ST 555 - Programming HW #1

First-time Directions:
In addition to completing the tasks given below, all programming assignments should include the following elements. These will not be repeated on future assignments, unless changes are necessary.

- Every program you submit for grading must include a header section that includes your full name, course and section number, last date you edited the program, and a brief description of the intent of the program. (It may be easiest to copy my header from in-class code and make the necessary updates.)
- Your program must include clear and concise comments to explain the intent of your code. Keep in mind that comments are not just for you - they are also for your colleagues and clients. There are typically multiple ways to achieve the same result, so use brief comments to explain your reasoning.
- The only file you need to submit is your SAS code. The file must be saved as a .SAS file. No other submission types will be graded (i.e. you will get a zero on the assignment.) The TA can submit your code to see your output and log.
- Assignments are graded based on the rubric provided on the Moodle page. Please read through the rubric and make sure you understand it. Because the same rubric is used for every assignment you will always know what is expected of each program. The rubric weights **do** change across assignments as we focus on different concepts. The weights for each assignment are posted with the due date and any assignment documents.
- Finally, while I can't require you to do the following - I strongly suggest you:
  - Before submitting your code, close and reopen SAS then run your entire program. Doing so ensures that no forgotten options or data sets are affecting your output. This should create a scenario in which you and the TA are looking at the same output.
  - Even after submission (or before, if you prefer) you should to experiment with the code. Each assignment will be asking you for a specific task, but that does not mean it requires mastery of a programming technique. Try changing variables, or formats, or programming the same output a different way and see how it affects your results. Then figure out why! As an example, I won't ask you about the IB and PDV contents on every assignment, but you should always know what is present in them!

Assignment:

1. (10%) Create a library named "HW1" and use it to store all data sets created in this assignment.
2. (10%) Notice there are two non-SAS data sets on the shared drive named "bankdata.txt" and "bankdata_t.txt." Create a *fileref* for each data set and name them "Bank" and "Bank_t."
3. (40%) Read in the "bankdata.txt" file two times (using two separate `DATA` steps) using the following specifications. Each data set should be created directly in your "HW1" library, so don't create any temporary copies.
   (a) Use only simple list input and name the data set "Bank1". The data set should contain five variables: FNAME, LNAME, ACCTNUM, BALANCE, RATE.
   (b) Read in the data again, using only simple list input, and name the data set "Bank2". The client now wants the data set to contain four variables: NAME, ACCTNUM, BALANCE, RATE. The default length for all variables is 8 - but there are names that are longer. Use the following `LENGTH` statement in your `DATA` step to increase the length for this variable.

```
LENGTH name $ 16;
```

4. (20%) Use a copy of the `DATA` step for "Bank1" above to read in the "bankdata_t.txt" file. Name this data set "bank3".
5. (20%) In your code provide answers to the following questions:
   (a) When creating "bank2" what prevented SAS from putting the first and last names together into a single value?
   (b) When using the `LENGTH` statement does its location in the `DATA` step affect the descriptor portion? What about the content portion?
   (c) How do the SAS data sets compare for "bank1" and "bank3?"
   (d) Open the two text files used to create "bank1" and "bank3" - how do they compare?
   (e) What explains the difference in the two SAS data sets based on what you see in the text file?