INTRO TO SPSS & DESCRIPTIVE STATISTICS

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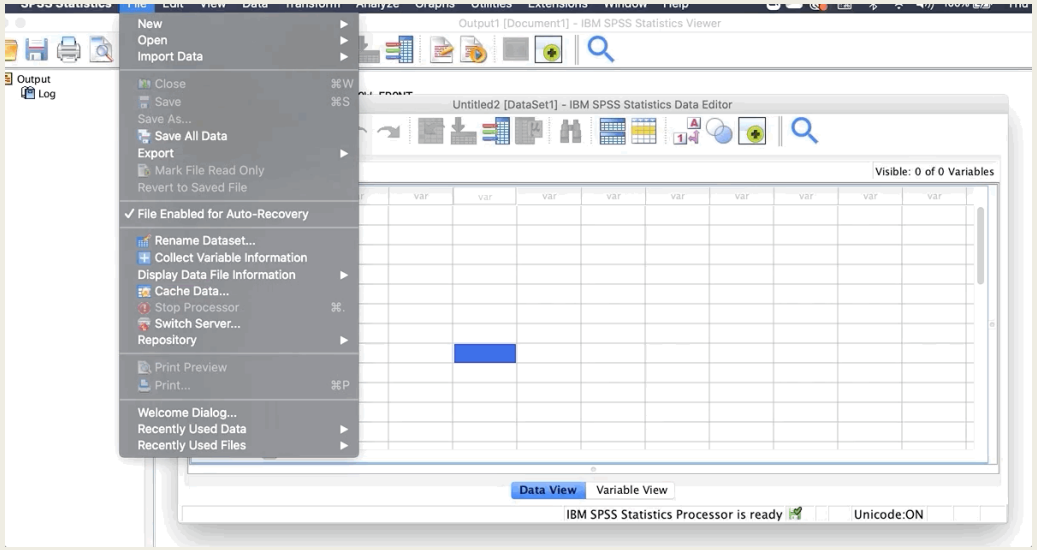
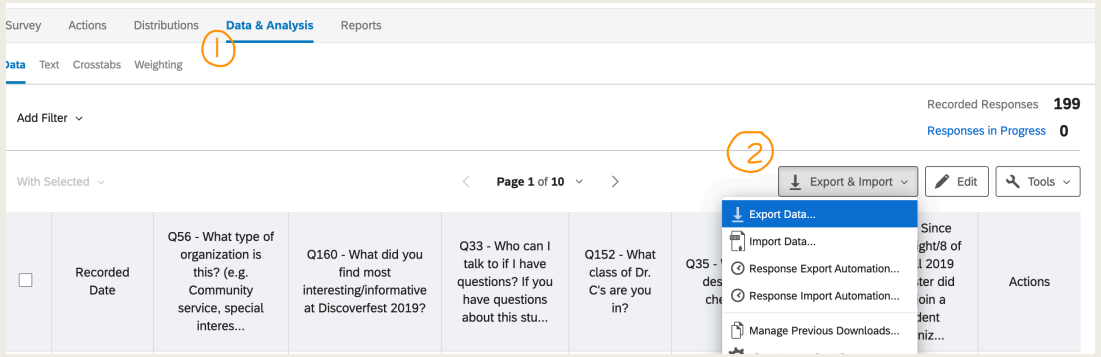
INTRODUCTION

- What is SPSS?
  - *Statistical software for analysis commonly used by Social Scientists*
- Why SPSS?
  - *One of the easier statistical tools to maneuver through*
    - Programming languages don't have drag & drop or a navigation bar!
  - *Valuable technical skill for institutions / companies*
- Key Takeaways on SPSS:
  - *Importing data*
  - *Prep data*
  - *Running basic statistics*

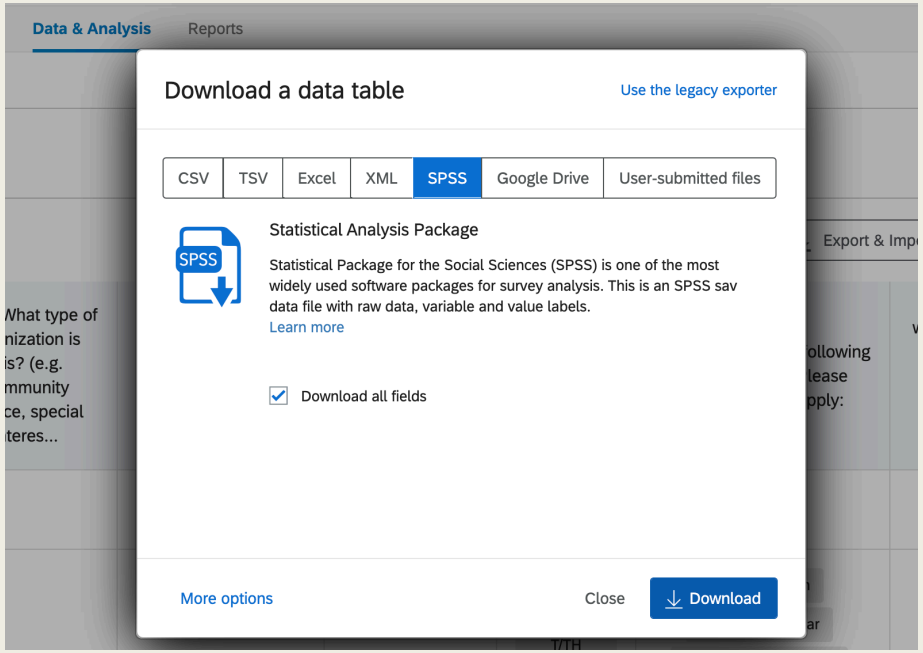


Importing data from Qualtrics into SPSS

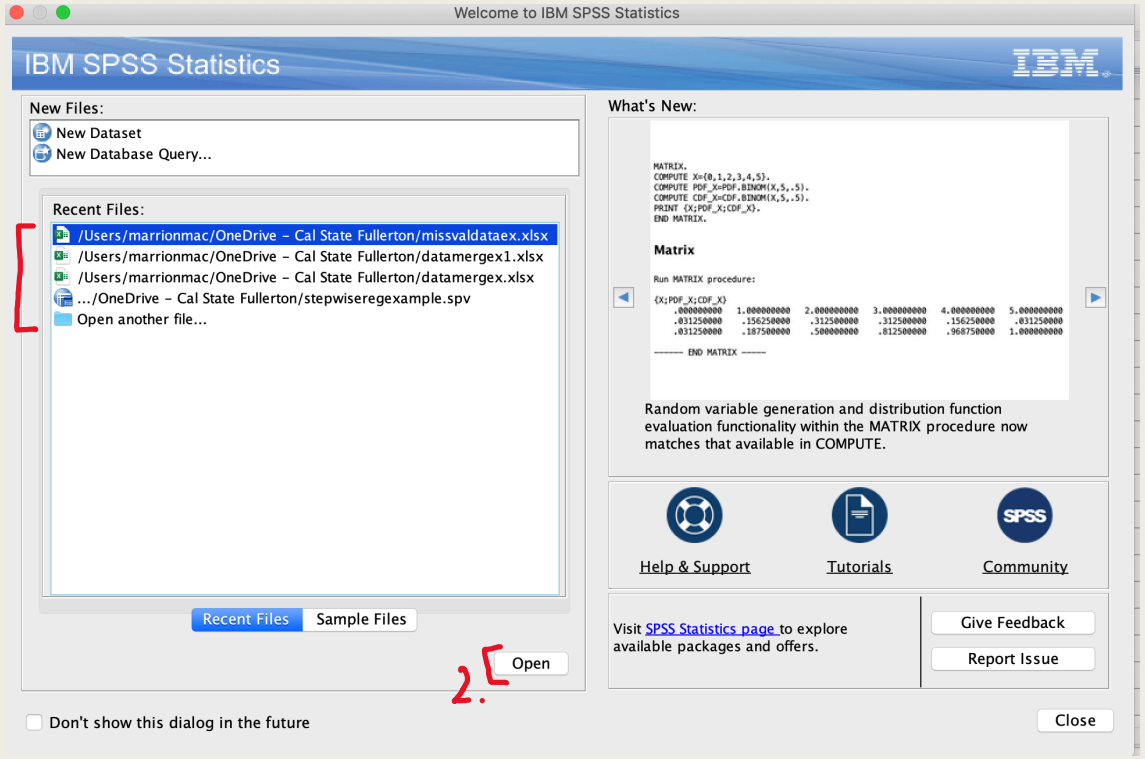
Go to your project on Qualtrics
- Data & Analysis
- Export Data



Downloading the data
- Common to use CSV, but we will opt for SPSS since that's the software we'll be using
- SPSS > Download



Opening Datasets in SPSS

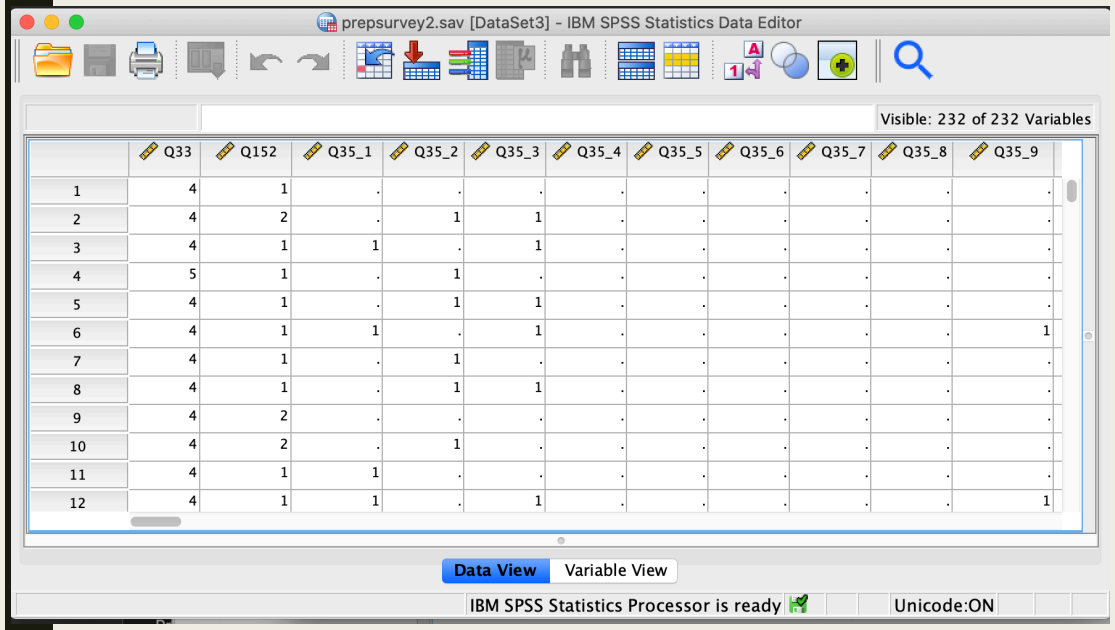


1. Choose file under “Recent Files” or “Open another file...”

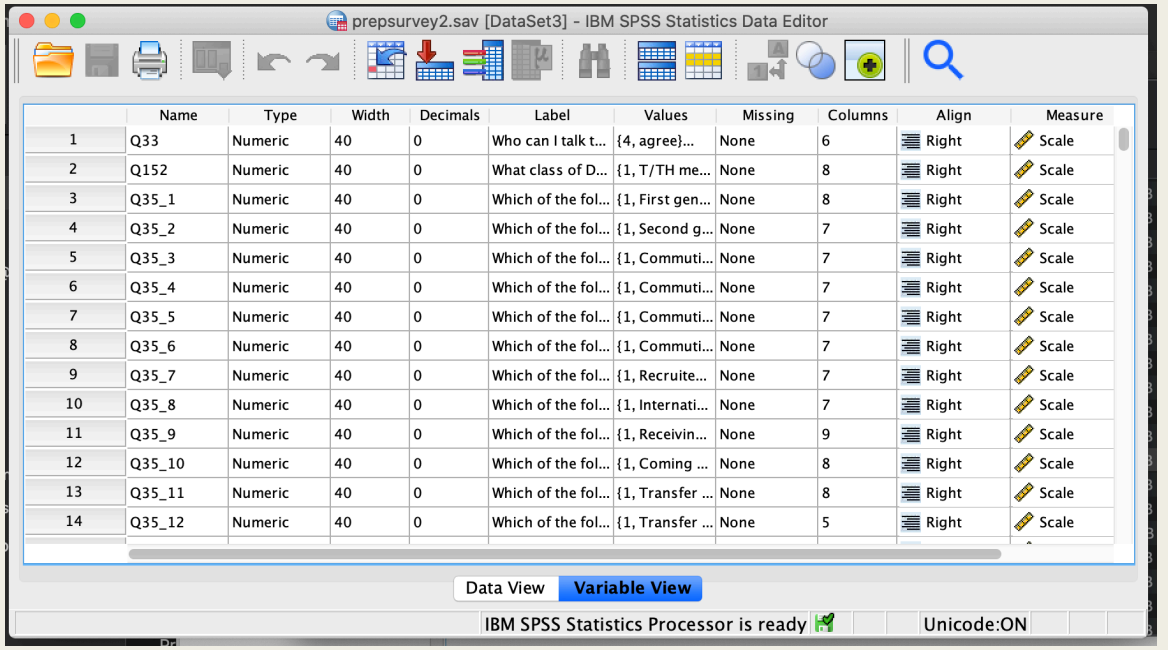
2. Open

Qualtrics Data into SPSS

Data View



Variable View



Wow so easy....

Prepping data in SPSS

- Recode missing values
- Specifying “Measure”
- Merging data

Prepping data in SPSS: Missing Values for Binary Questions

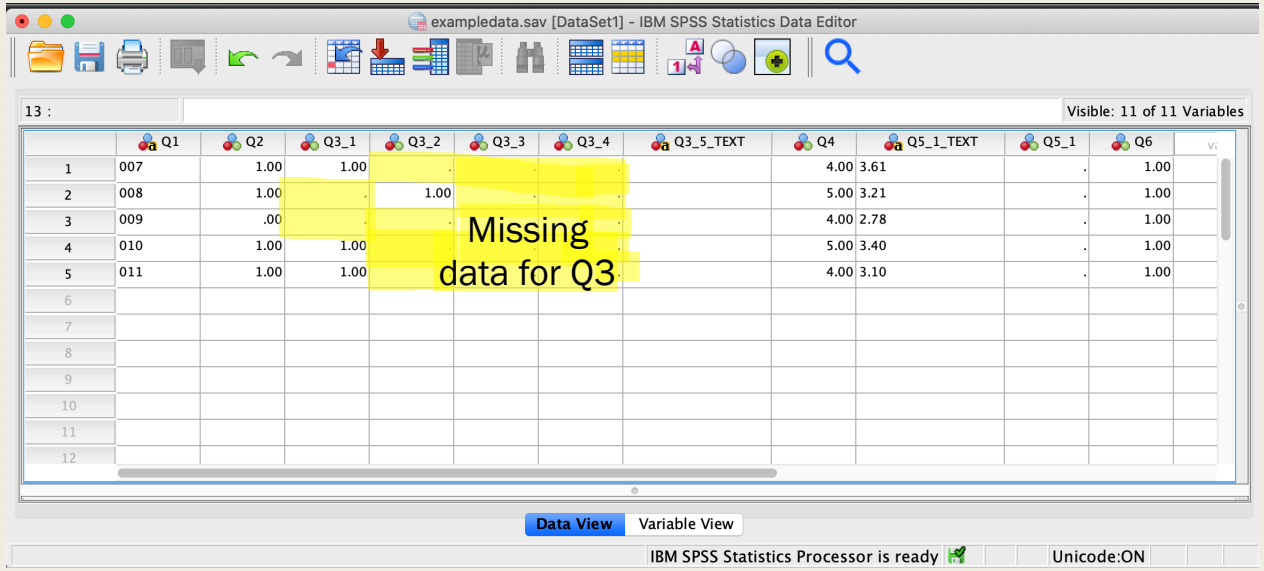
Need to account for missing values so our analysis is accurate

3. If you checked "yes", please state what other language(s) you can speak: (Mark all that applies.)

Q3_1 ☐ Spanish
Q3_2 ☐ Vietnamese
Q3_3 ☐ Chinese
Q3_4 ☐ Korean
Q3_5 ☐ Other:
Q3_5_TEXT _____ string

1 = marked

Example dataset -



	Q1	Q2	Q3_1	Q3_2	Q3_3	Q3_4	Q3_5_TEXT	Q4	Q5_1_TEXT	Q5_1	Q6
1	007	1.00	1.00	.	.	.		4.00	3.61	.	1.00
2	008	1.00	.	1.00	.	.		5.00	3.21	.	1.00
3	009	.00	.	.	.	.		4.00	2.78	.	1.00
4	010	1.00	1.00	.	.	.		5.00	3.40	.	1.00
5	011	1.00	1.00	.	.	.		4.00	3.10	.	1.00

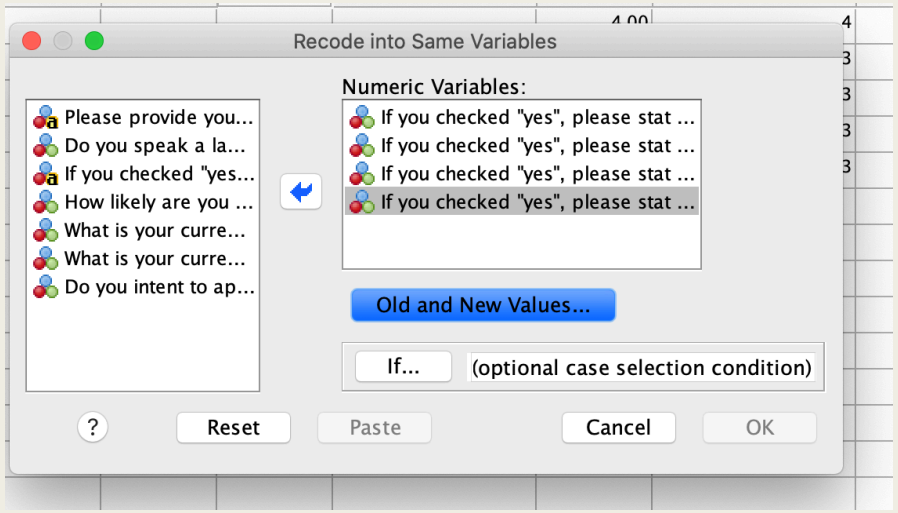
SPSS assumes that the participant did not answer the question (hence, missing):

Statistics

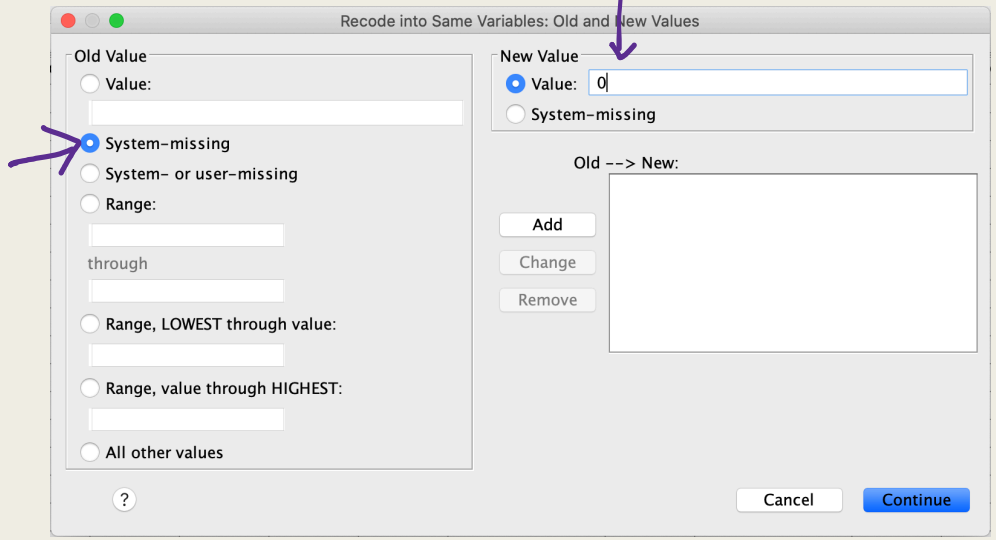
		If you checked "yes", please stat what other language(s) you can speak:(Mark all that applies.): Spanish	If you checked "yes", please stat what other language(s) you can speak:(Mark all that applies.): Vietnamese	If you checked "yes", please stat what other language(s) you can speak:(Mark all that applies.): Chinese	If you checked "yes", please stat what other language(s) you can speak:(Mark all that applies.): Korean	If you checked "yes", please stat what other language(s) you can speak:(Mark all that applies.): Other – Text
N	Valid	3	1	0	0	5
	Missing	2	4	5	5	0
Mean		1.0000	1.0000			
Std. Deviation		.00000				

Prepping data in SPSS: Missing Values for Binary Questions

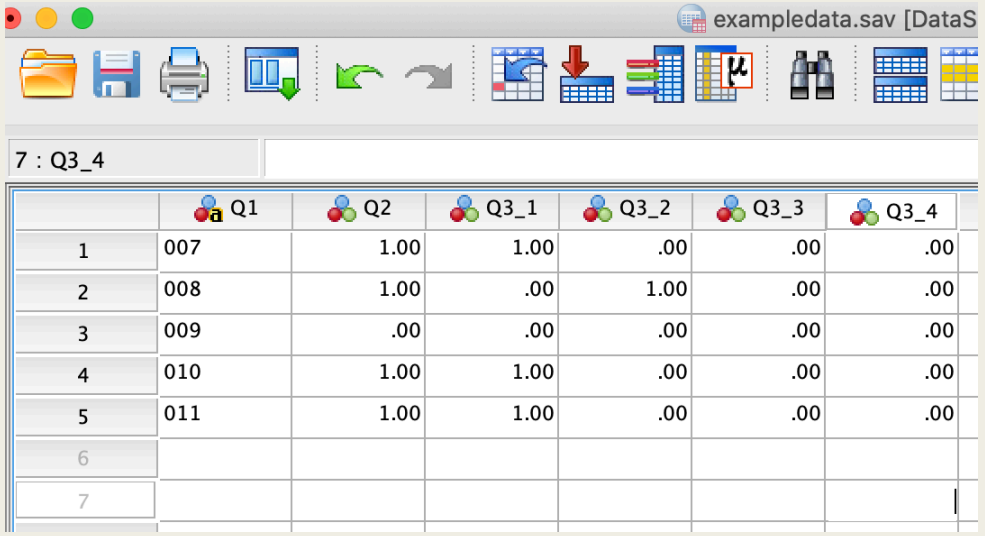
Transform > Recode into Same Variables



The New Value will be 0



Data set with recoded missing variables:
Either 0 or 1, they either speak the language (1) or they don't (0)

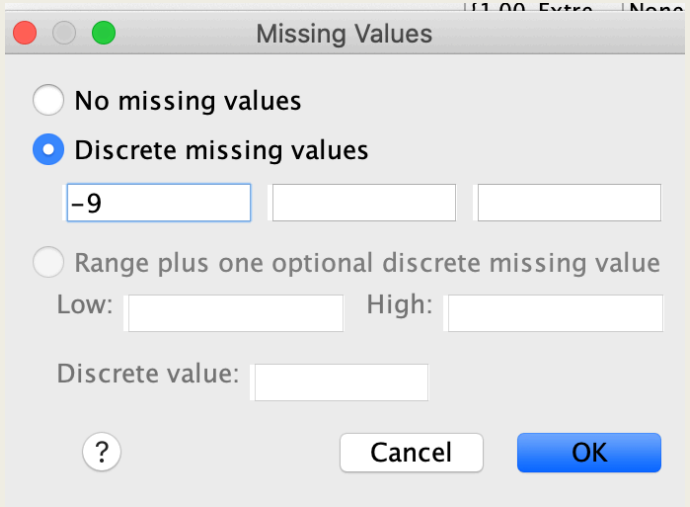


	Q1	Q2	Q3_1	Q3_2	Q3_3	Q3_4
1	007	1.00	1.00	.00	.00	.00
2	008	1.00	.00	1.00	.00	.00
3	009	.00	.00	.00	.00	.00
4	010	1.00	1.00	.00	.00	.00
5	011	1.00	1.00	.00	.00	.00
6						
7						

Prepping data in SPSS: Missing Values for Text Responses

Example: Q3_5_TEXT

	Name	Type	Width	Decimals	Label	Values	Missing	
7	Q3_5_TEXT	String	8	0	If you checked "yes", please stat what other language(s) you can speak:(Mark all that applies.): Other – Text	None	None ...	1



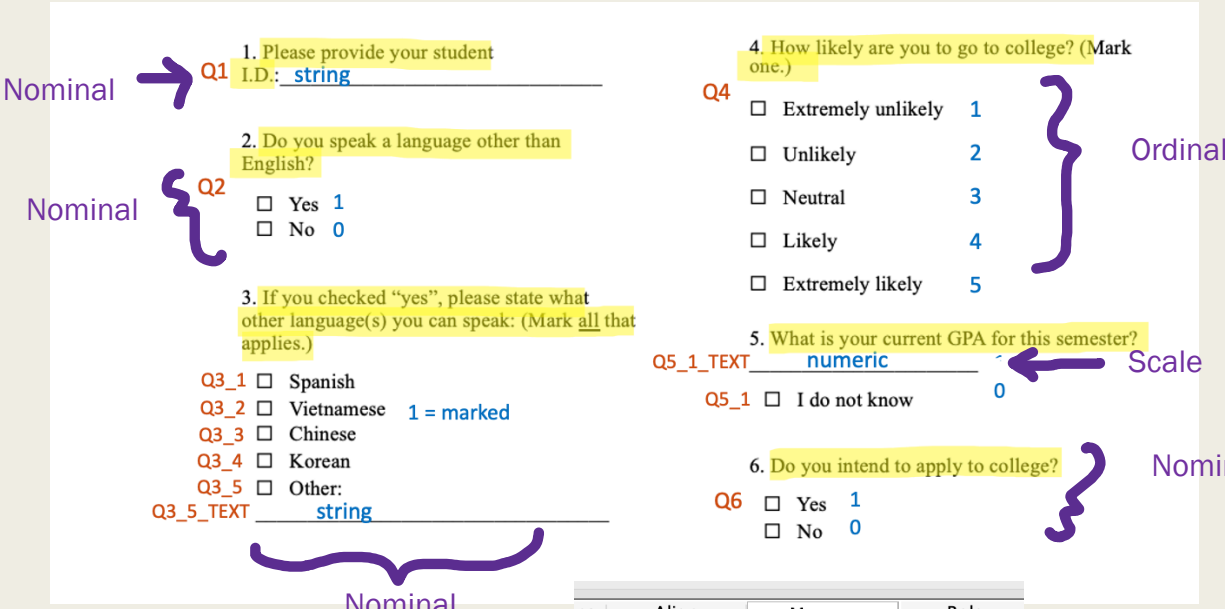
Click the "..." in under the Missing column

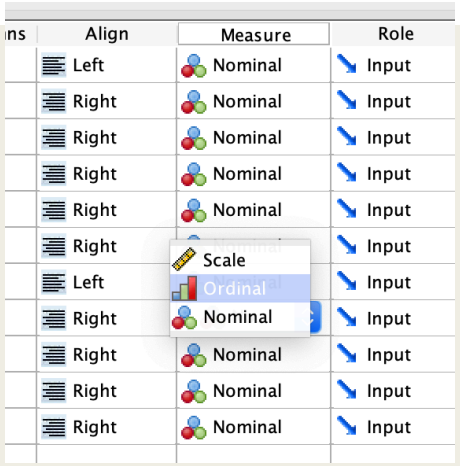
For missing text responses, we traditionally use -9 at C-REAL

Prepping data: Adjusting our “Measure” column

The 3 options are Scale, Ordinal, and Nominal:

- **Scale**: values represent ordered categories with a meaningful metric, so that distance comparisons between values are appropriate
  - Example: score of a student in SAT exam
- **Ordinal**: values represent categories with ranking
  - Example: 1=Highly satisfied, 2=satisfied, 3= neutral, 4= dissatisfied, 5= highly dissatisfied
- **Nominal**: values represent categories with no ranking
  - Example: zip code or gender



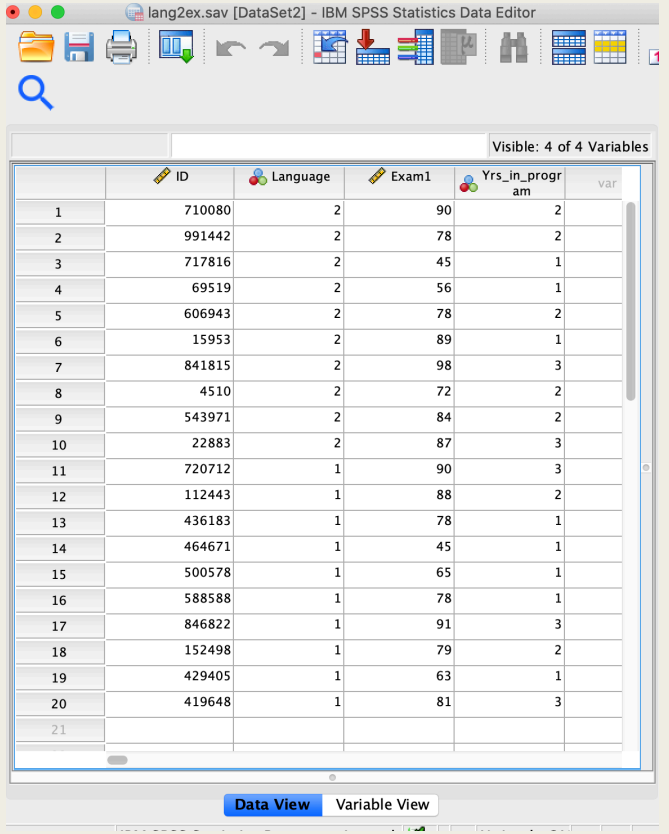


Prepping data: Merging

- Combining pre/post test data

	ID	Attendance	Score_posttest	Score_pretest	var
1	9975309	0	53	48	
2	9948278	1	80	75	
3	9169427	4	95	90	
4	8643086	3	95	90	
5	7988957	1	79	72	
6	7509550	1	67	61	
7	6133087	2	91	86	
8	6115282	2	89	84	
9	5396215	2	86	81	
10	4365151	3	88	83	
11	4303020	1	83	78	
12	3670778	1	63	56	
13	3316521	0	57	54	
14	3168177	0	67	66	
15	2331702	1	61	56	
16	1767276	0	51	46	
17	1328727	1	71	65	
18	1323956	3	93	88	
19	926172	0	50	48	
20	661007	2	85	79	

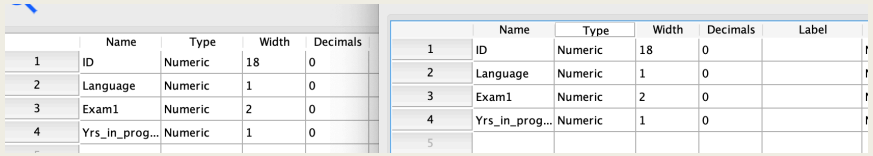
- Want to combine datasets



	ID	Language	Exam1	Yrs_in_program	var
1	710080	2	90	2	
2	991442	2	78	2	
3	717816	2	45	1	
4	69519	2	56	1	
5	606943	2	78	2	
6	15953	2	89	1	
7	841815	2	98	3	
8	4510	2	72	2	
9	543971	2	84	2	
10	22883	2	87	3	
11	720712	1	90	3	
12	112443	1	88	2	
13	436183	1	78	1	
14	464671	1	45	1	
15	500578	1	65	1	
16	588588	1	78	1	
17	846822	1	91	3	
18	152498	1	79	2	
19	429405	1	63	1	
20	419648	1	81	3	
21					

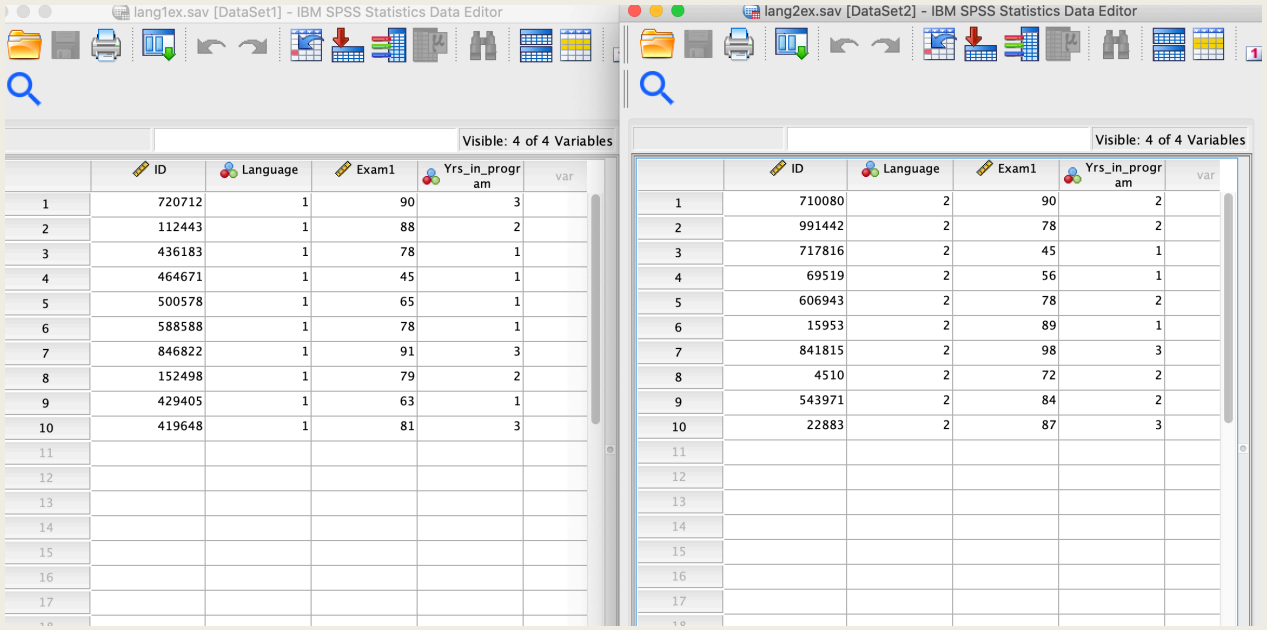
Prepping data: Merging different datasets

1. Have both datasets open
2. Make sure matching variables have the same settings under “Variable View”



	Name	Type	Width	Decimals
1	ID	Numeric	18	0
2	Language	Numeric	1	0
3	Exam1	Numeric	2	0
4	Yrs_in_prog...	Numeric	1	0

	Name	Type	Width	Decimals	Label
1	ID	Numeric	18	0	
2	Language	Numeric	1	0	
3	Exam1	Numeric	2	0	
4	Yrs_in_prog...	Numeric	1	0	
5					



lang1ex.sav [DataSet1] - IBM SPSS Statistics Data Editor

Visible: 4 of 4 Variables

	ID	Language	Exam1	Yrs_in_program	var
1	720712	1	90	3	
2	112443	1	88	2	
3	436183	1	78	1	
4	464671	1	45	1	
5	500578	1	65	1	
6	588588	1	78	1	
7	846822	1	91	3	
8	152498	1	79	2	
9	429405	1	63	1	
10	419648	1	81	3	
11					
12					
13					
14					
15					
16					
17					

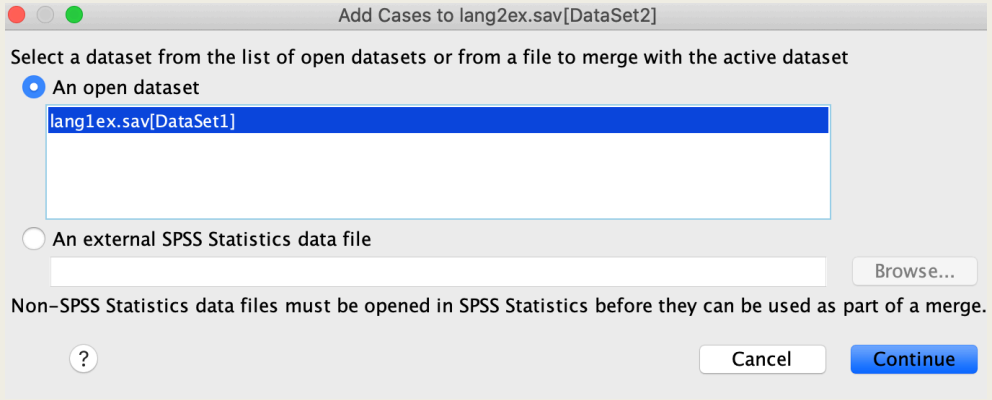
lang2ex.sav [DataSet2] - IBM SPSS Statistics Data Editor

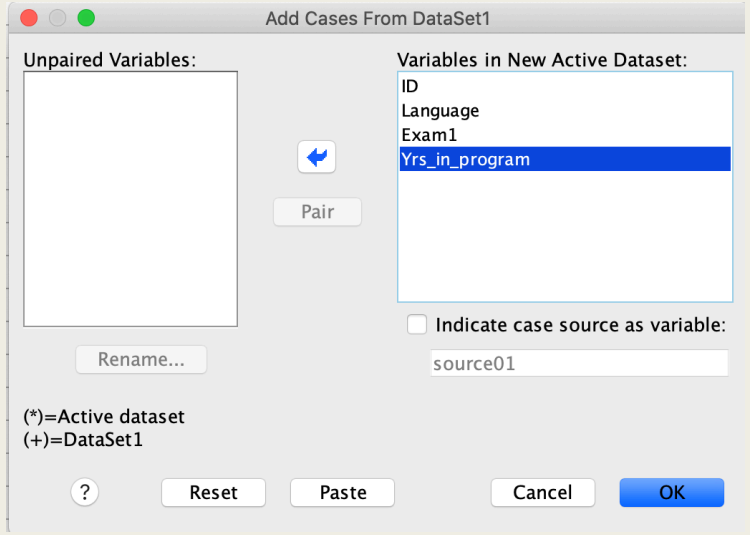
Visible: 4 of 4 Variables

	ID	Language	Exam1	Yrs_in_program	var
1	710080	2	90	2	
2	991442	2	78	2	
3	717816	2	45	1	
4	69519	2	56	1	
5	606943	2	78	2	
6	15953	2	89	1	
7	841815	2	98	3	
8	4510	2	72	2	
9	543971	2	84	2	
10	22883	2	87	3	
11					
12					
13					
14					
15					
16					
17					

Prepping data: Merging different datasets

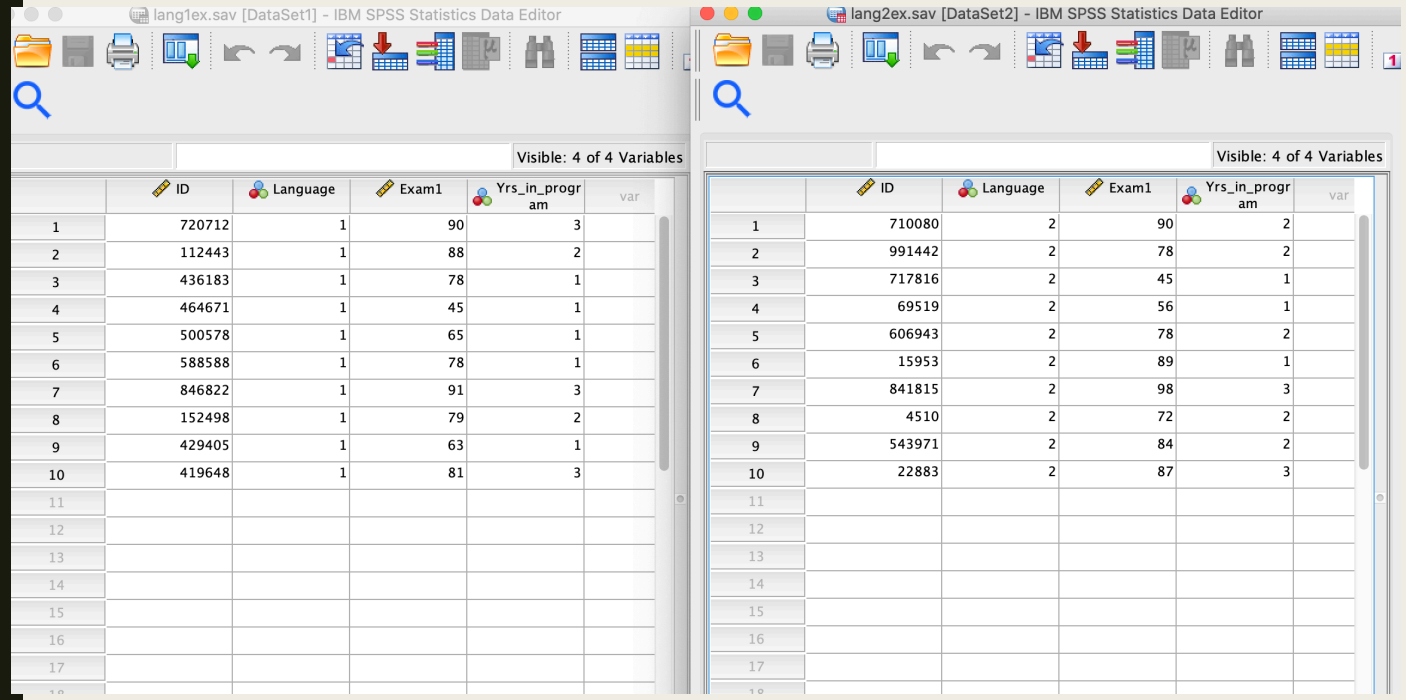
Data > Merge > Add Cases



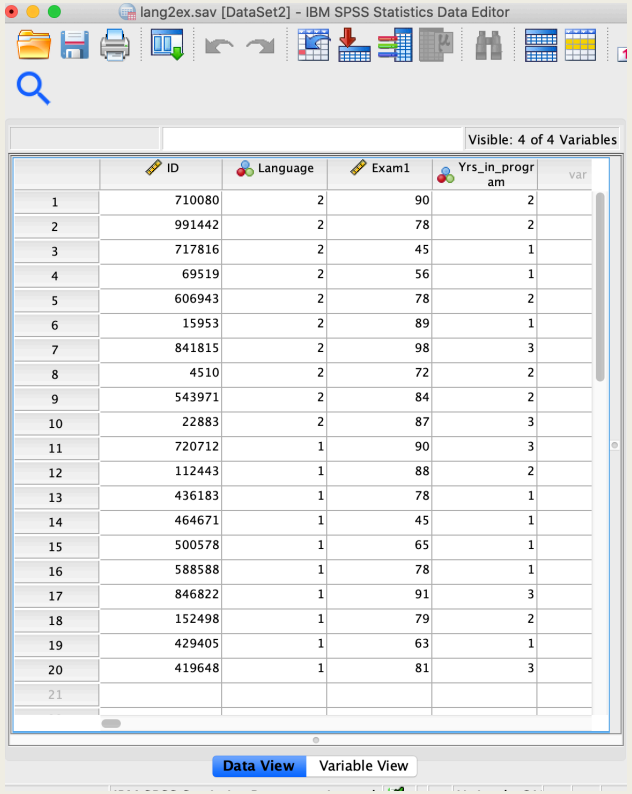


Prepping data: Merging different datasets

Before:

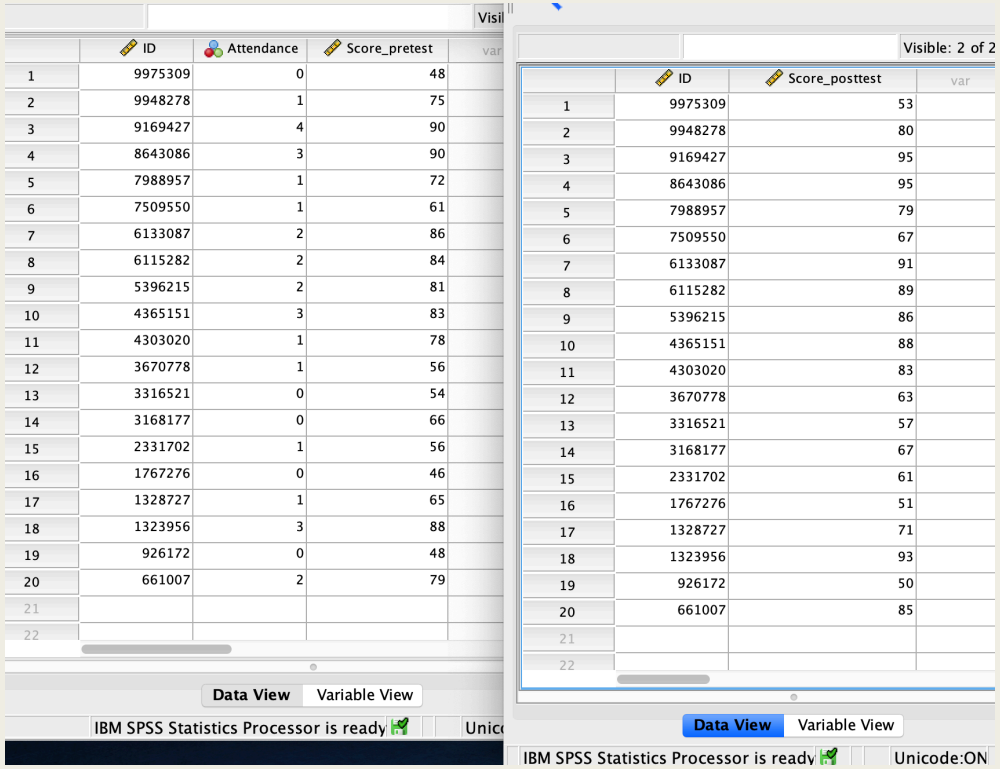


After:



Prepping data: Merging pre/post test data

1. Have both datasets open
2. Make sure there's an identification variable; variable we will use to match the two datasets together
   - In this example, we have ID as the matching variable



	ID	Attendance	Score_pretest
1	9975309	0	48
2	9948278	1	75
3	9169427	4	90
4	8643086	3	90
5	7988957	1	72
6	7509550	1	61
7	6133087	2	86
8	6115282	2	84
9	5396215	2	81
10	4365151	3	83
11	4303020	1	78
12	3670778	1	56
13	3316521	0	54
14	3168177	0	66
15	2331702	1	56
16	1767276	0	46
17	1328727	1	65
18	1323956	3	88
19	926172	0	48
20	661007	2	79
21			
22			

Data View | Variable View

IBM SPSS Statistics Processor is ready

Visible: 2 of 2

	ID	Score_posttest
1	9975309	53
2	9948278	80
3	9169427	95
4	8643086	95
5	7988957	79
6	7509550	67
7	6133087	91
8	6115282	89
9	5396215	86
10	4365151	88
11	4303020	83
12	3670778	63
13	3316521	57
14	3168177	67
15	2331702	61
16	1767276	51
17	1328727	71
18	1323956	93
19	926172	50
20	661007	85
21		
22		

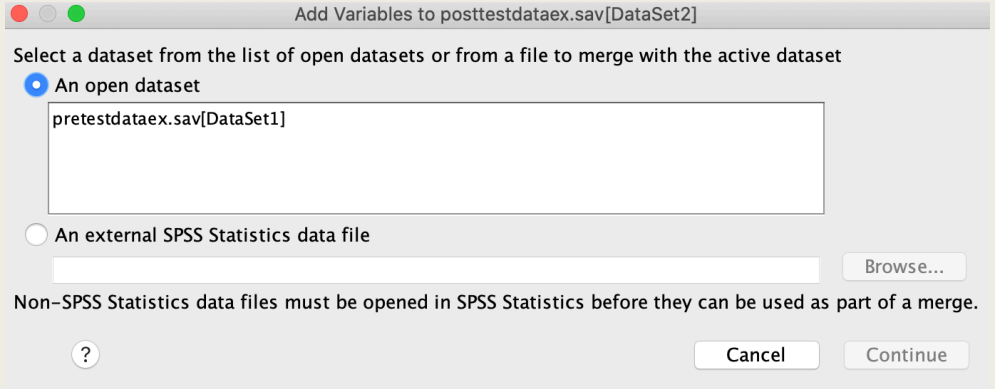
Data View | Variable View

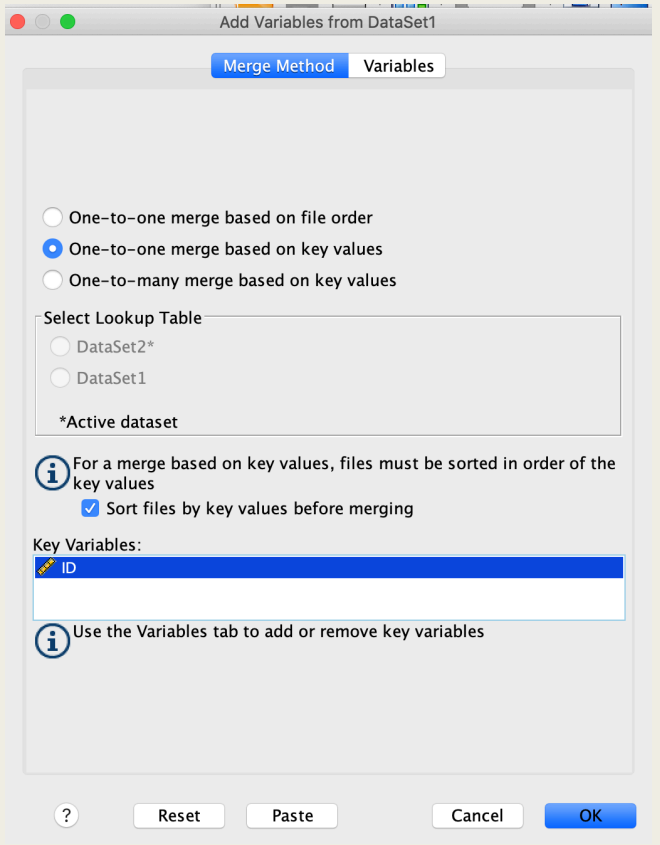
IBM SPSS Statistics Processor is ready

Unicode:ON

Prepping data: Merging pre/post test data

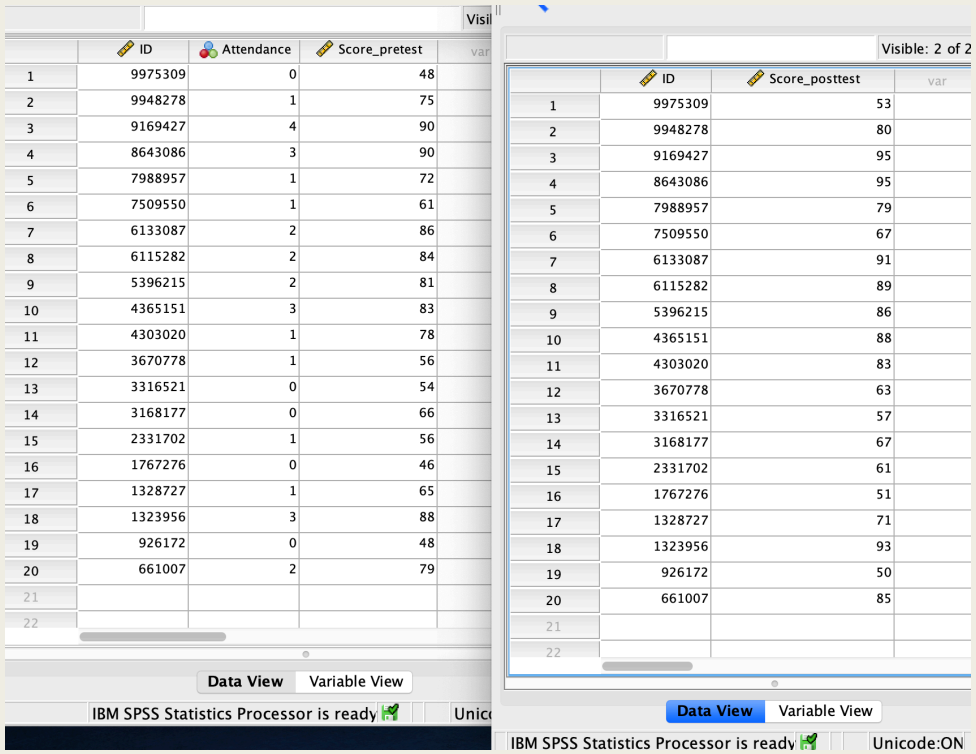
Data > Merge Files > Add Variables





Prepping data: Merging pre/post test data

Before:



	ID	Attendance	Score_pretest
1	9975309	0	48
2	9948278	1	75
3	9169427	4	90
4	8643086	3	90
5	7988957	1	72
6	7509550	1	61
7	6133087	2	86
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10	4365151	3	83
11	4303020	1	78
12	3670778	1	56
13	3316521	0	54
14	3168177	0	66
15	2331702	1	56
16	1767276	0	46
17	1328727	1	65
18	1323956	3	88
19	926172	0	48
20	661007	2	79
21			
22			

Data View | Variable View

IBM SPSS Statistics Processor is ready

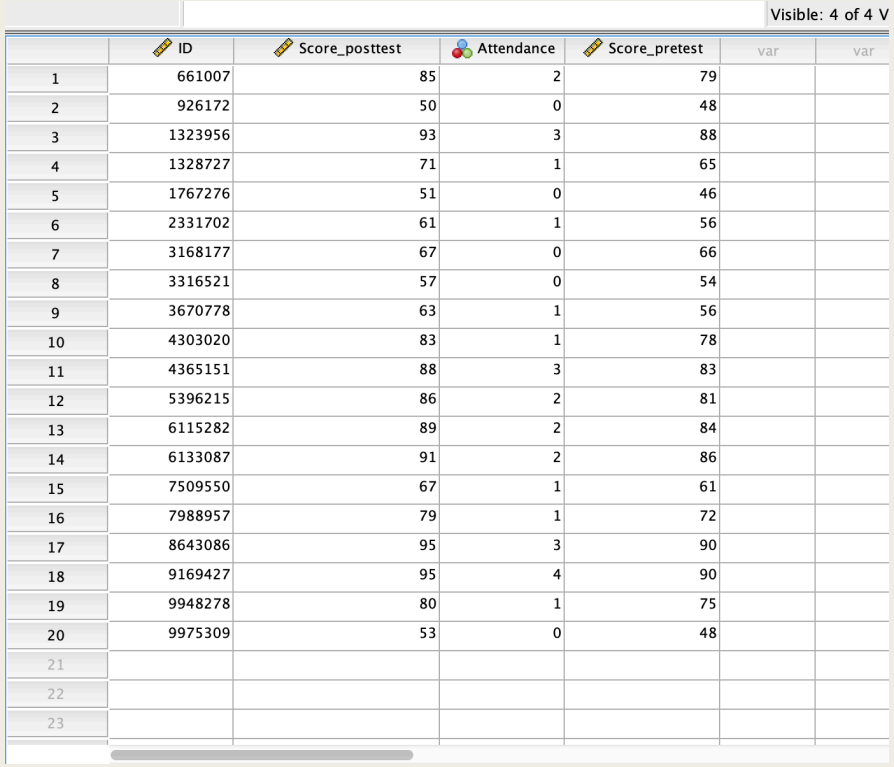
Visible: 2 of 2

	ID	Score_posttest
1	9975309	53
2	9948278	80
3	9169427	95
4	8643086	95
5	7988957	79
6	7509550	67
7	6133087	91
8	6115282	89
9	5396215	86
10	4365151	88
11	4303020	83
12	3670778	63
13	3316521	57
14	3168177	67
15	2331702	61
16	1767276	51
17	1328727	71
18	1323956	93
19	926172	50
20	661007	85
21		
22		

Data View | Variable View

IBM SPSS Statistics Processor is ready | Unicode:ON

After:



Visible: 4 of 4 V

	ID	Score_posttest	Attendance	Score_pretest
1	661007	85	2	79
2	926172	50	0	48
3	1323956	93	3	88
4	1328727	71	1	65
5	1767276	51	0	46
6	2331702	61	1	56
7	3168177	67	0	66
8	3316521	57	0	54
9	3670778	63	1	56
10	4303020	83	1	78
11	4365151	88	3	83
12	5396215	86	2	81
13	6115282	89	2	84
14	6133087	91	2	86
15	7509550	67	1	61
16	7988957	79	1	72
17	8643086	95	3	90
18	9169427	95	4	90
19	9948278	80	1	75
20	9975309	53	0	48
21				
22				
23				

IV: Descriptive Statistics

- A descriptive statistic is a summary statistic that quantitatively describes or summarizes features from a collection of information
  - *I.e. Mean (commonly used as average), standard deviation, frequencies, etc..*
- Some questions we can ask:
  - *What is the average GPA of our sample?*
  - *How much of the sample is Extremely likely to go to college?*

Descriptive Statistics

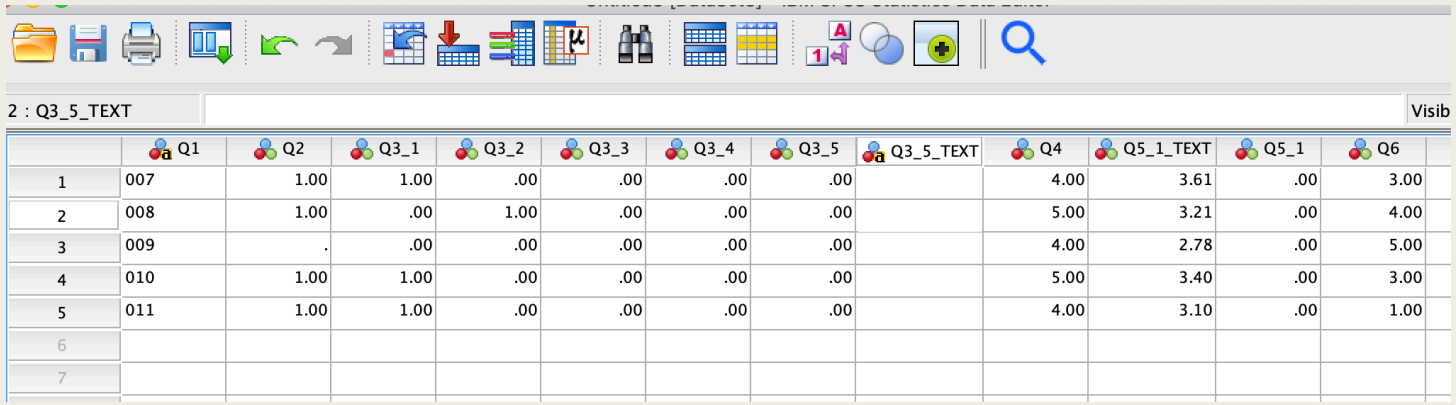
Frequencies

- How many participants speak a language other than English?
- How much of the sample is Extremely likely to go to college?

Descriptives

- What is the average GPA of our sample?

Example dataset:



2 : Q3_5_TEXT

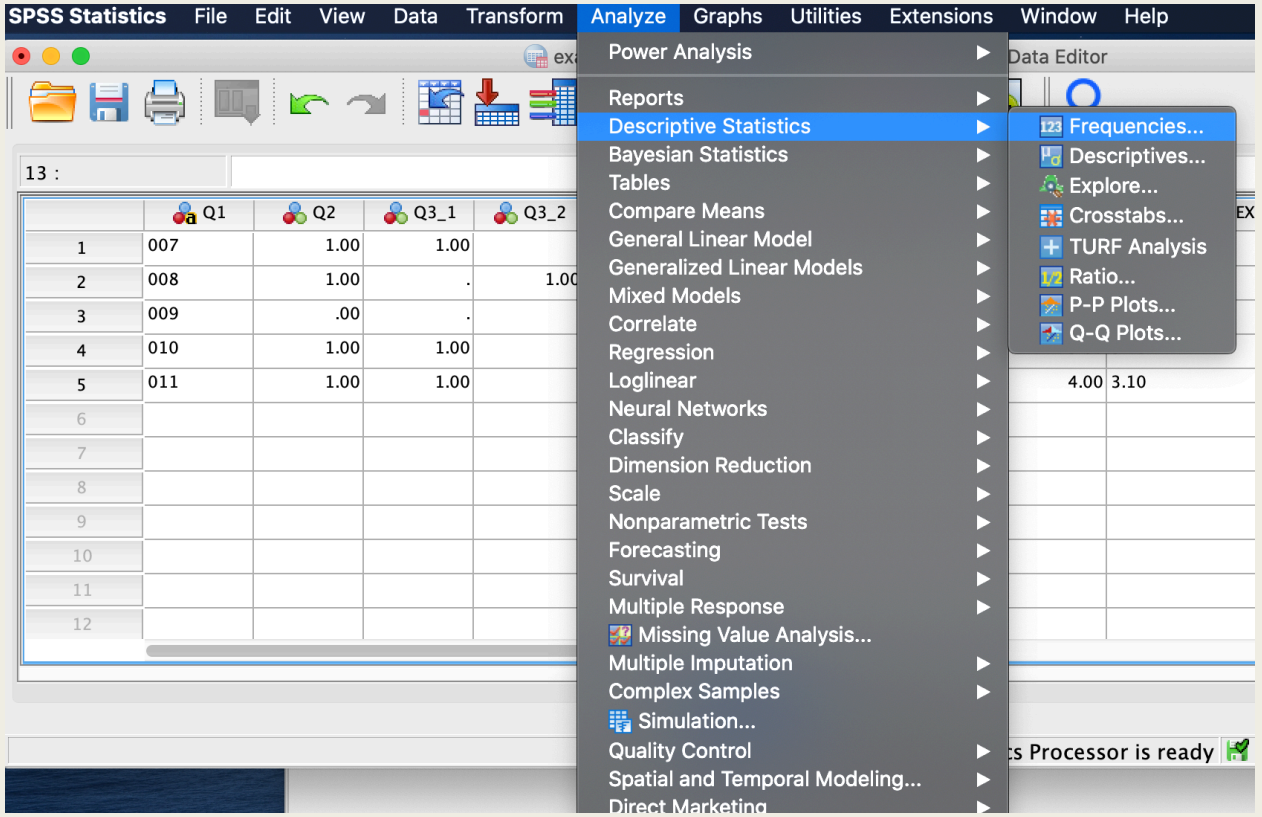
Visib

	Q1	Q2	Q3_1	Q3_2	Q3_3	Q3_4	Q3_5	Q3_5_TEXT	Q4	Q5_1_TEXT	Q5_1	Q6
1	007	1.00	1.00	.00	.00	.00	.00		4.00	3.61	.00	3.00
2	008	1.00	.00	1.00	.00	.00	.00		5.00	3.21	.00	4.00
3	009	.	.00	.00	.00	.00	.00		4.00	2.78	.00	5.00
4	010	1.00	1.00	.00	.00	.00	.00		5.00	3.40	.00	3.00
5	011	1.00	1.00	.00	.00	.00	.00		4.00	3.10	.00	1.00
6												
7												

Answering our questions: Frequencies

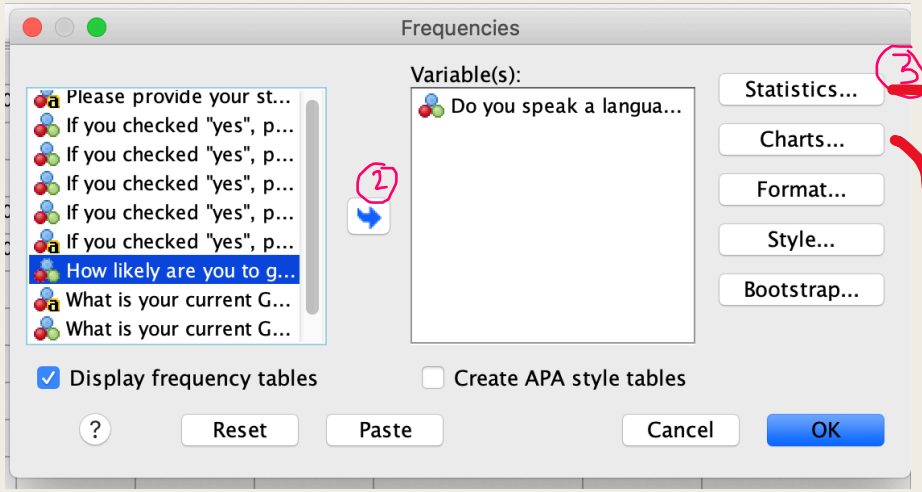
Analyze > Descriptive Statistics > Frequencies

- How many participants speak a language other than English?
- How much of the sample is Extremely likely to go to college?

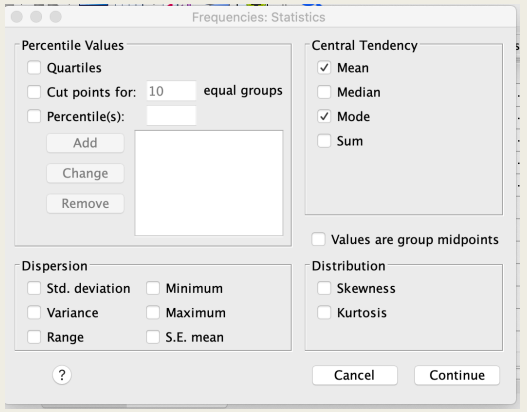


Answering our questions: Frequencies (cont.)

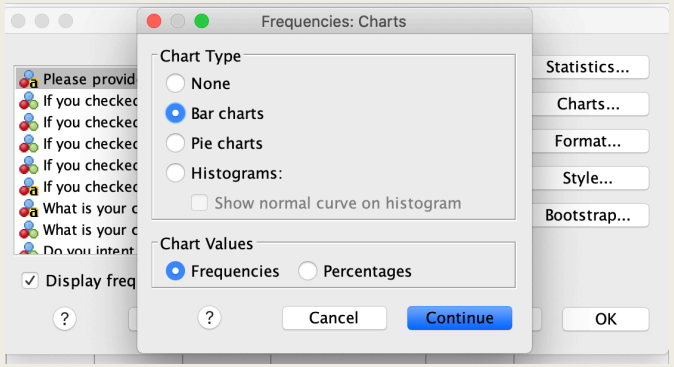
- How many participants speak a language other than English?
- How much of the sample is Extremely likely to go to college?



Statistics



Charts



Our results:

Statistics

Frequencies

Statistics

		Do you speak a language other than English?	How likely are you to go to college? (Mark one.)
N	Valid	5	5
	Missing	0	0
Mean		.8000	4.4000
Mode		1.00	4.00

Frequency Table

Do you speak a language other than English?

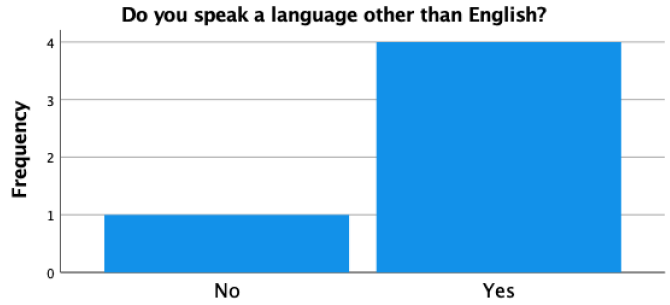
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	20.0	20.0	20.0
	Yes	4	80.0	80.0	100.0
	Total	5	100.0	100.0	

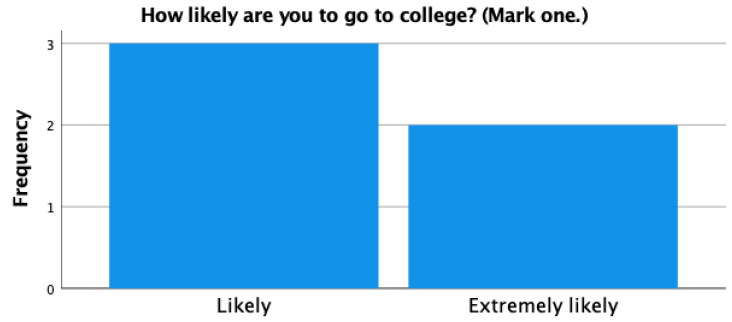
How likely are you to go to college? (Mark one.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Likely	3	60.0	60.0	60.0
	Extremely likely	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

Charts

Bar Chart





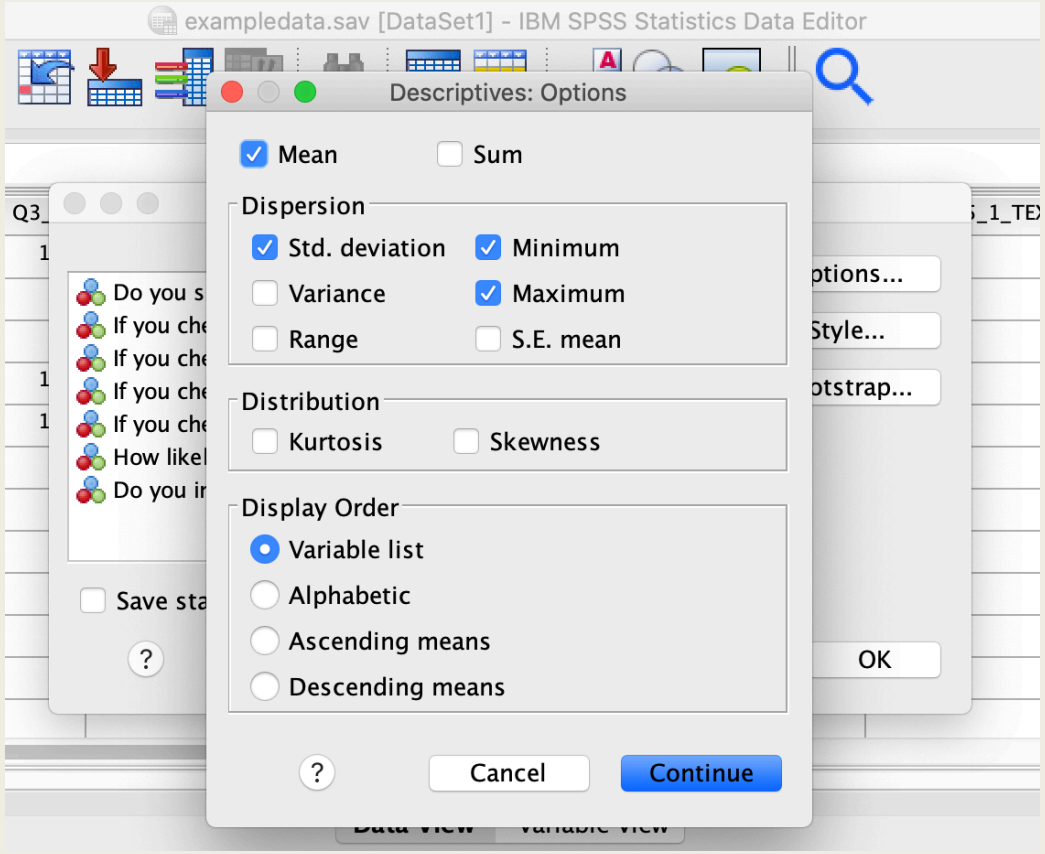
- How many participants speak a language other than English?
  - 80% of the participants in our sample speak a language other than English (N=5)
- How much of the sample is Extremely likely to go to college?
  - 40% of the participants in our sample are Extremely likely to go to college (N=5)

Answering our questions: Descriptives

- What is the average GPA of our sample?

Same path as Frequencies

Analyze > Descriptive Statistics > Descriptives



Our results:

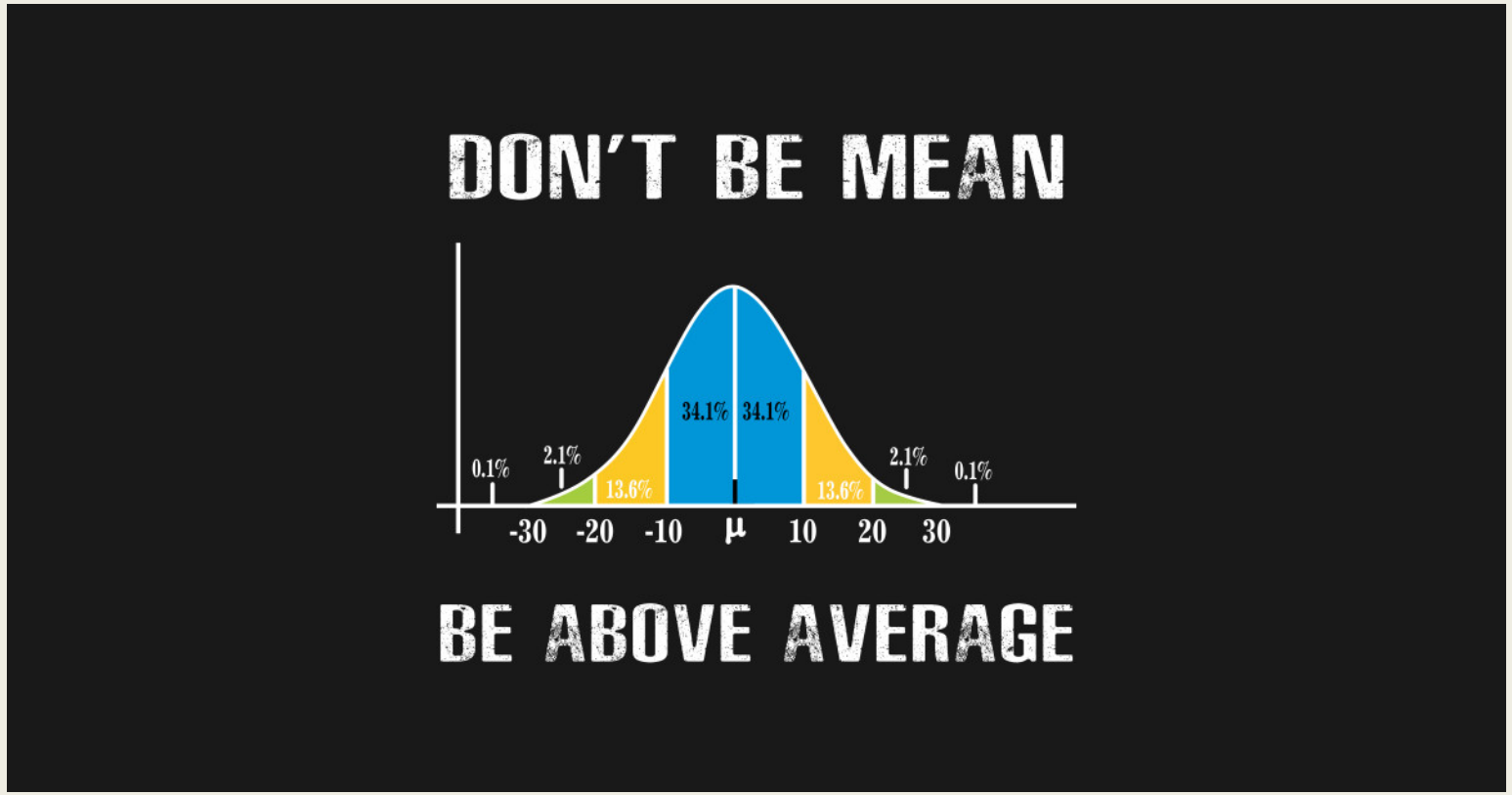
Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
What is your current GPA for this semester? – Text	5	3	4	3.22	.313
Valid N (listwise)	5				

- What is the average GPA of our sample?
  - The average GPA of our sample was 3.22 (N=5, *SD*=.313)

THE END ☺


DON'T BE MEAN
0.1%
2.1%
13.6%
34.1%
34.1%
13.6%
2.1%
0.1%
-30
-20
-10
μ
10
20
30
BE ABOVE AVERAGE