Data Analysis Using SAS for Windows

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Exercise set one, 2007

1) Read in the following data into SAS (Give the dataset a name that you prefer). The character variables are ID and group. The numeric variables are age, digit, word, IQ and vocab. These (fictitious) data are from a study examining memory span for digits and words. Participants are divided into two groups according to the time that they were tested (1 indicates morning and 2 indicates evening). Three background information variables were recorded (age in years, IQ and vocabulary level). Both IQ and vocabulary levels are standardized to a mean of 100 and a standard deviation of 15.

ID	group	age	digit	word	IQ	vocab
1	1	23	5	4	116	92
2	1	20	5	6	120	105
3	1	25	6	7	105	117
4	1	28	4	9	130	122
5	2	24	8	8	108	101
6	2	26	9	4	100	90
7	2	21	6	6	103	98
8	2	22	8	6	114	109

2) Set the following options for subsequent output.
   a. No date
   b. Starting page of output is 20

3) Print out the data with the following options:
   a. Set a general title as "Complete data"
   b. double-space the output
   c. Do not print the SAS default observation number

4) Get the descriptive statistics for digit and word in the dataset according to the following options:
   a. Set title to "Mean scores for dependent variables"
   b. Set the maximum number of decimal place to 2
   c. Obtain the following: mean, standard deviation, standard error, minimum and maximum scores

5) Run a correlation matrix for all the numeric data according to the following options:
   a. Set title to "Correlation between all variables"
   b. Rank the correlations for each variable from highest to lowest
   c. Do not print simple descriptive statistics

Bonus questions

This section has a few questions that we did not cover in the lecture. However, there are abundant resources on the internet relating to these techniques. If you have time, find out how to conduct these analyses.

A) The researcher wants to know if there is a testing time effect in memory span. Before comparing the groups' performance on the dependent variables, she should make sure the two groups are equivalent in their background skills. A t-test is sufficient to answer this question. How can she do a t-test? Also, set an appropriate title for the analysis.

B) After confirming the two groups are the same in the background skills, how can she compare the groups? You can either do a t-test or an one-way ANOVA. Again, set an appropriate title for the analysis. How should you interpret the output?

Extra Tips: Steps to import dataset from Excel (or other sources) to the SAS environment:

- Import from a different program:
  - File menu → Import data
  - Choose the data type from the drag-down menu under the checked box "Standard data source"
  - Choose the location (folder) in which the data set is stored
  - Choose the worksheet that has the data stored
  - Choose the library that you want the data set to be in (e.g., WORK) and provide a name for the data set
  - If you click "Next", SAS will prompt you to create a new procedure name called PROC IMPORT. I usually simply click "Finish" at this stage.
  - Go to the LOG window and see if the data set is successfully created in the library you specified.

- Similarly, you can EXPORT data sets in SAS to different formats. The first step is File menu → Export data, and then you can just follow the prompts. Basically, it's the reverse order of the steps involved in importing data.