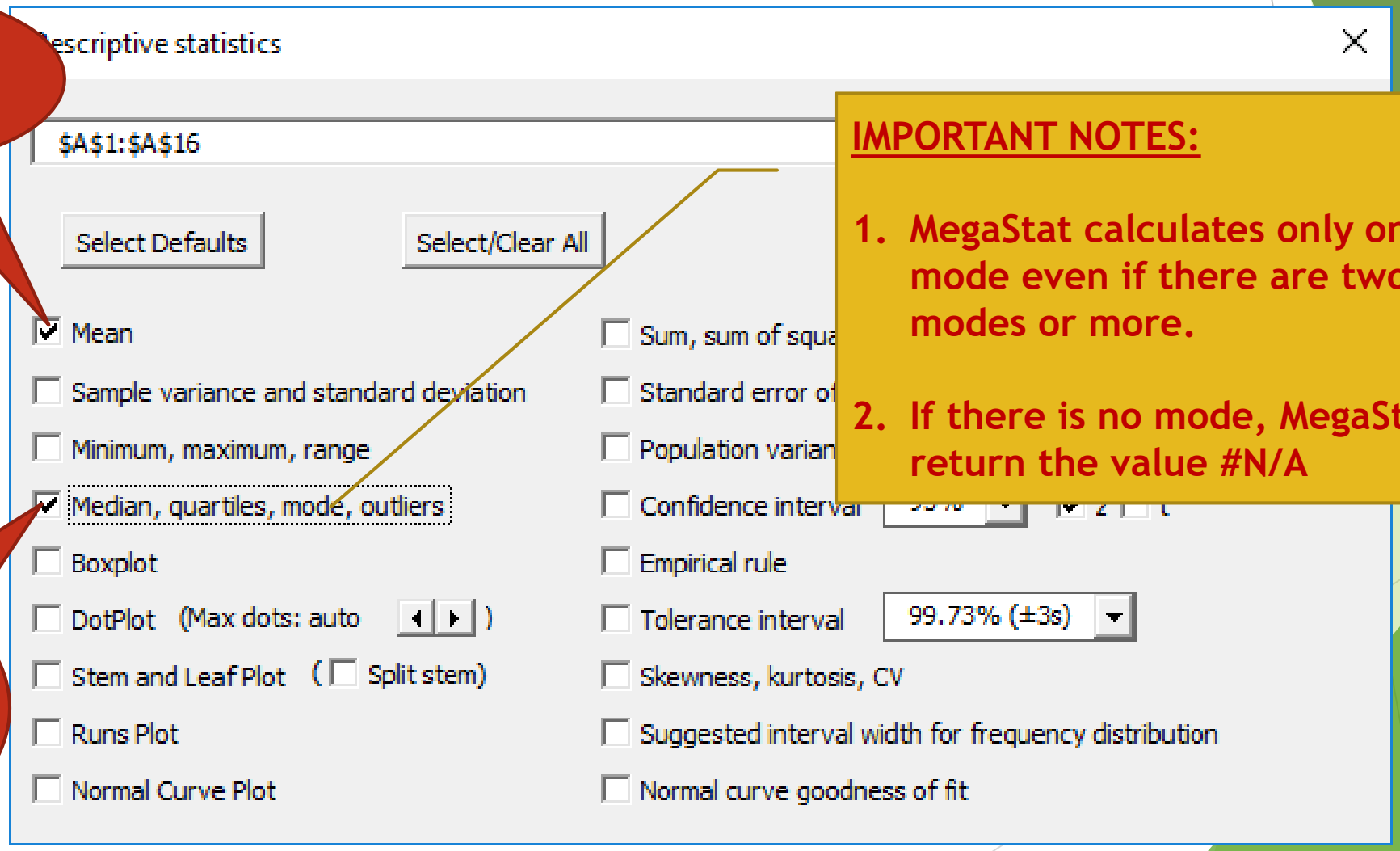
Part 1: Calculating descriptive statistics using MS Excel add-in MegaStat.



	A
1	parking
2	750
3	3400
4	1962
5	700
6	203
7	900
8	8662
9	260
10	1479
11	5905
12	9239
13	690
14	9822
15	1131
16	2516
17	
18	

3 – 1 Measures of Central Tendency

Choose to calculate the mean



Choose to calculate both the median and the mode

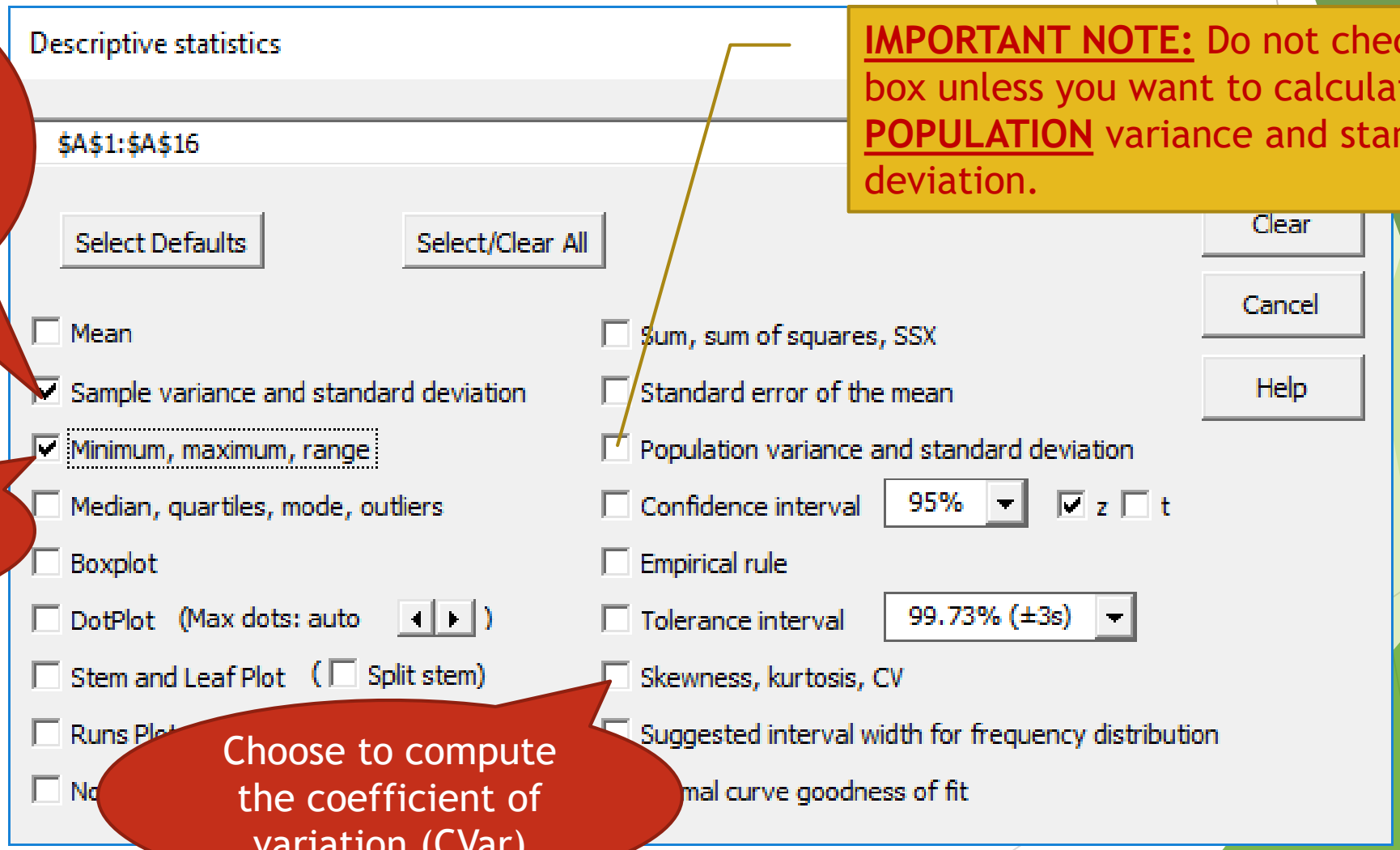
IMPORTANT NOTES:

1. **MegaStat calculates only one mode even if there are two modes or more.**
2. **If there is no mode, MegaStat will return the value #N/A**

3 – 2 Measures of Variation

Choose to calculate the sample variance and standard deviation

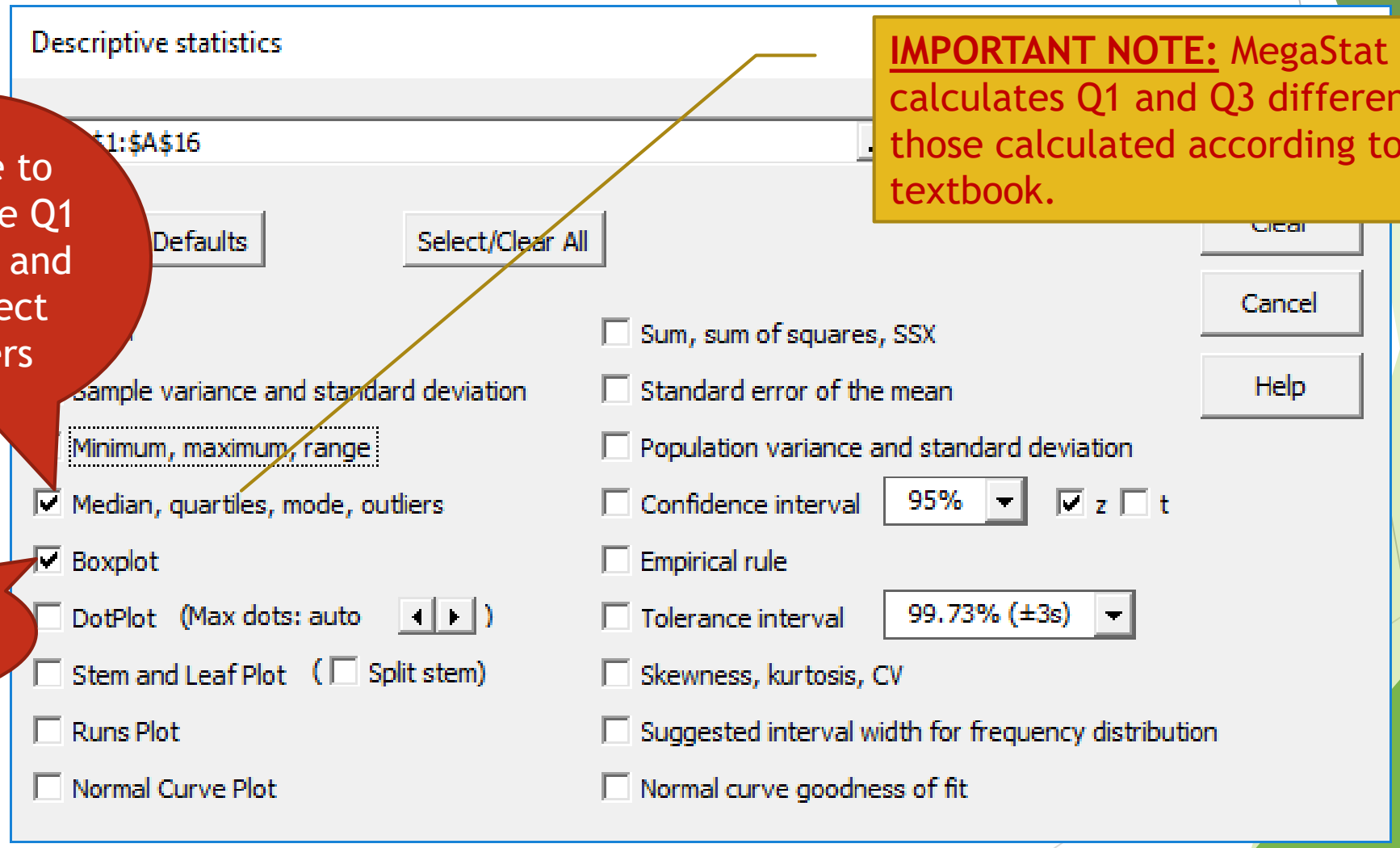
Choose to compute the range



IMPORTANT NOTE: Do not check this box unless you want to calculate the **POPULATION** variance and standard deviation.

Choose to compute the coefficient of variation (CVar)

3 – 3 Measures of Position



Choose to calculate Q1 and Q3, and to detect outliers

Choose to get the boxplot

IMPORTANT NOTE: MegaStat calculates Q1 and Q3 differently than those calculated according to the textbook.

Part 2: Other descriptive statistics calculated using MS Excel only.

3 – 1 Measures of Central Tendency (Weighted Mean)

- From Example 3-14, we have:

Course	Credits (w)	Grade (X)
English	3	4
Psych.	3	2
Bio.	4	3
Physical	2	1

- To calculate the weighted mean, we should use the approach mentioned in the textbook. If the weights are integers, then another way to calculate the weighted mean is as follows.
- First, repeat each X according to the corresponding w, i.e. input 4, 4, 4, 2, 2, 2, 3, 3, 3, 3, 1, 1 in any column of Excel and then use the code "=AVERAGE(<INPUT RANGE>)" in any empty cell.

3 – 3 Measures of Position (Standard Score)

- To calculate the standard score, use:

  =STANDARDIZE(<X>,<MEAN>,<STANDARD DEVIATION>)

- In Example 3-27, we have X = 65, Mean = 50, and standard deviation = 10. In any Excel cell, write "=STANDARDIZE(65, 50, 10)" to get 1.5.

3 – 3 Measures of Position (Percentile)

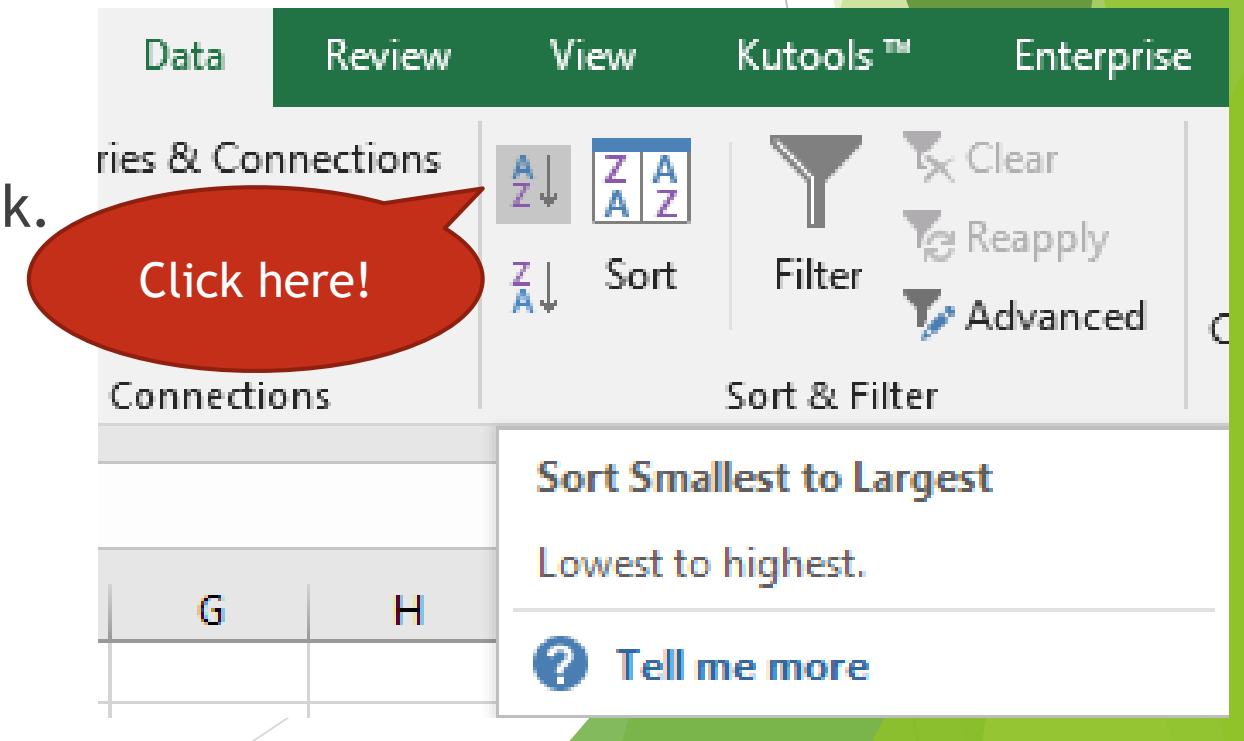
- To calculate percentile (P) given any value (X), use:

  =(COUNTIF(<DATA>, "< X") + 0.5) / n * 100

3 – 3 Measures of Position (Percentile)

- To calculate a value (X) given a percentile (P), do the following steps. Ascendingly order the data, by selecting the data, then going to the **DATA** tab, then clicking "Sort Smallest to Largest" on as shown below.

- Calculate the constant c as shown in book.

$$c = \frac{n \cdot p}{100}$$

- Count over as shown in the book.