

Lab 5 *Some of these problems may be more challenging than others. Please feel free to work with others, attend office hours, or post on the course discussion forum if you need help. While collaboration with other students is encouraged, each student is responsible for submitting his or her own work. This assignment should be submitted in one well-commented SAS program. For any questions that require a written answer, do so in the SAS comments. Be sure to re-name the uploaded SAS scripts according to the naming convention `LastnameFirstinitial_Lab#.sas` (e.g., `PileggiS_Lab5.sas`).*

The `02012.sas7bdat` contains information about medalists from the 2012 Olympics. **Note that this data set starts with an “oh” and not a “zero”.**

1. Include the options required for debugging SAS macros at the top of your SAS program.
2. Locate the `02012.sas7bdat` from the shared drive or PolyLearn and save it to a location on your computer. Create a macro variable called `path` that corresponds to this location on your computer.
3. Use the `path` macro variable to create a SAS library called `[x]` to access the `02012.sas7bdat` data set.
4. Write a two to three SAS procedures to help you familiarize yourself with the data and summarize the data. How many observations are there? What does an observation represent? (*This is key to understanding this data set, so you may want to confirm your answer with your neighboring students or the instructor.*) Note your findings in a comment in your SAS code.
5. Utilize a procedure to determine the countries represented in this data set. How many medalists did the US have? Note your findings as a comment in your SAS code.
6. Now, *for the United States only*, utilize a procedure to determine in which sports the United States medalled (this should match the output below). In which sport did the US have the most medalists? Note your findings as a comment in your SAS code.

Total number of medal winners by sport in United States of America**The FREQ Procedure**

Sport	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Archery	3	4.92	3	4.92
Cycling - Road	1	1.64	4	6.56
Diving	6	9.84	10	16.39
Gymnastics - Artistic	5	8.20	15	24.59
Judo	2	3.28	17	27.87
Rowing	13	21.31	30	49.18
Shooting	2	3.28	32	52.46
Swimming	29	47.54	61	100.00

7. Print the variables `name country sport gold silver bronze total` for the 5 medalists who won in "Gymnastics - Artistic" for the US. This should match the output below.

Gymnastics - Artistic Medalists in the United States

Obs	Name	Country	Sport	Gold	Silver	Bronze	Total
3	Kyla Ross	United States of America	Gymnastics - Artistic	1	0	0	1
5	Gabrielle Douglas	United States of America	Gymnastics - Artistic	2	0	0	2
9	Mc Kayla Maroney	United States of America	Gymnastics - Artistic	1	0	0	1
20	Jordyn Wieber	United States of America	Gymnastics - Artistic	1	0	0	1
53	Danell Leyva	United States of America	Gymnastics - Artistic	0	0	1	1

Examine this output closely. How many Gymnastic - Artistic medalists did the US have? And how many *total* medals did they earn all together? Note your findings as a comment in your SAS code.

8. Recreate the output shown below, which summarizes the total number of medalists (`N Obs`) and total number of medals earned (`Sum`) by sport for the United States of America.

Total number of medal winners and medals earned by sport in United States of America**The MEANS Procedure**

Analysis Variable : Total		
Sport	N Obs	Sum
Archery	3	3
Cycling - Road	1	1
Diving	6	6
Gymnastics - Artistic	5	6
Judo	2	2
Rowing	13	13
Shooting	2	2
Swimming	29	46

Note the Gymnastics - Artistic line should correspond to your answers for the previous question.

9. Copy and paste the code from the previous question and convert it to a *macro module* called `country_report` that can produce the above summary for any given country. This macro module should have a parameter value called `my_country`, where the default value of `my_country` corresponds to the US. The title of the output should also be stated as shown in the previous output.
10. Execute `country_report` macro module as follows:
 - (a) with the default value for `my_country`
 - (b) for Germany
 - (c) another country of your choice
 - (d) another country of your choice

The Germany output should match the output shown below.

Total number of medal winners and medals earned by sport in Germany

The MEANS Procedure

Analysis Variable : Total		
Sport	N Obs	Sum
Canoe Slalom	2	2
Cycling - Mountain Bike, Cycling - Track	1	1
Cycling - Road	1	1
Cycling - Road, Cycling - Track	1	1
Cycling - Track	4	4
Equestrian	5	7
Fencing	1	1
Gymnastics - Artistic	1	1
Judo	4	4
Rowing	17	17
Table Tennis	1	1

11. Create a temporary data set called `olympics` that copies the `02012` data set. Create a variable name `Peter` which takes on a value of `yes` if “Peter” is in the `name` field and `no` otherwise. Then utilize a SAS procedure to print the variables `name country sport gold silver bronze total peter` for all of the medalists named “Peter”. Your results should match the results below, including the title.

Medalists named Peter

Obs	Name	Country	Sport	Gold	Silver	Bronze	Total	Peter
97	Peter Chambers	Great Britain	Rowing	0	1	0	1	yes
131	Peter Bakare	Great Britain		yes
260	Peter Robert Russell Wilson	Great Britain	Shooting	1	0	0	1	yes
367	Peter Vanderkaay	United States of America	Swimming	0	0	1	1	yes
436	Peter Hochschorner	Slovakia	Canoe Slalom	0	0	1	1	yes
494	Peter Thomsen	Germany	Equestrian	1	0	0	1	yes

12. Copy and paste your code from question 11. Convert this code to a macro module called `name_look_up`. This macro module should have a parameter value called `my_name`, where the default value of `my_name` corresponds to `Peter`.
13. Execute `name_look_up` macro module as follows:
- with the default value for `my_name` (should match output from question 11)
 - for Daniel (output shown below)

(c) another name of your choice

(d) another name of your choice

Medalists named Daniel

Obs	Name	Country	Sport	Gold	Silver	Bronze	Total	Daniel
85	Daniel Purvis	Great Britain	Gymnastics - Artistic	0	0	1	1	yes
147	Daniel Gyurta	Hungary	Swimming	1	0	0	1	yes
439	Daniel Noonan	Australia	Rowing	0	0	1	1	yes