LECTURE 5: APPLICATIONS OF DESCRIPTIVE STATISTICS

1. Practice

The following dataset represent the scores achieved by university Algerian EFL students in the International English Language Testing System (i.e., IELTS): 6.00, 5.50, 6.00, 7.00, 6.00, 6.50, 5.50, 6.50, 5.00, 6.00.

1. Using these results, calculate the sum, mode, median, sample mean, sample variance, and standard deviation.

Students	IELTS Scores	Differences (xi- $\bar{x}$)	Differences squared (xi- $\bar{x}$)²
Student 1	6.00		
Student 2	5.50		
Student 3	6.00		
Student 4	7.00		
Student 5	6.00		
Student 6	6.50		
Student 7	5.50		
Student 8	6.50		
Student 9	5.00		
Student 10	6.00		
Sum (Σ):			**Σ(xi- $\bar{x}$)² =**
Mode:			
Median:			
Sample mean ($\bar{x}$):			
Sample variance (S^2):			
Sample standard deviation (S):			

2. Report the results in the table below.

Table 1. Algerian university EFL students' performance in the IELTS exam

	n	***Min***	***Max***	***$\bar{x}$***	***S^2***	***S***
IELTS scores						

Notes. n = sample size, $\bar{x}$ = sample mean, S^2 = sample variance, S = sample standard deviation.

2. Generating descriptive statistics in Excel

You can use Excel to generate descriptive statistics.

Statistics	Steps

Sum (Σ):

	IELTS Scores
Student 1	5.00
Student 2	4.50
Student 3	5.00
Student 4	6.00
Student 5	5.00
Student 6	5.50
Student 7	4.50
Student 8	5.50
Student 9	4.00
Student 10	5.00
Sum (Σ):	=sum(B2:B11)

	IELTS Scores
Student 1	5.00
Student 2	4.50
Student 3	5.00
Student 4	6.00
Student 5	5.00
Student 6	5.50
Student 7	4.50
Student 8	5.50
Student 9	4.00
Student 10	5.00
Sum (Σ):	50.00

The mean ($\bar{x}$):

	IELTS Scores
Student 1	5.00
Student 2	4.50
Student 3	5.00
Student 4	6.00
Student 5	5.00
Student 6	5.50
Student 7	4.50
Student 8	5.50
Student 9	4.00
Student 10	5.00
Sum (Σ):	50.00
Sample mean ($\bar{x}$):	=AVERAGE(B2:B11)

	IELTS Scores
Student 1	5.00
Student 2	4.50
Student 3	5.00
Student 4	6.00
Student 5	5.00
Student 6	5.50
Student 7	4.50
Student 8	5.50
Student 9	4.00
Student 10	5.00
Sum (Σ):	50.00
Sample mean ($\bar{x}$):	5.00

The variance:

	IELTS Scores	Differences (xi- $\bar{x}$)	Differences squared (xi- $\bar{x}$)²
Student 1	5.00	0.00	0.00
Student 2	4.50	-0.50	0.25
Student 3	5.00	0.00	0.00
Student 4	6.00	1.00	1.00
Student 5	5.00	0.00	0.00
Student 6	5.50	0.50	0.25
Student 7	4.50	-0.50	0.25
Student 8	5.50	0.50	0.25
Student 9	4.00	-1.00	1.00
Student 10	5.00	0.00	0.00
Sum (Σ):	50.00	**Σ(xi- $\bar{x}$)² =**	3.00
Sample mean ($\bar{x}$):	5.00		
Sample variance (S^2):	=D13/9		
Sample standard deviation (S):			

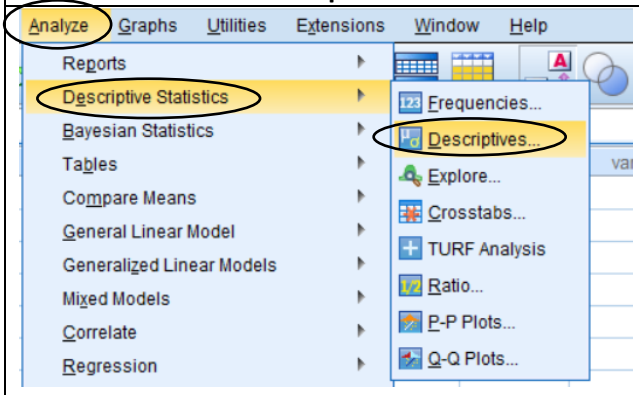
Standard deviation:

	IELTS Scores	Differences (xi- $\bar{x}$)	Differences squared (xi- $\bar{x}$)²
Student 1	5.00	0.00	0.00
Student 2	4.50	-0.50	0.25
Student 3	5.00	0.00	0.00
Student 4	6.00	1.00	1.00
Student 5	5.00	0.00	0.00
Student 6	5.50	0.50	0.25
Student 7	4.50	-0.50	0.25
Student 8	5.50	0.50	0.25
Student 9	4.00	-1.00	1.00
Student 10	5.00	0.00	0.00
Sum (Σ):	50.00	**Σ(xi- $\bar{x}$)² =**	3.00
Sample mean ($\bar{x}$):	5.00		
Sample variance (S^2):	0.33		
Sample standard deviation (S):	=SQRT(B15)		

3. Generating Descriptive Statistics in SPSS

Descriptive statistics can also be easily generated using SPSS.

Step 1



Step 2