Lab 16 *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_Lab16.sas`).

Recall Lab 14 and Lab 15 where you created a table of descriptive statistics of the 2012 Olympic Medalists by country using the `O2012.sas7bdat` data set (this data set name starts with an "oh" and not a zero). In this lab, you are going to follow a series of steps to re-create that table using `PROC REPORT`. Skip to page 3 to see an example table.

1. Create a SAS library to access the `O2012.sas7bdat`. Follow the subsequent steps to create the table.
2. Use `PROC REPORT` to create a table with countries along the rows and a single column `N`, which represents the number of medalists per country.

Country	N
Australia	25
Azerbaijan	1
Belarus	4
Belgium	3

3. Copy and paste your SAS code from the previous step. Modify this code so that the table now has three additional columns for the variables `total`, `age`, and `weight`.

Country	N	Total	age	weight
Australia	25	32	611	1829
Azerbaijan	1	1	18	56
Belarus	4	4	118	273
Belgium	3	3	53	199

4. Copy and paste your SAS code from the previous step. Modify this code to adjust the statistics that are displayed for the variables. For `total`, display the sum, mean, and max; and for `age` and `weight` display the average.

		Total				
Country	N	SUM	MEAN	MAX	age	weight
Australia	25	32	1.28	4	24.44	73.16
Azerbaijan	1	1	1	1	18	56
Belarus	4	4	1	1	29.5	68.25

5. Copy and paste your SAS code from the previous step. Modify this code to include the variable `gender` on the columns of your table.

		Total					Gender	
Country	N	SUM	MEAN	MAX	age	weight	F	M
Australia	25	32	1.28	4	24.44	73.16	19	6
Azerbaijan	1	1	1	1	18	56	.	1
Belarus	4	4	1	1	20.5	68.25	3	1

6. Copy and paste your SAS code from the previous step. Modify this code to create two additional columns in your table that represent the *proportion* of the country's medalists that are male/female. Note that `PROC REPORT` doesn't have an option for a row percent like `PROC TABULATE`, so you'll need to *compute* this value.

		Total					Gender			
Country	N	SUM	MEAN	MAX	age	weight	F	M	prop_m	prop_f
Australia	25	32	1.28	4	24.44	73.16	19	6	0.24	0.76
Azerbaijan	1	1	1	1	18	56	.	1	1	.
Belarus	4	4	1	1	20.5	68.25	3	1	0.25	0.75

7. Copy and paste your SAS code from the previous step. Modify this code to alter various display attributes.

   (a) Suppress printing of the gender *counts* by using an option on the `DEFINE` statement for `gender`.

   (b) Create a column header called "Demographics" that spans the age, weight, and gender statistics.

   (c) Adjust variable labels as shown in the final table on page 3.

   (d) Round the average age and average weight statistics to one decimal; round the average total statistic to two decimals. *Note: The PERCENT format is standard, built-in SAS format. This is not the same format as we used in the previous lab.*

   (e) Apply the *PERCENT* format to your gender variables so that values display as percentages rather than proportions.

   (f) Highlight the cells (in the color of your choice) that correspond to countries with more than 20 medalists using the `style(column)={backgroundcolor=mycolor}` *option* on a `DEFINE` statement.

   (g) The `MISSTEXt` option in `PROC TABULATE` allowed you to easily change the display of missing values. There is no option equivalent in `PROC REPORT`. There are ways you can change the display of missing values using formatting or other global options, but we are going to skip that for this lab. Leave the missing values as a period.

8. Export your final table to a pdf in the style of your choice (upload this pdf to PolyLearn in addition to your SAS code). Open your final table, and verify that it appears as the table on page 3.

		Total Medals			Demographics			
Country	# Medalists	Sum	Ave per Athlete	Max Per Athlete	Ave Age	Ave Weight	% Male	% Female
Australia	25	32	1.28	4	24.4	73.2	24.0%	76.0%
Azerbaijan	1	1	1.00	1	18.0	56.0	100.0%	.
Belarus	4	4	1.00	1	29.5	68.3	25.0%	75.0%
Belgium	2	2	1.00	1	26.0	61.0	50.0%	50.0%
Brazil	5	5	1.00	1	23.4	81.6	60.0%	40.0%
Canada	25	25	1.00	1	28.2	77.8	44.0%	56.0%
Colombia	3	3	1.00	1	26.7	64.7	66.7%	33.3%
Croatia	4	4	1.00	1	23.5	94.0	100.0%	.
Cuba	5	5	1.00	1	26.4	78.0	60.0%	40.0%
Czech Republic	2	2	1.00	1	27.0	85.5	100.0%	.
Democratic People's Republic of Korea	5	5	1.00	1	23.0	57.2	40.0%	60.0%
Denmark	7	7	1.00	1	29.1	76.7	85.7%	14.3%
Egypt	1	1	1.00	1	21.0	82.0	100.0%	.
France	27	33	1.22	3	25.1	77.0	51.9%	48.1%
Georgia	1	1	1.00	1	20.0	66.0	100.0%	.
Germany	38	40	1.05	2	27.5	81.8	71.1%	28.9%
Great Britain	44	44	1.00	1	28.5	81.9	75.0%	25.0%
Greece	1	1	1.00	1	25.0	90.0	100.0%	.
Hungary	4	4	1.00	1	26.3	68.8	75.0%	25.0%
India	2	2	1.00	1	27.5	.	100.0%	.
Indonesia	1	1	1.00	1	23.0	62.0	100.0%	.
Italy	14	17	1.21	2	29.4	76.4	64.3%	35.7%
Japan	22	24	1.09	2	23.6	67.5	59.1%	40.9%
Kazakhstan	4	4	1.00	1	27.3	64.8	25.0%	75.0%
Lithuania	1	1	1.00	1	15.0	64.0	.	100.0%
Mexico	6	6	1.00	1	20.2	53.2	33.3%	66.7%
Mongolia	2	2	1.00	1	27.0	86.5	100.0%	.
Netherlands	17	18	1.06	2	27.4	70.1	5.9%	94.1%
New Zealand	14	14	1.00	1	32.5	79.0	71.4%	28.6%
Norway	2	2	1.00	1	25.0	.	100.0%	.
People's Republic of China	50	53	1.06	3	23.0	66.2	52.0%	48.0%
Poland	3	3	1.00	1	27.3	65.3	.	100.0%
Qatar	1	1	1.00	1	41.0	70.0	100.0%	.
Republic of Korea	19	22	1.16	2	26.8	70.3	52.6%	47.4%
Republic of Moldova	1	1	1.00	1	19.0	53.0	.	100.0%
Romania	10	10	1.00	1	22.3	63.2	20.0%	80.0%
Russian Federation	29	32	1.10	2	23.7	75.7	55.2%	44.8%
Serbia	1	1	1.00	1	34.0	85.0	100.0%	.
Singapore	1	1	1.00	1	25.0	57.0	.	100.0%
Slovakia	4	4	1.00	1	31.0	72.0	75.0%	25.0%
Slovenia	4	4	1.00	1	38.0	81.0	75.0%	25.0%
South Africa	6	6	1.00	1	24.5	72.3	100.0%	.
Spain	2	2	1.00	1	25.0	57.5	.	100.0%
Sweden	2	2	1.00	1	41.5	70.0	50.0%	50.0%