

## STAT 517: Final Exam

Provide code, output, and answers in either Word, PDF, RTF, or text format; try to combine files as much as possible before sending them to me. Work independently.

1. A hostess at a restaurant recorded tips received each day over the course of 3 weeks.
  - (a) Read in the 3 files using INFILE and INPUT statements, and combine them into a single data set (stack them, do not merge them).
  - (b) Print the file with an attractive title and variable formats.
  - (c) Extra Credit. The accompanying file contains a list of three text files to be read into SAS. Move your 3 weekly files into each of the locations listed (if this isn't possible on your computer, simply store the files in 3 different directories; be sure to change the file list appropriately). Write a macro that will read all the weekly tip filenames from the master file, and then stack them and print them. The macro should be able to handle an indeterminate number of files. Test your macro on the file that accompanies this problem.
  
2. We will use the tip data (you can stack the files manually or use the file created in 1(a)) for the following exercise. You can use SQL or the DATA step, or a combination of both.
  - (a) Create a variable (e.g., WeekStart) that computes the date of the preceding Monday for each date; if the date occurs on a Monday itself, then set WeekStart to that date. This variable will be our grouping variable. Print the new data set.
  - (b) Compute the sum for each of the four pay periods defined by WeekStart. Print an output table listing the date of the Monday starting each week, the sum in tips, the number of days worked, and the average in tips. Be sure to use attractive formats for dates and dollar amounts.
  - (c) Grad students should use CASE in PROC SQL to indicate weeks when the hostess made over \$80 in tips.
  
3. I have included an additional visual acuity measurement from the macular hole study in the accompanying file.
  - (a) Convert the data file into the following format using PROC TRANSPOSE. More than one transpose may be necessary.

Patient	Group	Gender	Age	Month	Snellen	ETDRS
A0457	Control	Male	71	0	36	.18
A0457	Control	Male	71	3	24	.19
A0457	Control	Male	71	12	60	.25
A0457	Control	Male	71	24	36	.33
A1332	Control	Female	72	0	36	.30
...						

- (b) From the table above, graduate students should convert Snellen back to its original format (e.g., “6 by 36”).
4. Import the data from the accompanying Excel files into SAS. In all cases, combine the tables using both the `DATA` step and `PROC SQL`. Be sure to use attractive formats for dates and dollar amounts.
- (a) Perform a simple match merge on Name in both a SAS data step and `PROC SQL` (Use a full join for `SQL`). Comment carefully on differences in the two approaches.
  - (b) Construct an inner join in `PROC SQL` on Name and Semester; generate the same output table in SAS with a merge.
  - (c) Construct a left join in `PROC SQL` on Name and Semester; generate the same output table in SAS with a merge.
  - (d) Grad students should generate a full join in `PROC SQL`, and then duplicate the result using SAS’s `DATA` step commands.