RESEARCH IN HEALTH AND PHYSICAL ACTIVITY – SHSS5069 INTRODUCTION TO SPSS

- INPUTTING AND MANAGING DATA
- MEASURES OF CENTRAL TENDENCY

Alison Connaughton – Week 1 (4th of October, 2018)

LEARNING OUTCOMES:

By the end of this week (and next week's) lab session and directed study…

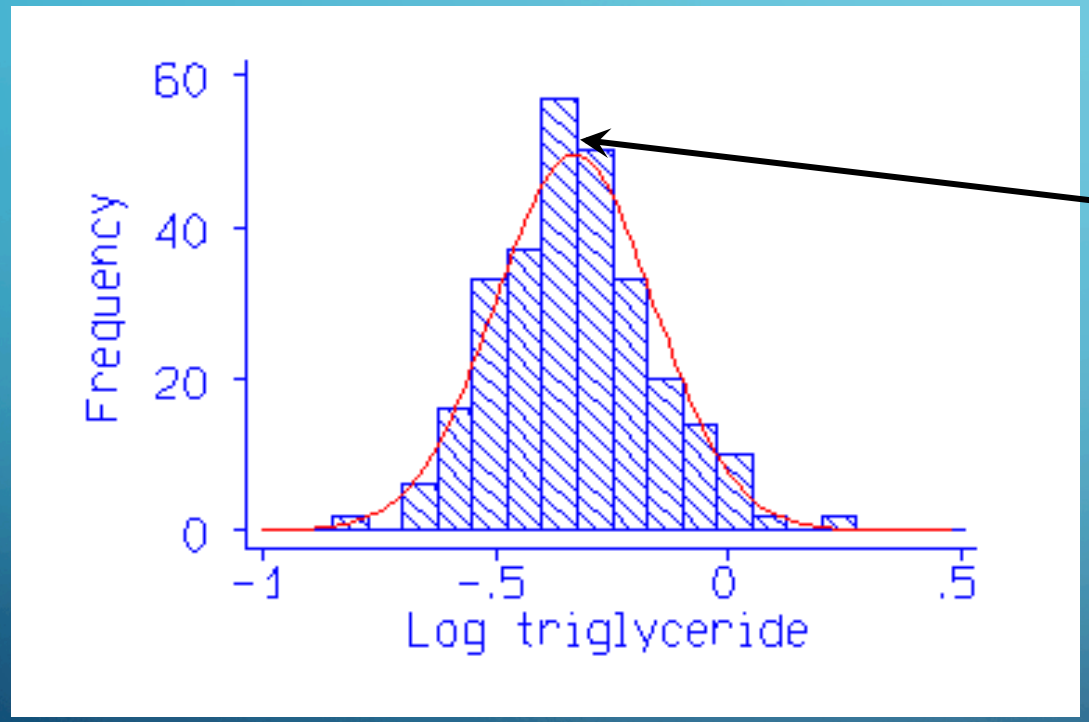
For a set of data you should be able to:

- Determine whether a set of data is normal.
- Calculate – mean, standard deviation.
- Use SPSS to calculate descriptive statistics
- Examine relationships using correlation.
- Establish whether a correlation co-efficient is statistically significant.
- Use SPSS to calculate correlation co-efficients.

NORMAL DISTRIBUTION

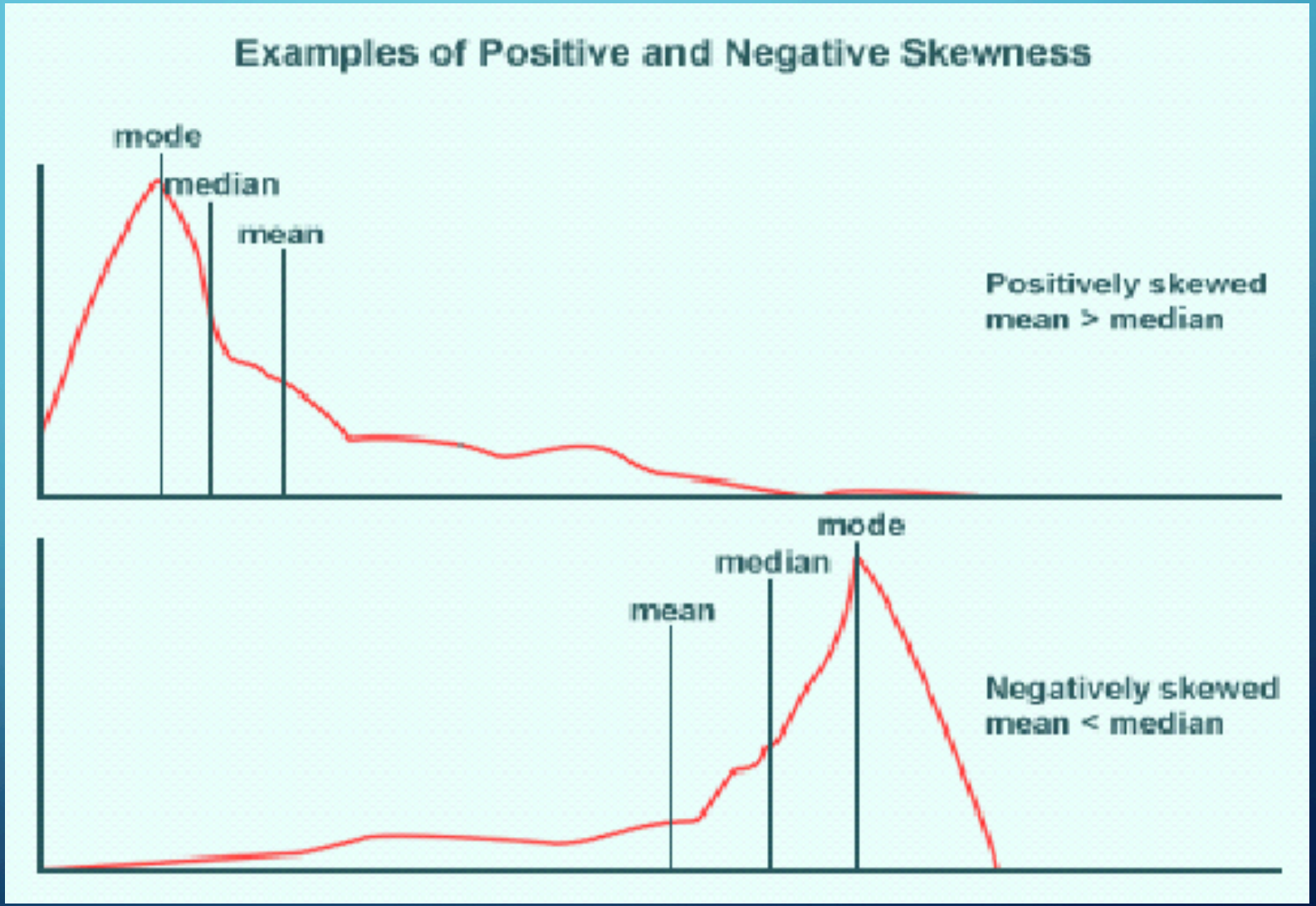
- A normal curve is characterised by the mean, median and mode being at the same point (centre of the distribution).
- *Skewness* – Description of the direction of the hump of the curve of distribution of data and the nature of the tails of the curve.
- Positively skewed – Main part of curve moved to the Left
- Negatively skewed – Main part of curve moved to Right

NORMAL DISTRIBUTION

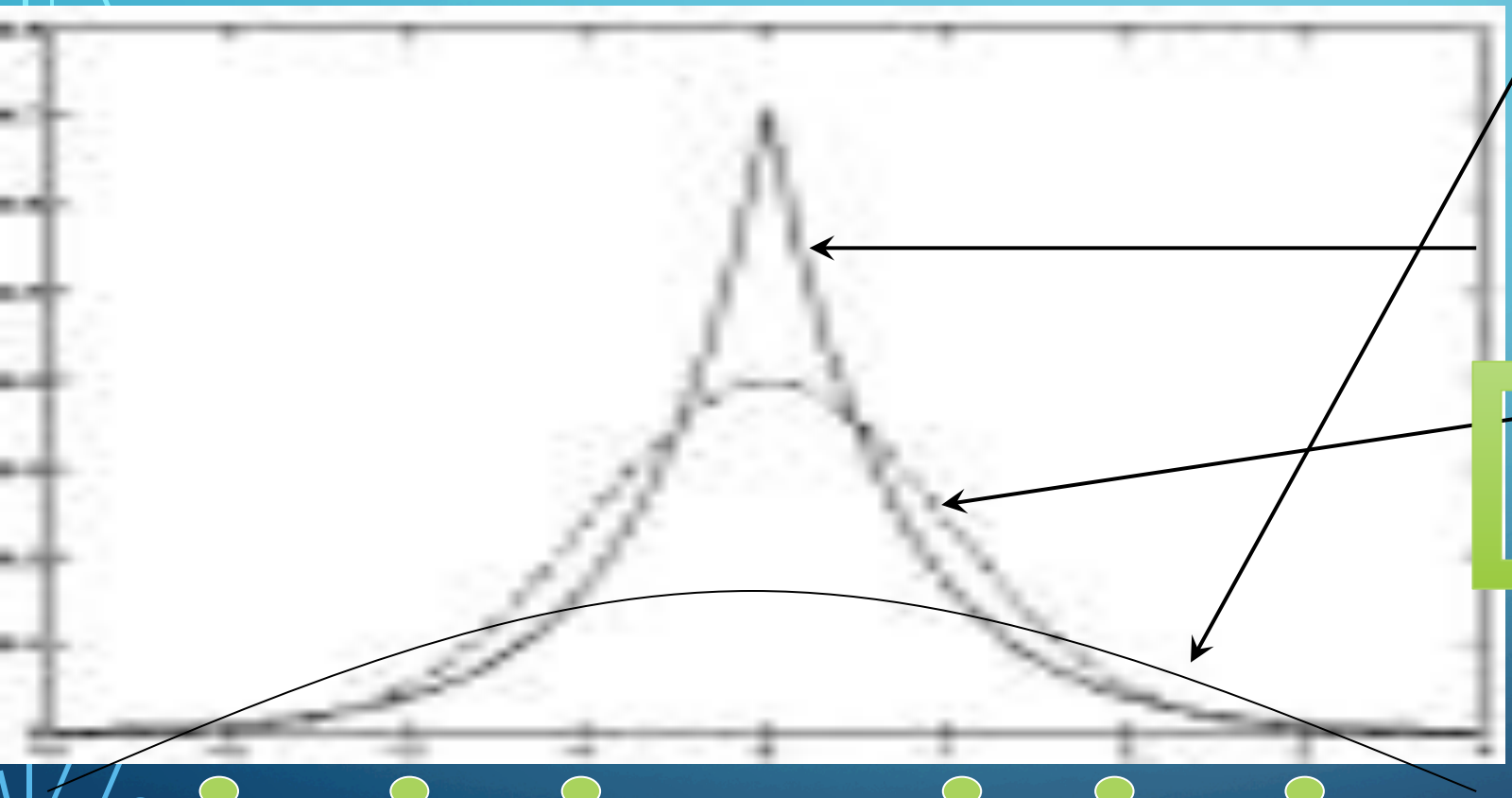


Mean / Median / Mode

SKEWNESS


Examples of Positive and Negative Skewness
mode
median
mean
Positively skewed
mean > median
mode
median
mean
Negatively skewed
mean < median

KURTOSIS


Platykurtic curve
Leptokurtic curve
Mesokurtic curve (normal curve)
3 St.Dev
1 St. Dev
2 St. Dev
3 St. Dev

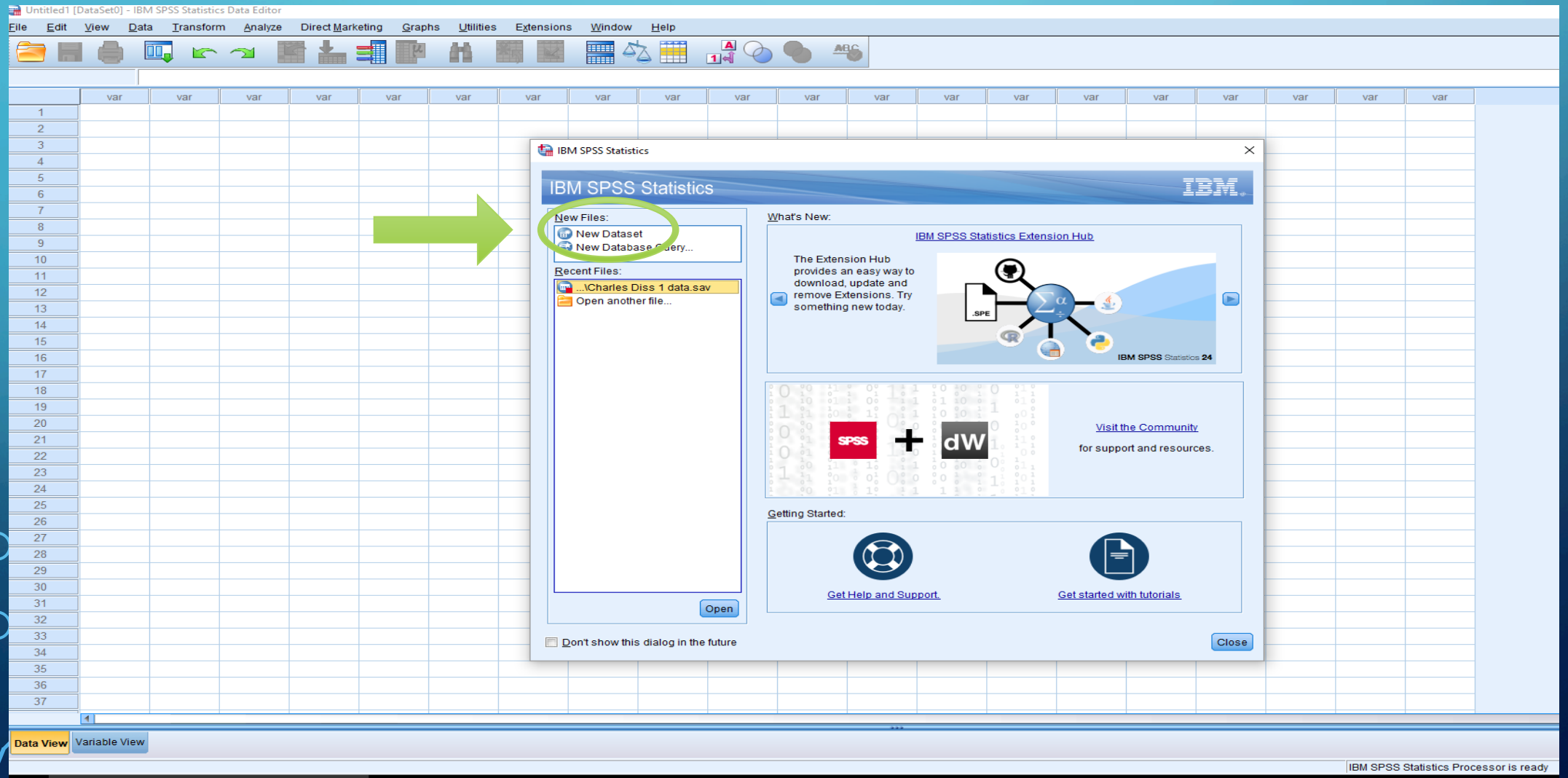
STANDARD DEVIATION:

The square root of the variance

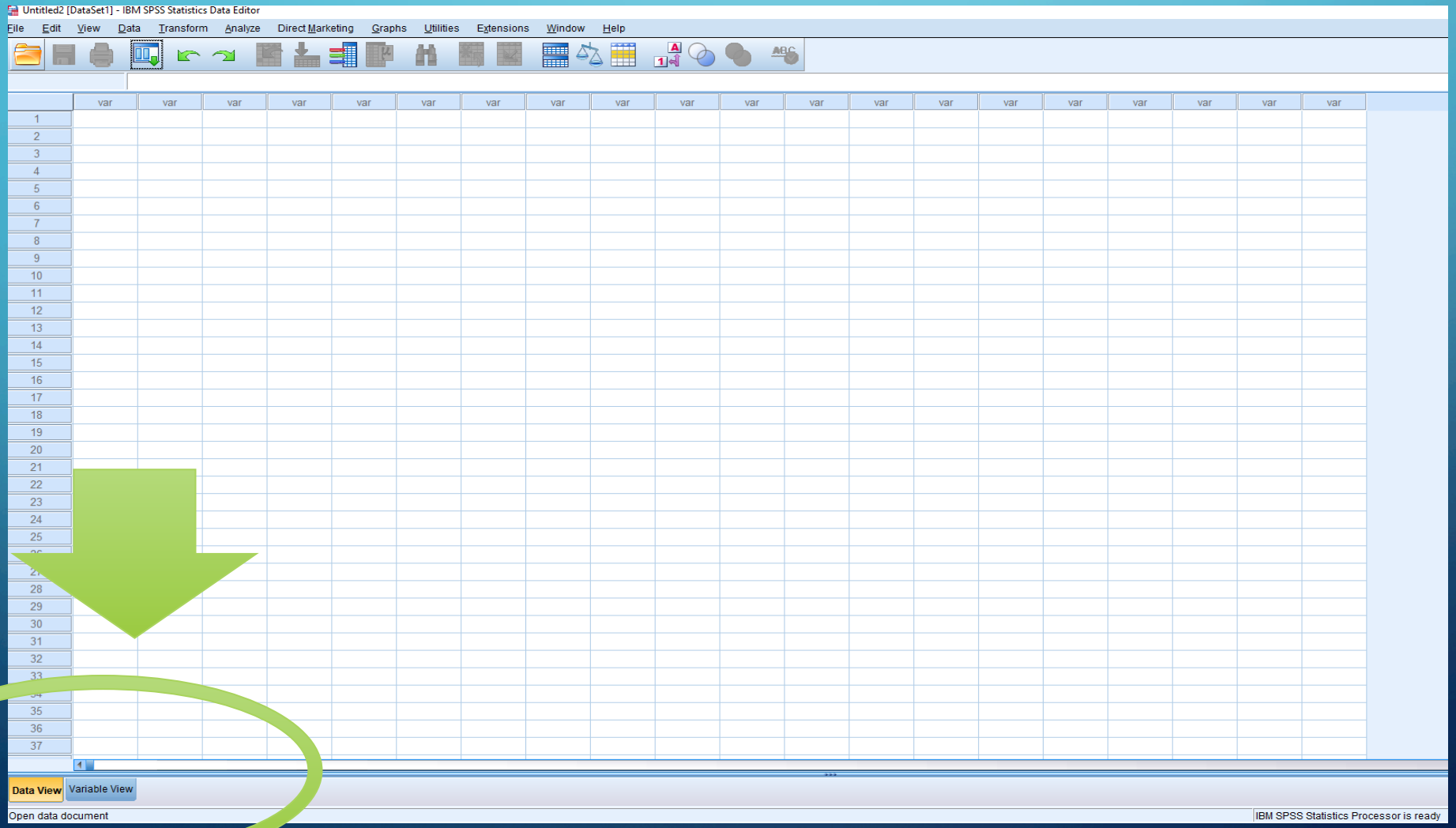
- The mean and SD are a good description of a set of scores.
- If the SD is large, the mean may not be a good representation.
- Roughly 68% of a set of scores fall between ± 1 SD, about 95% of the scores fall between ± 2 SD, and about 99% of the scores fall between ± 3 SD.
- This is called a NORMAL DISTRIBUTION.
- E.g. Heights within a class…

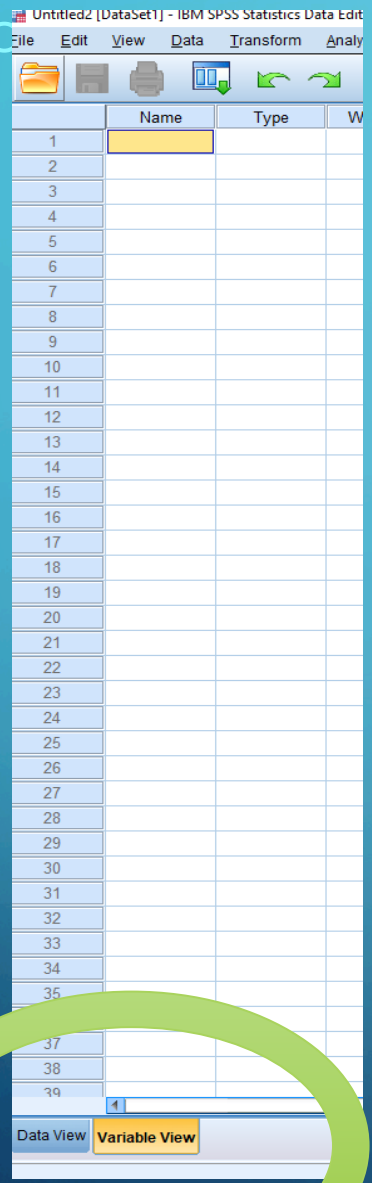
Practically Illustrated….

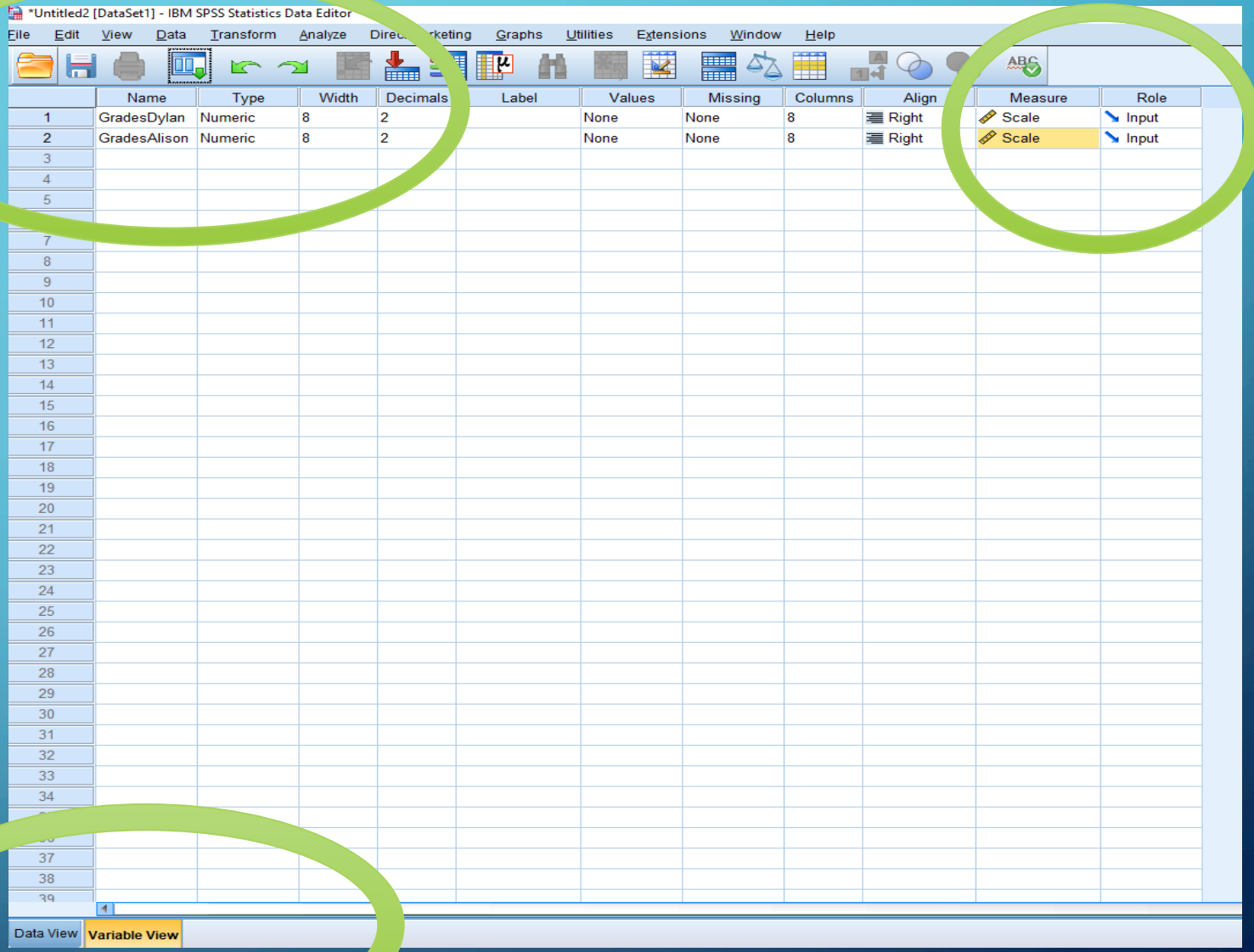
Open SPSS… Select ‘New Dataset’

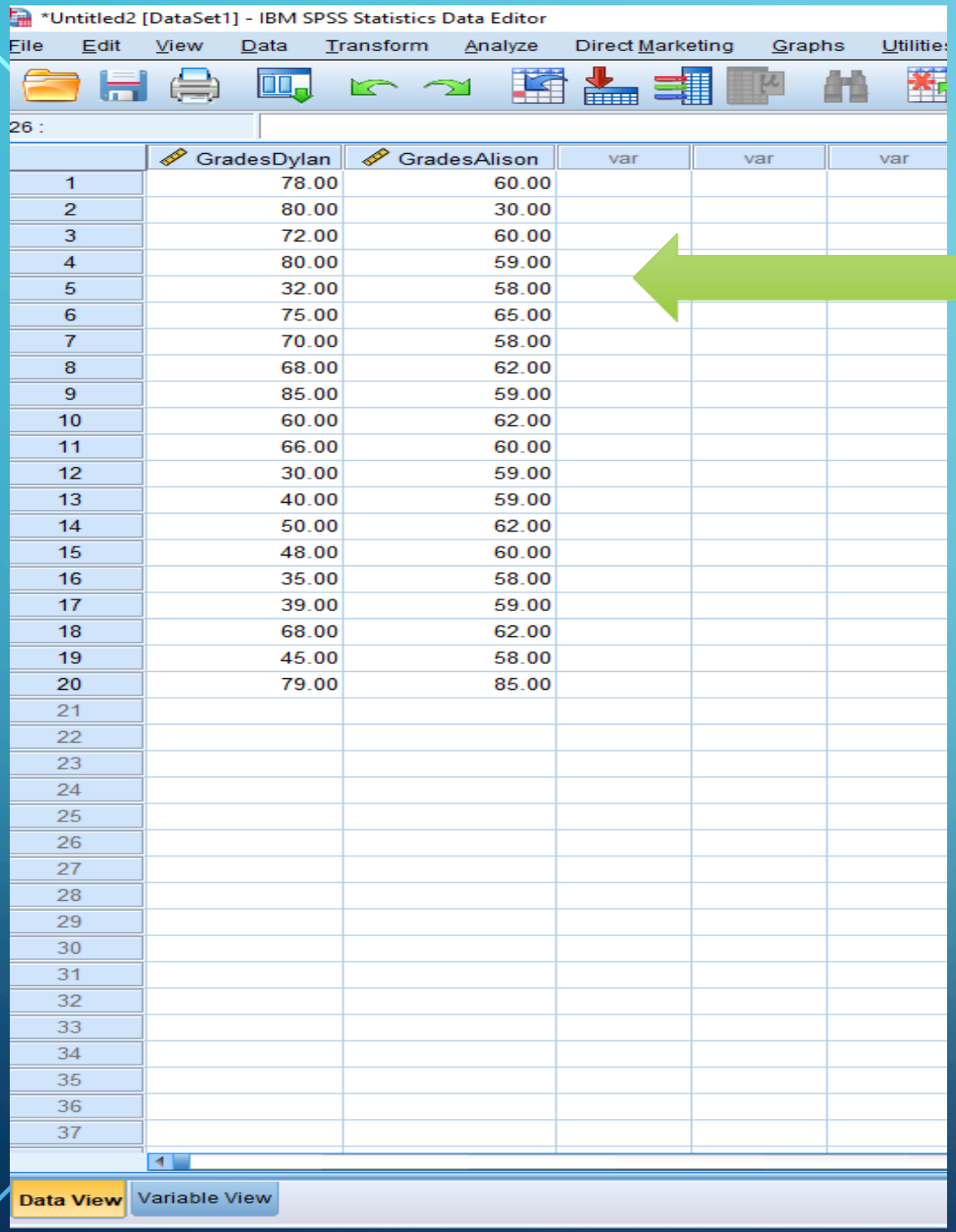


Be aware of the two tabs at the bottom left of the screen – ‘Data View’ and ‘Variable View’




Untitled2 [DataSet1] - IBM SPSS Statistics Data Edit
File Edit View Data Transform Analy
Name
Type
Data View
Variable View

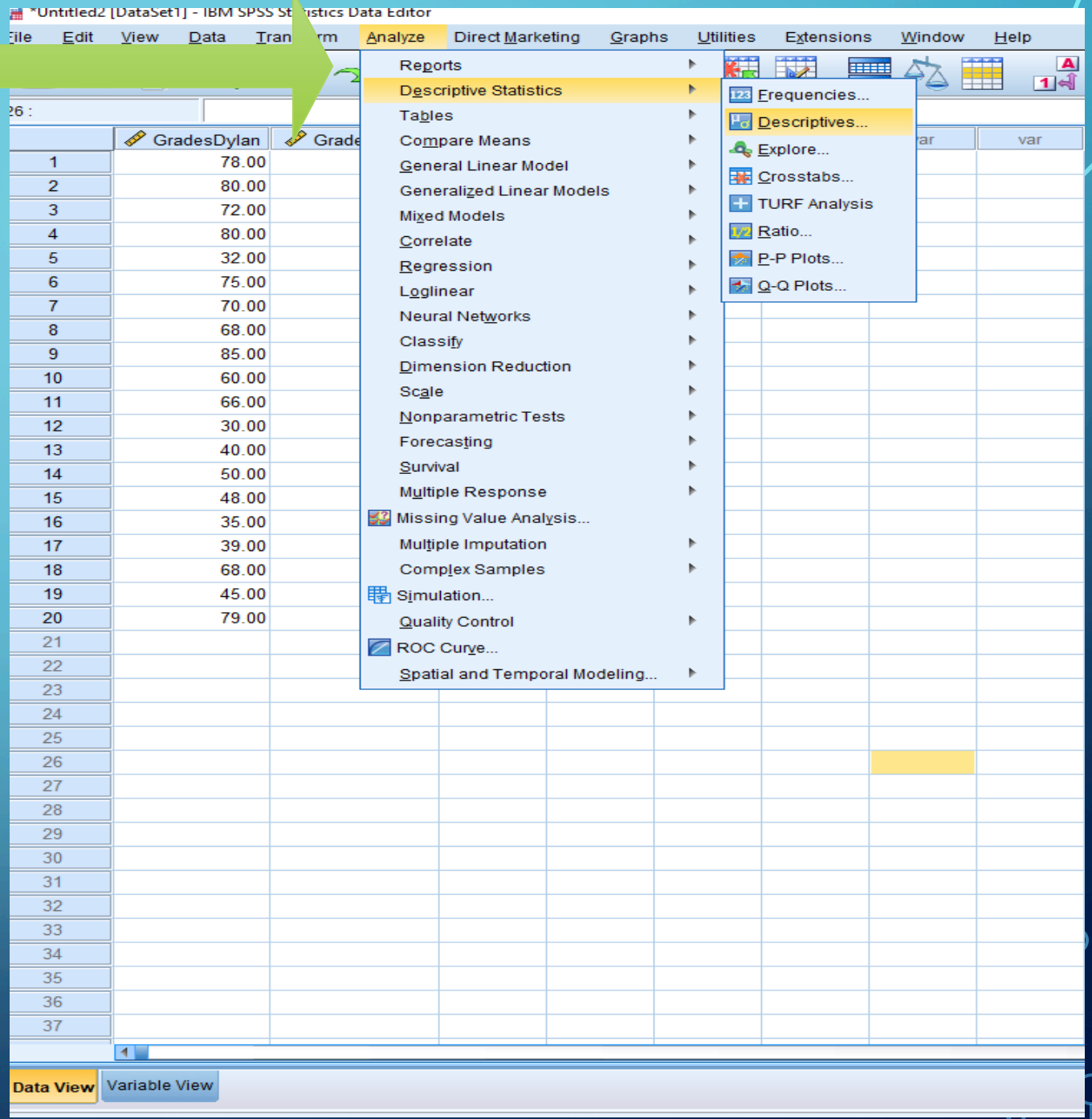

*Untitled2 [DataSet1] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help
Name Type Width Decimals Label Values Missing Columns Align Measure Role
1 GradesDylan Numeric 8 2 None None 8 Right Scale Input
2 GradesAlison Numeric 8 2 None None 8 Right Scale Input
Data View
Variable View



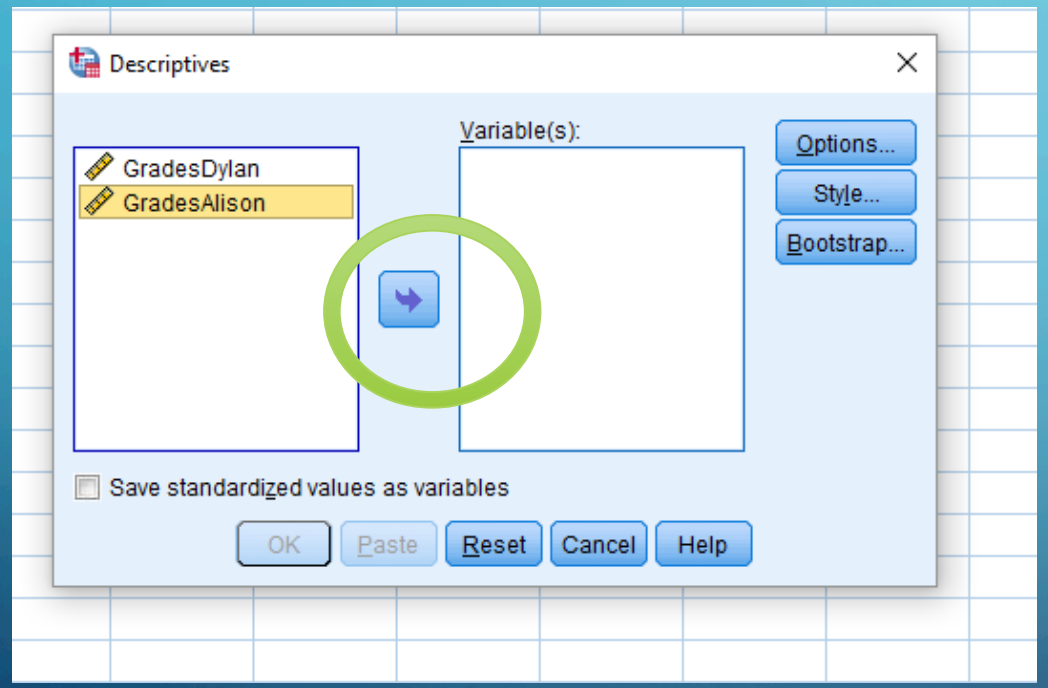
Input the data…

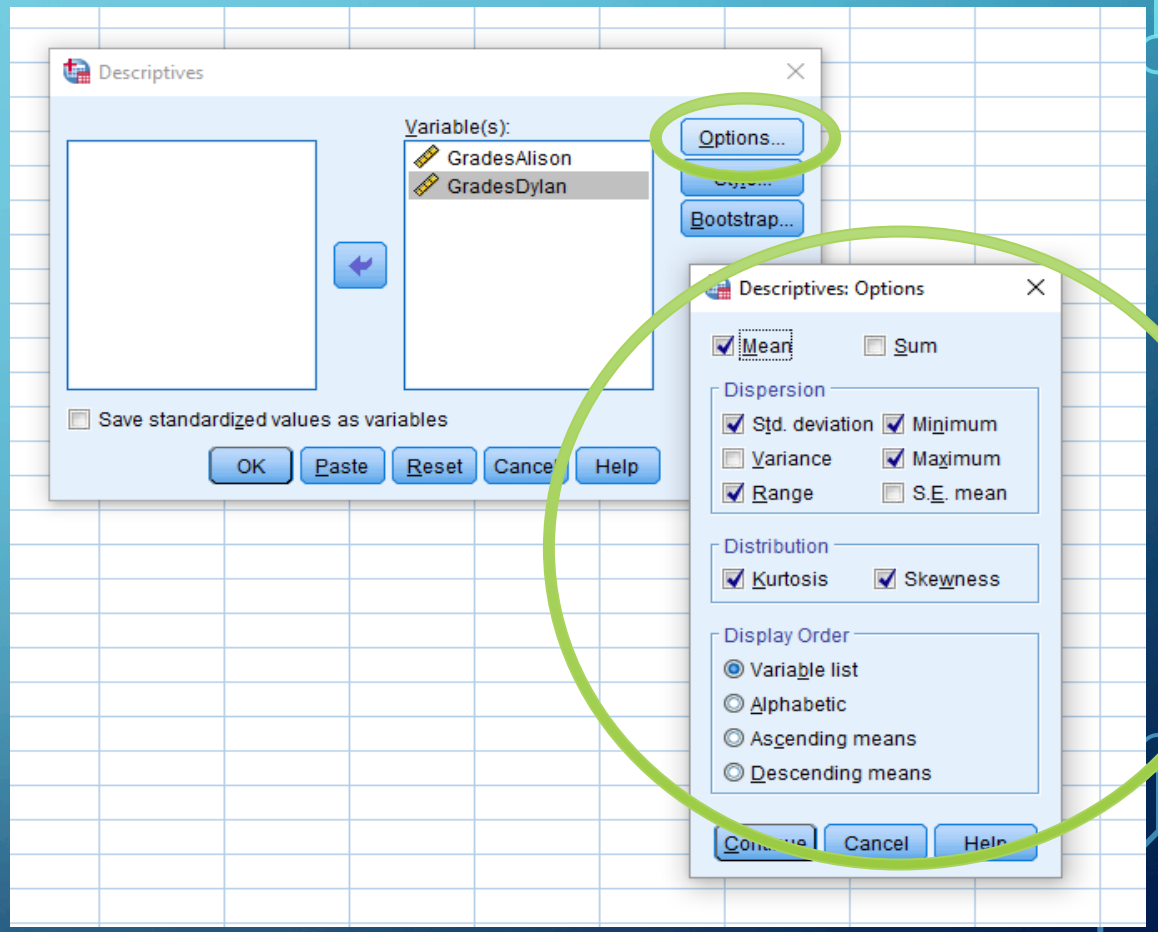
- You can save this by going to File – Save as.

1. Click on Analyse
2. Descriptive Statistics
3. Descriptives

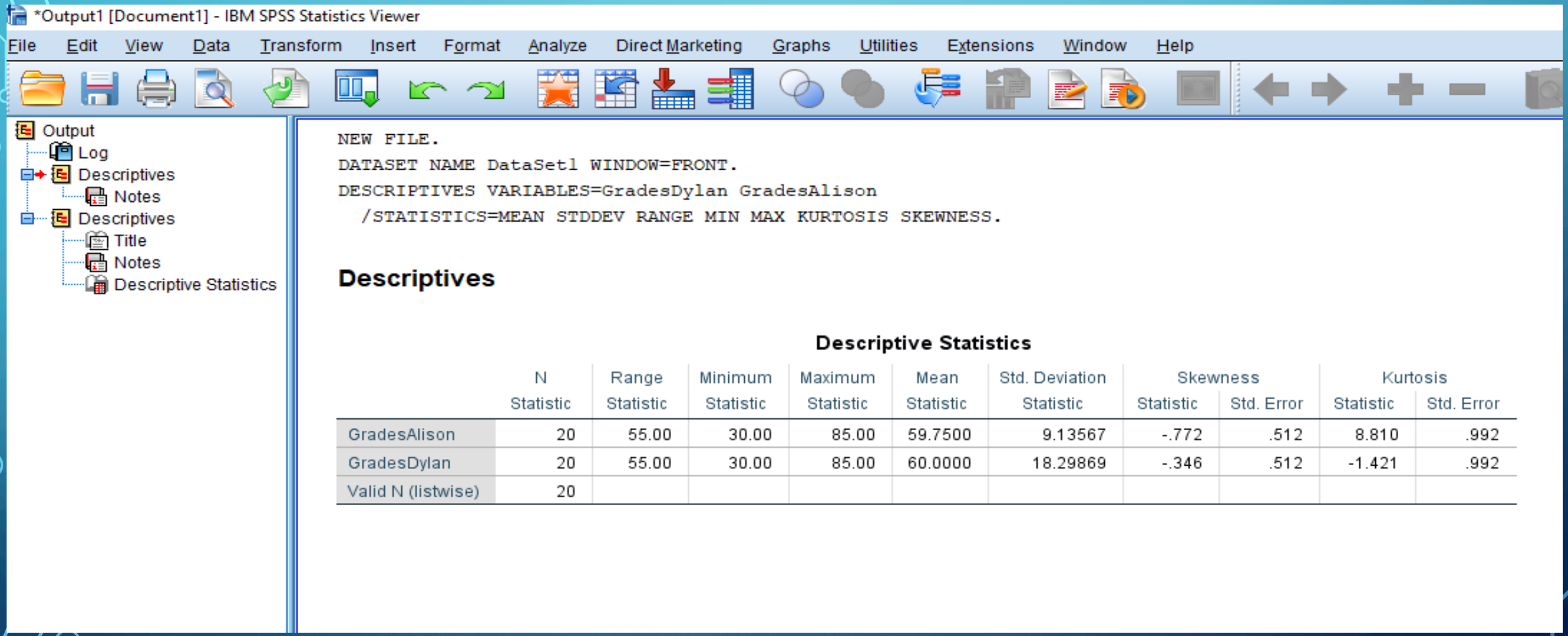


1.Move the two sets of data across to the variables box…
2. Select ‘Options’
3. Tick the boxes required
4. Click continue
5. Click ok





Your data output sheet… (File – Save as.)



Are both sets of marks similar? Look at the range, minimum, maximum, mean, standard deviation…

*Output1 [Document1] - IBM SPSS Statistics Viewer

File Edit View Data Transform Insert Format Analyze Direct Marketing Graphs Utilities Extensions Window Help

- Output
  - Log
  - Descriptives
    - Notes
  - Descriptives
    - Title
    - Notes
    - Descriptive Statistics

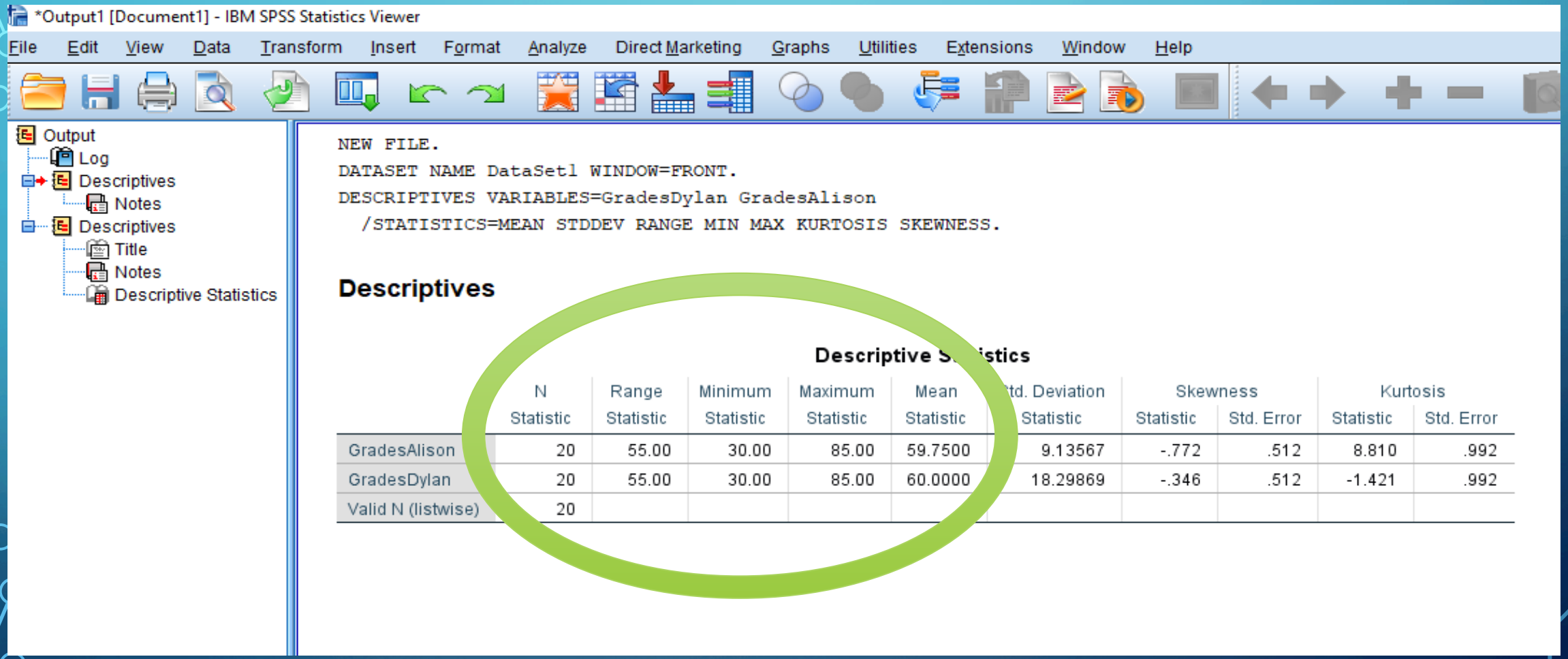
```
NEW FILE.
DATASET NAME DataSet1 WINDOW=FRONT.
DESCRIPTIVES VARIABLES=GradesDylan GradesAlison
  /STATISTICS=MEAN STDDEV RANGE MIN MAX KURTOSIS SKEWNESS.
```

Descriptives

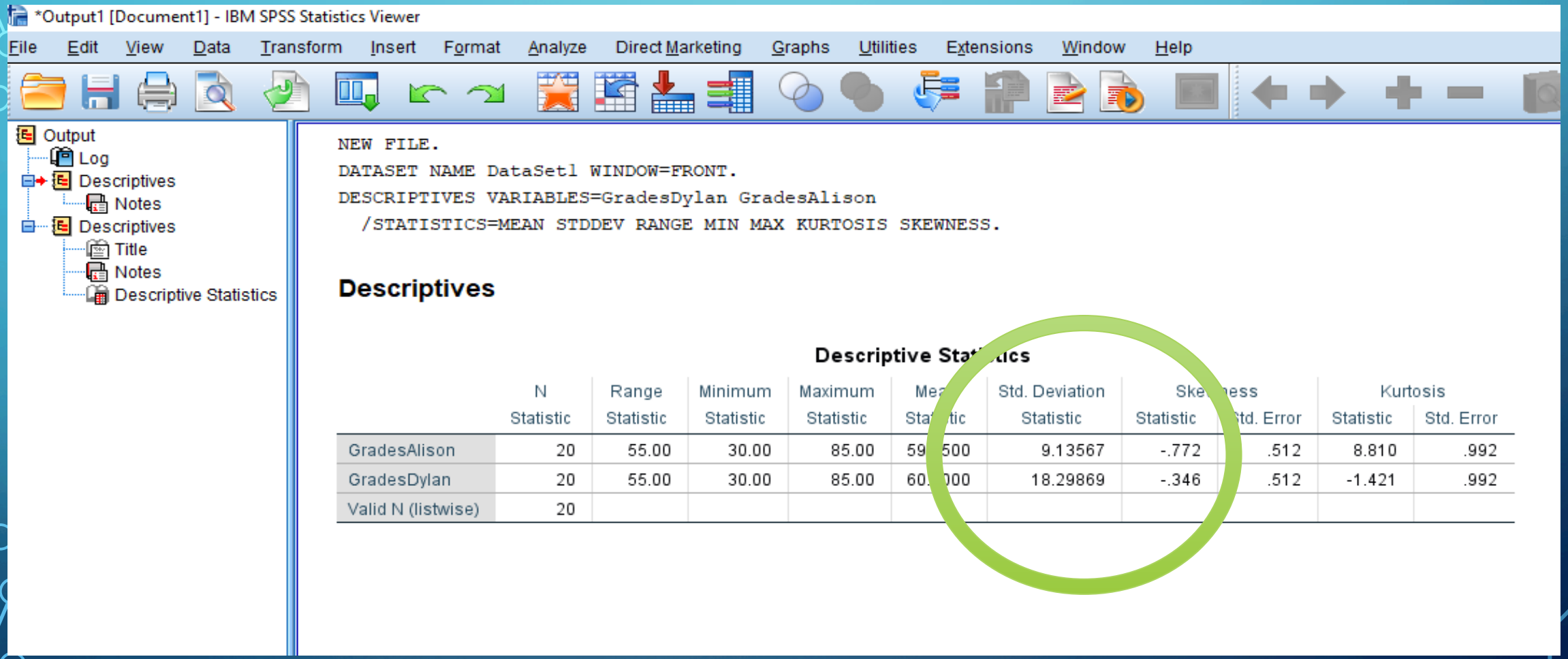
Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
GradesAlison	20	55.00	30.00	85.00	59.7500	9.13567	-.772	.512	8.810	.992
GradesDylan	20	55.00	30.00	85.00	60.0000	18.29869	-.346	.512	-1.421	.992
Valid N (listwise)	20									

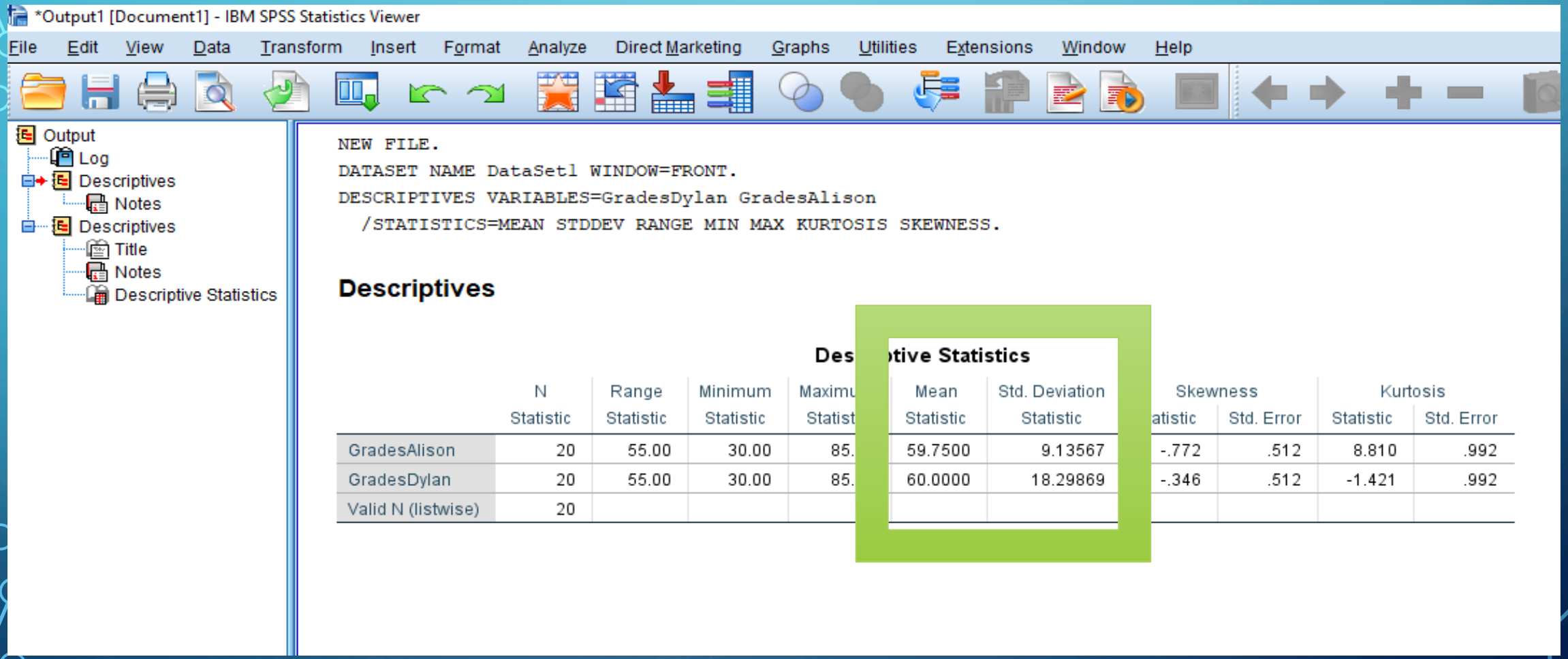
Based on the range, minimum, maximum and mean?



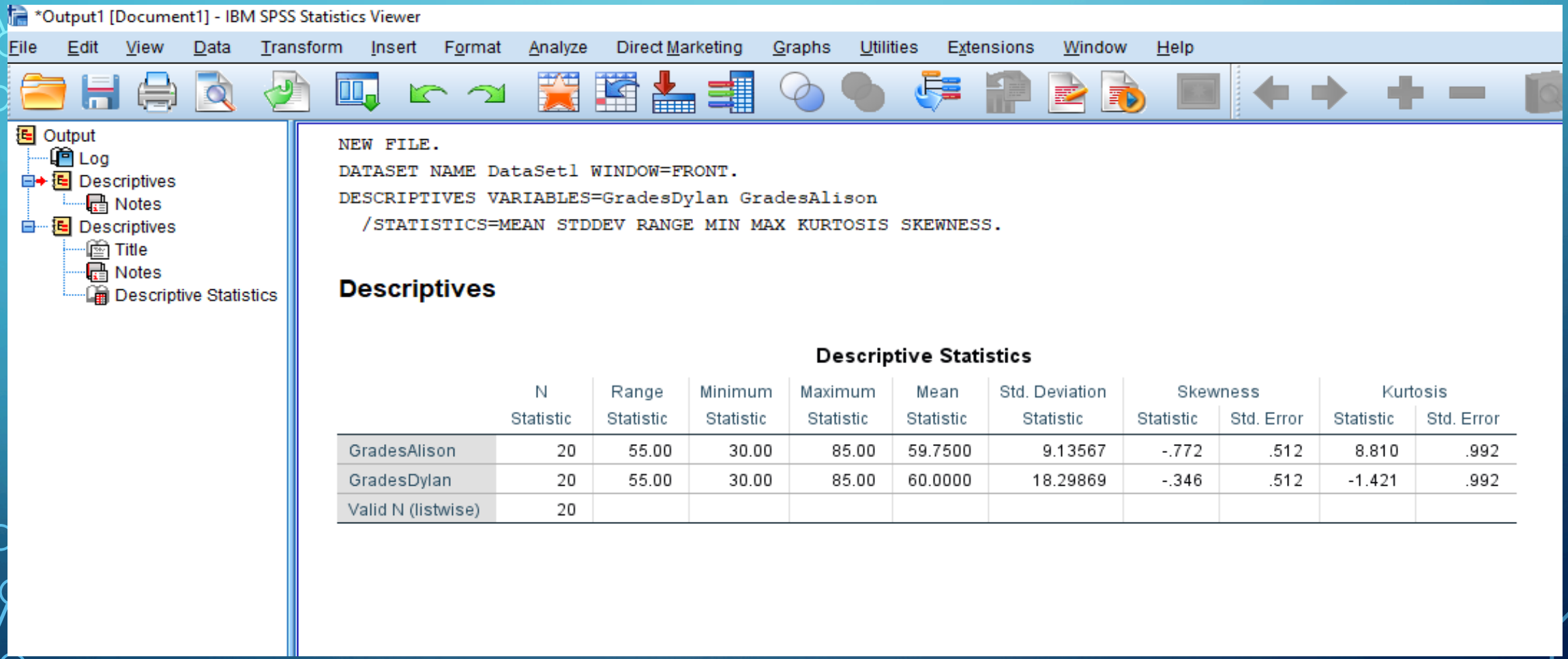
What about with the Standard Deviation?



68% of marks are within + or – 1SD from the mean
Work this out for the two sets of grades…



The mean should always be accompanied by the SD in brackets next to it.
E.g. Mean grade as a percentage was 59.75 (SD 9.14)



STANDARD DEVIATION:

The square root of the variance

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- This is called a NORMAL DISTRIBUTION.

HAVE A GO AT INPUTTING SOME MORE DATA AND CALCULATING MEAN / SD.

- Practice saving the data and output sheets
- Get used to labelling the columns by switching between 'Data View' and "Variable View'.
- Download SPSS onto your own laptop computer if you have one.
  - See IT if you have any trouble downloading the software.

- Any questions?