

## SAS Programming with SAS Enterprise Guide Tracy Stegmair, Texas Woman's University

### PROC IMPORT

Enterprise Guide does not offer the best code for import purposes. However, PROC IMPORT in Base SAS is relatively straight forward code:

- From Excel –

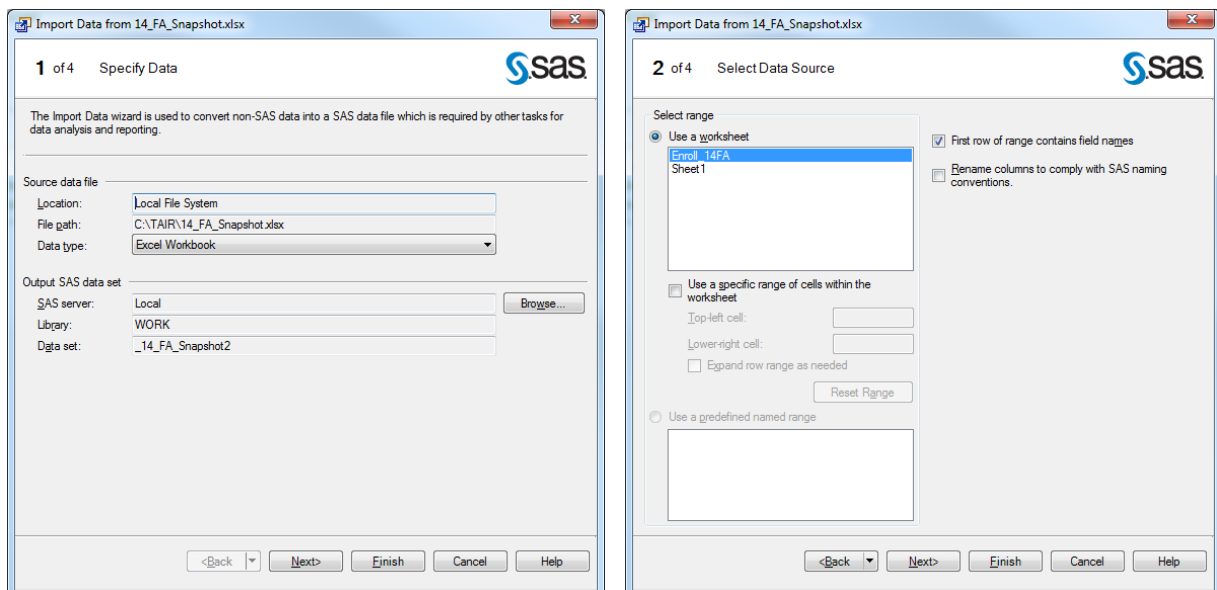
```
proc import DATAFILE = 'C:\TAIR\14_FA_Snapshot.xlsx' DBMS=xlsx OUT = FA14 REPLACE;
run;
```

- From Text File –

```
proc import DATAFILE = 'C:\TAIR\14_FA_Snapshot.txt' OUT = FA14 REPLACE;
run;
```

To import from Excel or a text file into SAS Enterprise Guide follow these steps:

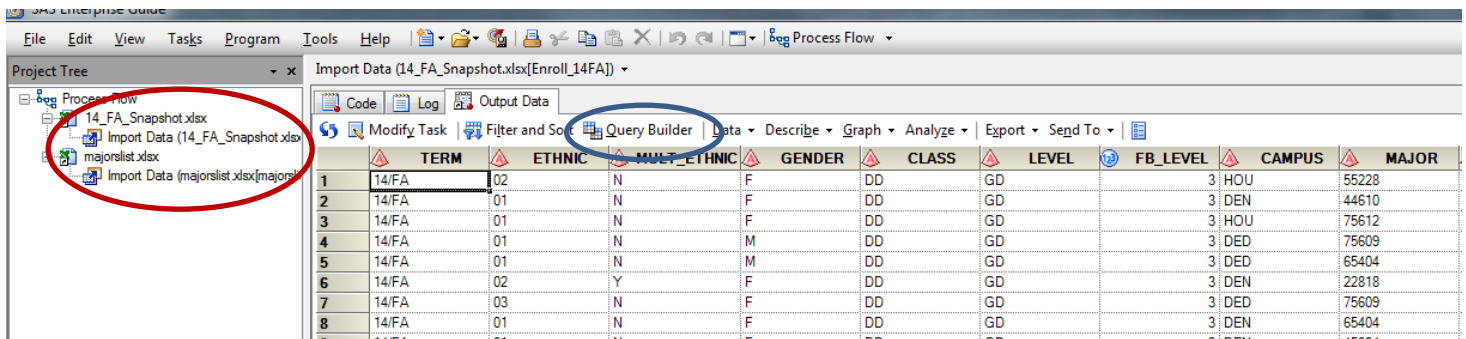
- 1) Open SAS Enterprise Guide, highlight **File** on the Menu bar, and select **Import Data**.
- 2) The Open Dialog box will open. Navigate to the location of your file, highlight it, and click the **Open** button.
- 3) Now the Import Data Dialog box will open. The **Specify Data** step will appear first (below on left), and the **Source data file** should already be populated (this was done in step 2 above). Click the **Next** button.
- 4) The **Select Data Source** step will now open (below on right), so highlight the correct Excel worksheet to use if there are multiple ones. There is no need to go on, so click the **Finish** button.



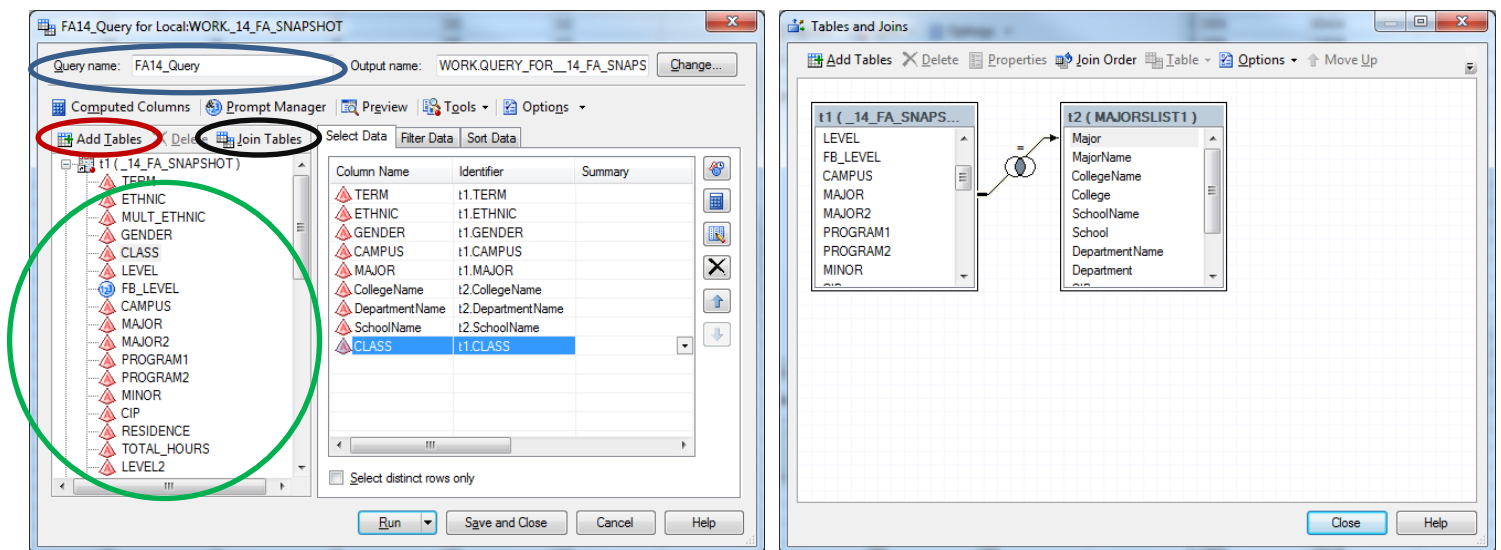
- 5) Note: There will be a slight difference when importing a text file. The **Select Data Source** step will not ask for a data worksheet but will ask how the data is delimited (tab, comma, etc.).
- 6) When you are finished your data will look something like the example shown at the top of the PROC SQL example on page 2.
- 7) Repeat the steps above if you want to import more data files.

## PROC SQL

PROC SQL allows you to join two or more data sets (both circled in red below) and create new fields.

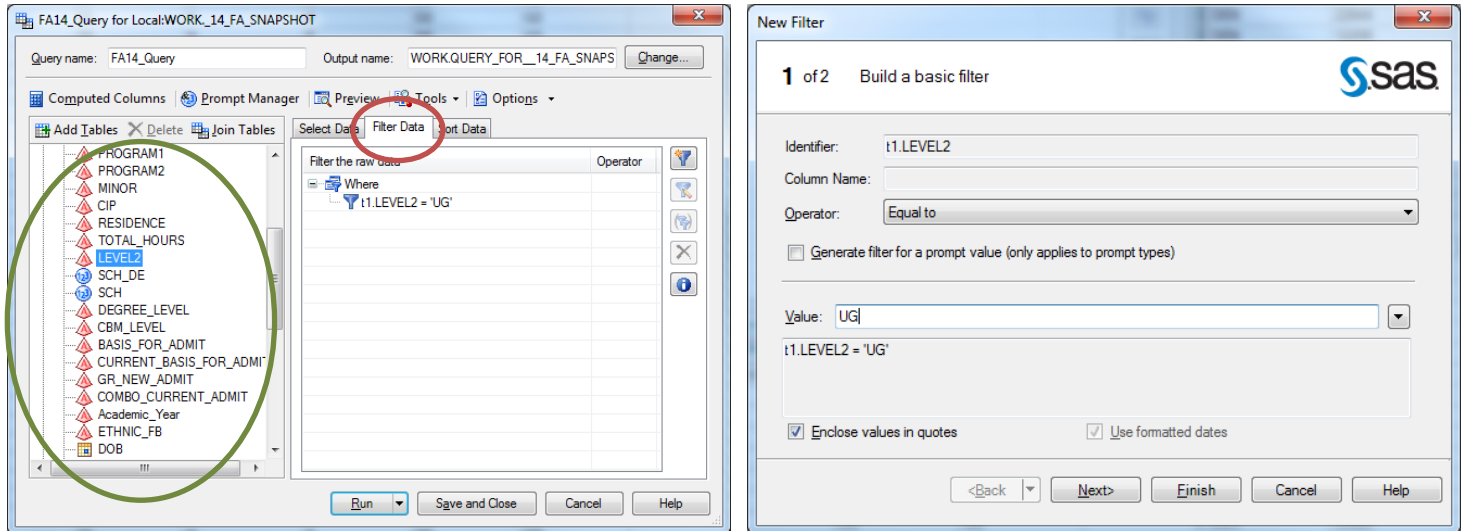


- 1) Click the **Query Builder** tab (circled in Blue above).
- 2) The Query Builder Dialog box will open. Be sure to rename your query in the **Query name** text box (circled in Blue below). Otherwise it will have the generic name "Query Builder."
- 3) The first thing to do is add any extra tables that you would like to use. Click the **Add Tables** button (circled in Red below). The **Open Data** dialog box will pop-up, so highlight the table you want to add and click the **Open** button. The new table will be listed below the first one in the Tables window (circled in Green below) and you can scroll down to locate it.
  - Note: The table will be named t1, t2, t3, etc. by SAS.
- 4) To join your tables, click the **Join Table** button (circled in Black below). The **Table and Joins** dialog box will open. If your field names in each table are the same, SAS will define your join for you already. If they are not the same than you will have to define them yourself. If you have to define the join yourself:
  - a) Highlight the field you want to join in t1 and drag it to the corresponding field in t2.
  - b) The **Join Properties** dialog box will open and ask if you want your join to be an inner, left, right, etc. join. Select the one you want and click the **OK** button.
- 5) When you are done creating your join click the Close button.



- 6) Now drag and drop all the fields you would like to use in t1 and t2 from the left (circled in Green above) to the Select Data tab.

- 7) If you would like to filter your data, click the **Filter Data** tab (circled in Red below).
- 8) Drag and drop the field you want to filter on from the Tables window (circled in Green below) to just below the **Filter Data** tab.
- 9) The **New Filter** dialog box will open. The field that was dragged and dropped should be in the **Identifier** textbox. Select the operator you want to use from the **Operator** drop down box and enter the criteria in the **Value** text box. Click the **Finish** button when you are done.



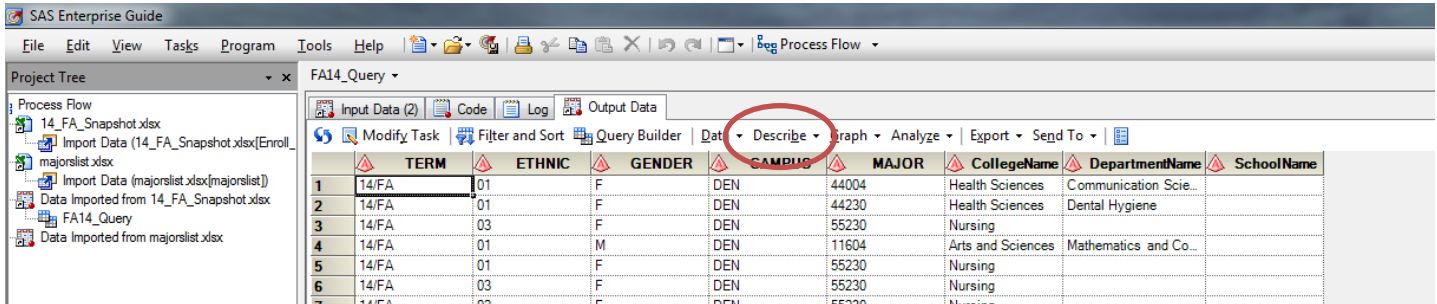
- 10) When you are finished adding fields or filters, click the **Run** button.
- 11) There should now be a new data set that looks something like the data below and a new query will have been created (circled in Red below).

	TERM	ETHNIC	GENDER	CAMPUS	MAJOR	CollegeName	DepartmentName	SchoolName
1	14/FA	01	F	DEN	44004	Health Sciences	Communication Scie...	
2	14/FA	01	F	DEN	44230	Health Sciences	Dental Hygiene	
3	14/FA	03	F	DEN	55230	Nursing		
4	14/FA	01	M	DEN	11604	Arts and Sciences	Mathematics and Co...	
5	14/FA	01	F	DEN	55230	Nursing		
6	14/FA	03	F	DEN	55230	Nursing		
7	14/FA	02	F	DEN	55230	Nursing		

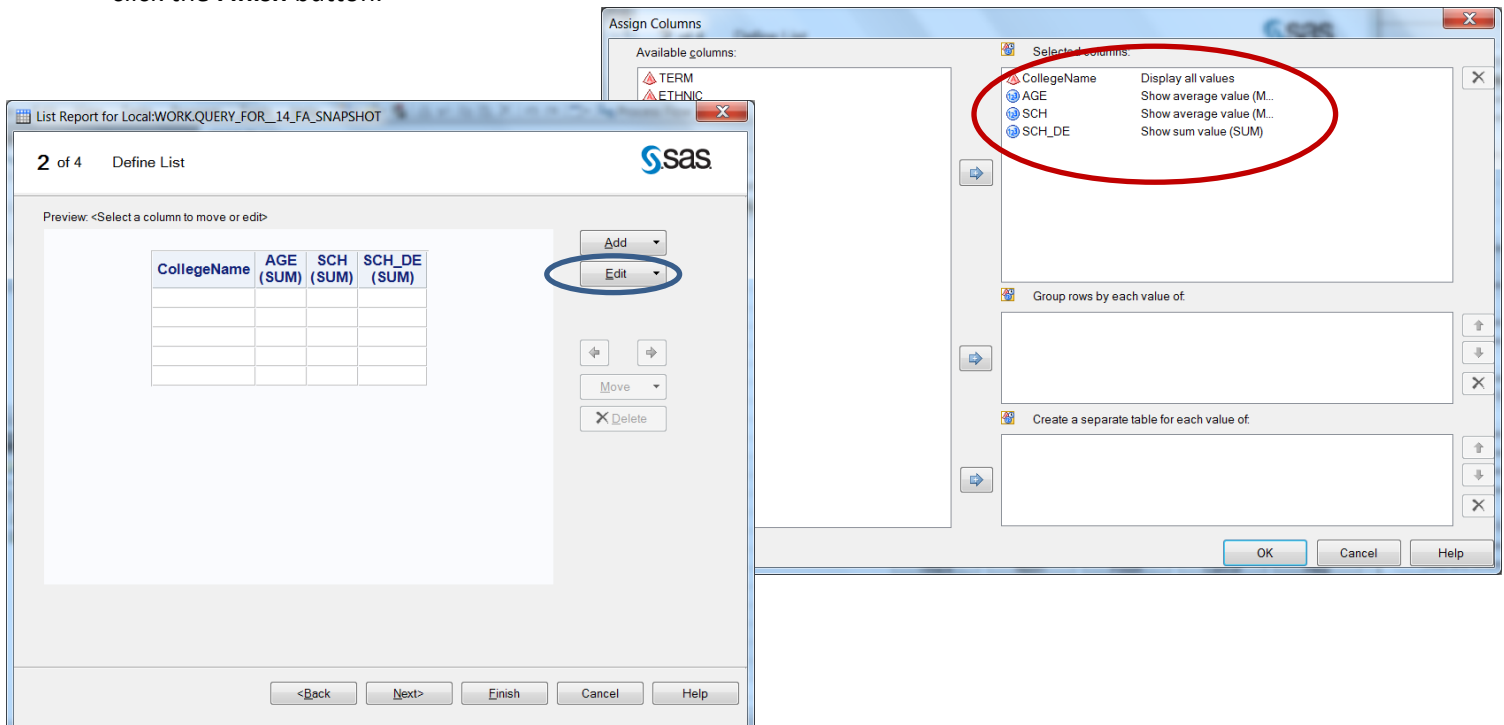
## PROC REPORT

PROC REPORT is one of the reporting tools that SAS offers. However, the Enterprise Guide version is fairly limited.

- 1) Select the data set you want to use, then click on the **Describe** drop down box (circled in Red below), and select **List Report Wizard**.



- 2) The List Report dialog box will open. There will be an **Edit** button on the first screen if you want to filter your data. Click the **Next** button to move to the next screen. If you have a limited amount of fields than the wizard will already populate your report.
- 3) Highlight any of the fields you would like to delete and click the **Delete** button.
  - You can add fields by clicking the **Add** button.
  - You can also position a field underneath another field by highlighting it and clicking on the **Move** button. A drop down list will appear and offer the option to **Position Above** or **Position Below**. Select the one you want and it will give you a list of available fields to choose from.
- 4) The default summary field is SUM. To change it to another field like MEAN or MEDIAN select the **Edit** button (circled in Blue below) and select **Assign Columns**. The **Assign Columns** dialog box will open. Change all the fields to a new summary option (circled in Red below). Click the **OK** button.
- 5) If you have summary fields and want to add totals click the **Next** button. When you are done adding totals click the **Finish** button.



6) When you are finished your output should look something like this:

**List Report**

CollegeName	AGE MEAN	SCH MEAN	SCH_DE MEAN
Arts and Sciences	26.06331045	11.60259344	4.2214594457
Health Sciences	24.335560123	11.81963001	2.7122302158
Nursing	24.056654676	12.444694245	2.0314748201
Professional Education	24.75	11.990517241	2.225
Total	25.054086149	11.898952823	3.1285760553

Generated by the SAS System ('Local', W32\_7PRO) on March 01, 2015 at 12:12:48 PM

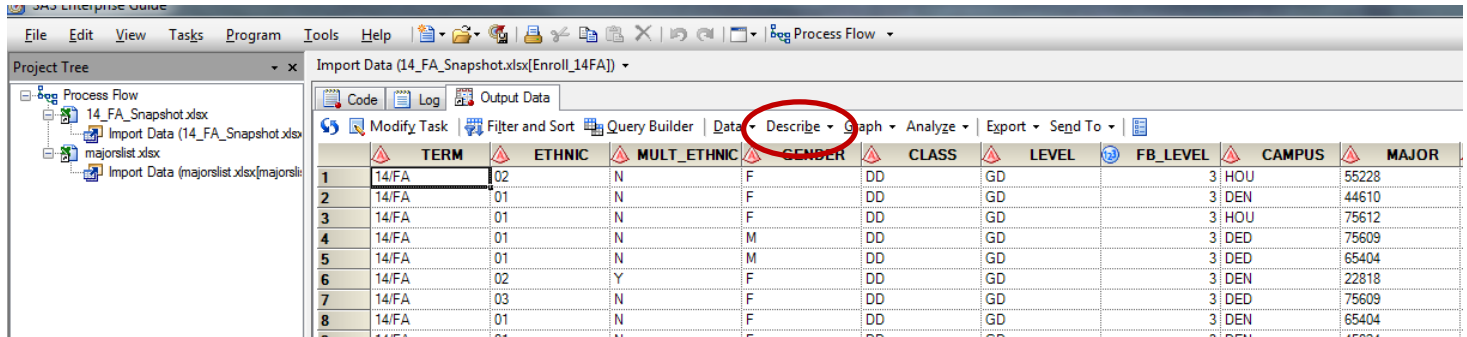
Page Break

7) To change or update the report you just created click the **Modify Task** button (circled in Red above).

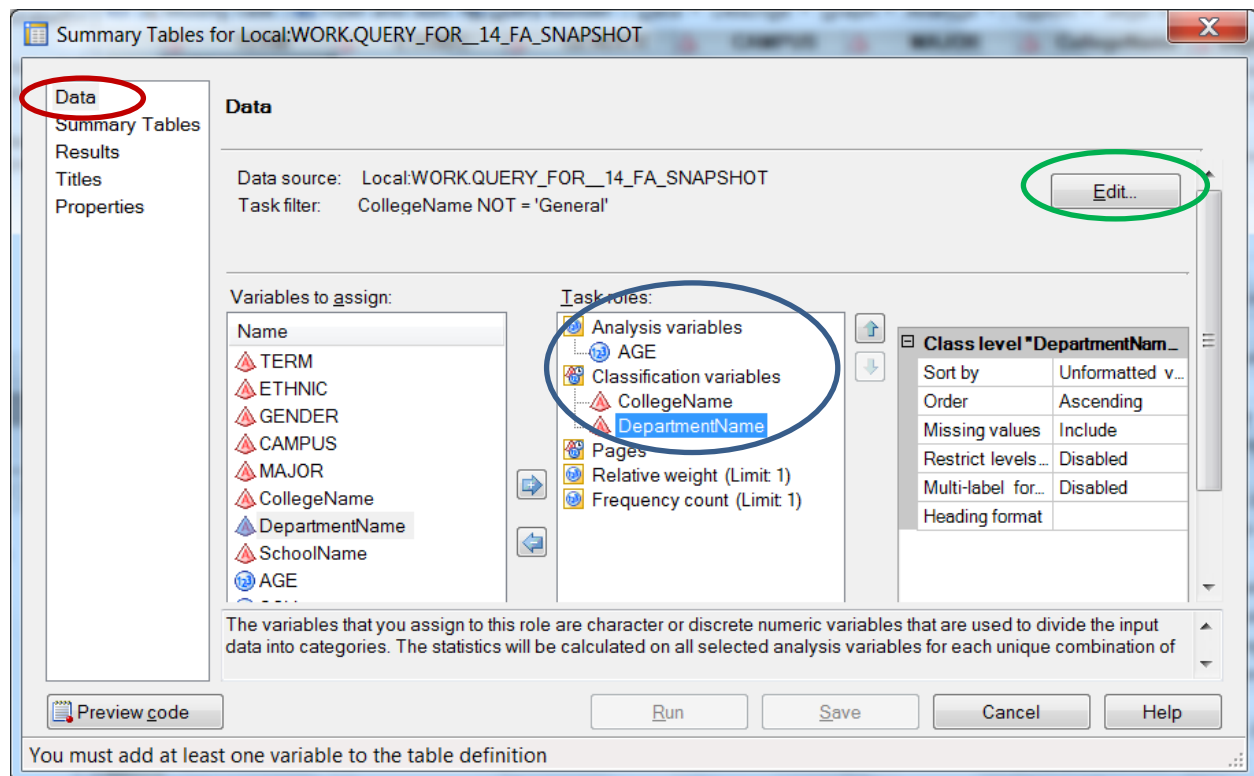
## PROC TABULATE

PROC TABULATE is another reporting tool that SAS offers. The Enterprise Guide version is a great tool for generating code that can get complicated really quickly.

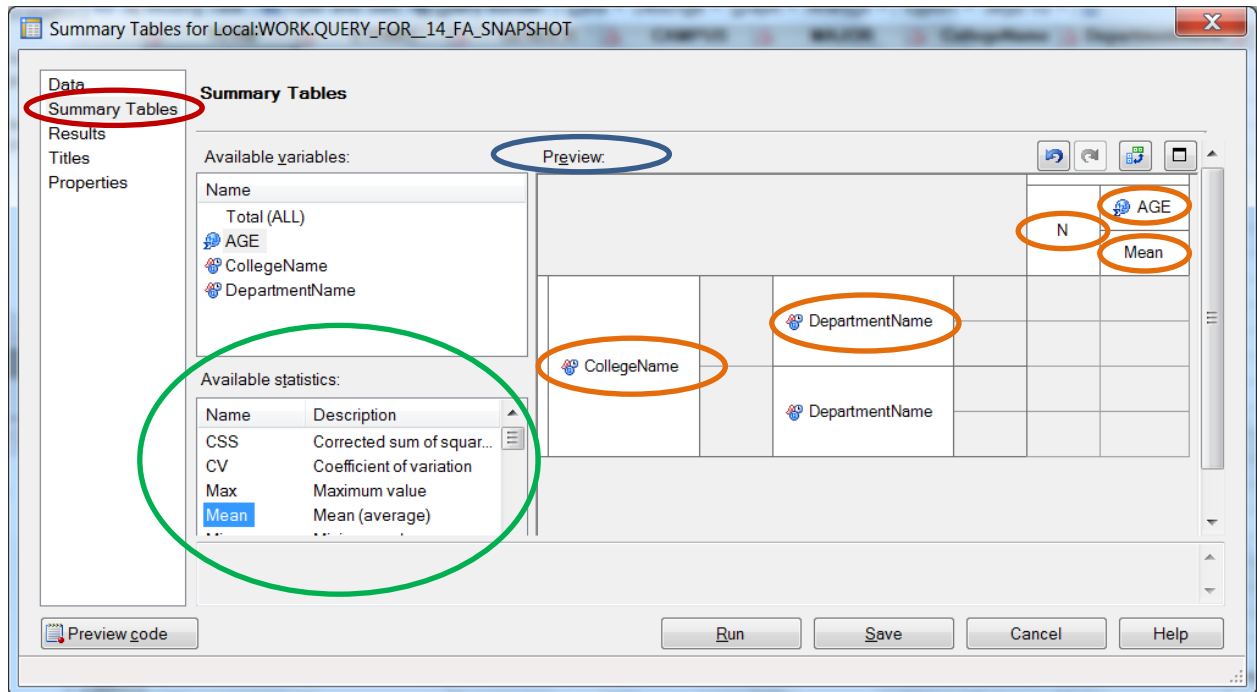
- 1) Select the data set you want to use, then click on the **Describe** drop down box (circled in Red below), and select **Summary Tables**.



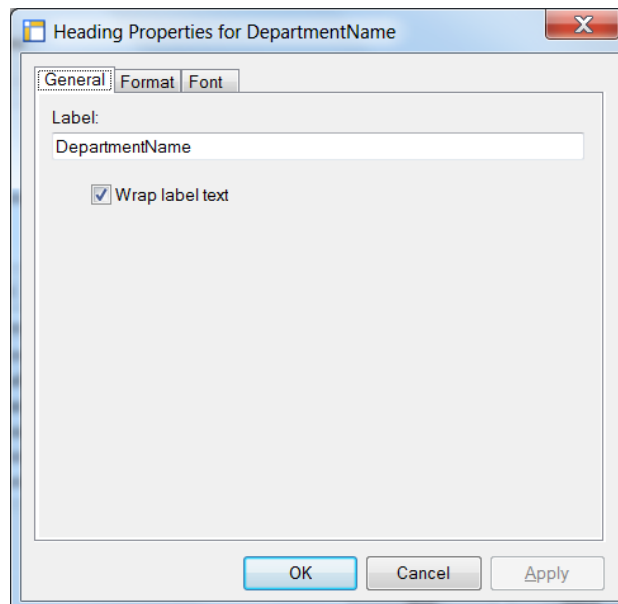
- 2) The **Summary Tables** dialog box will open.
  - a. In the **Data** section (circled in Red below) of the dialog box drag the fields to the appropriate place on the right. Place summary fields under **Analysis Variables** and other fields under **Classification Variables** (both circled in Blue below).
  - b. You can also filter your data by clicking the Edit button (circled in Green below).



- 3) When you are done with the data section click on the **Summary Tables** section (circled in Red below).
- Now drag the **Available Variables** to the **Preview** screen (circled in Blue below). Note: I generally place Classification Variables in the rows section and Analysis Variables in the columns section. Classification Variables will default to N (counts). Analysis Variables will default to SUM. If you don't see the field you need go back to the **Data** section and add it.
  - To change N to percent of N or SUM to another analysis variables drag the appropriate variable from **Available Statistics** (circled in Green below) to the place on **Preview** screen where you want it.
  - To remove fields just drag them out of the **Preview** screen.



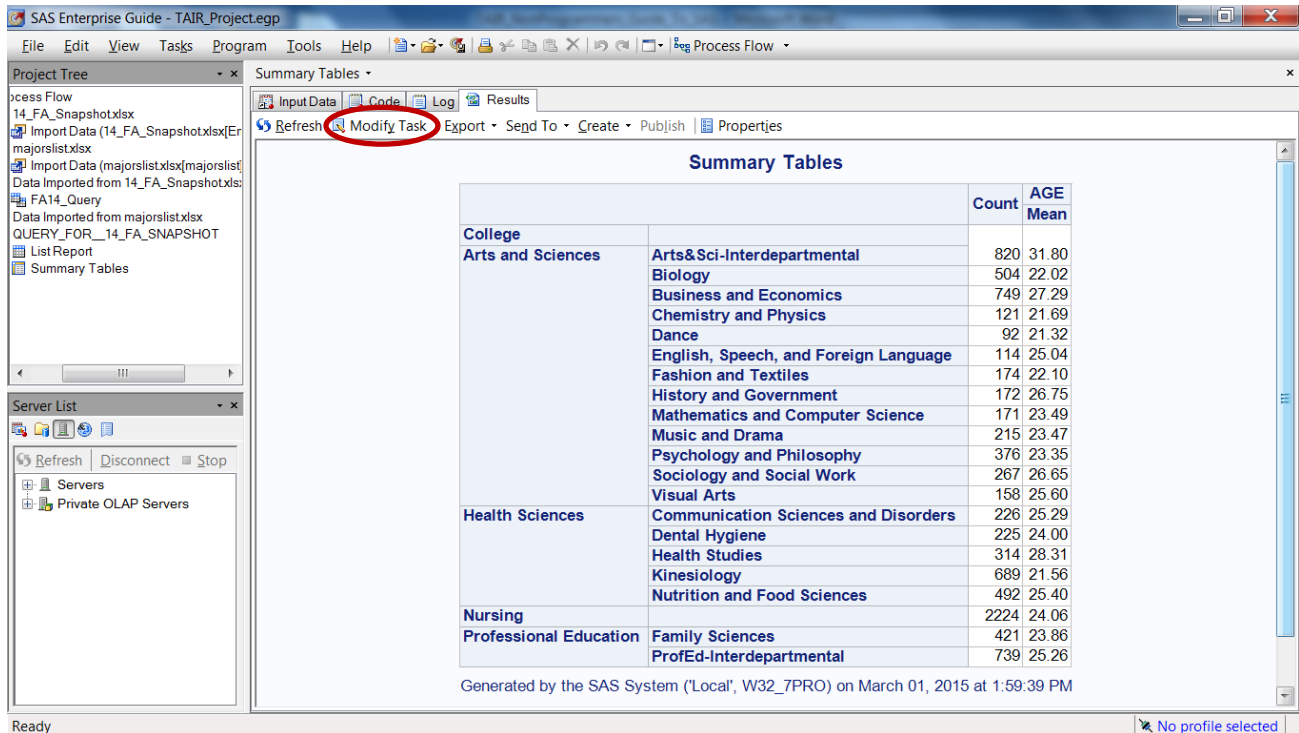
- To change the field name labels or to get rid of them select the field name, right click on it (circled in Orange above) and Select **Heading Properties**. A dialog box will appear and you can delete or change the name as needed. Click **OK** button when you are done.



- 4) When you are finished click the **Run** button.



5) When you are finished your output should look something like this:



**Summary Tables**

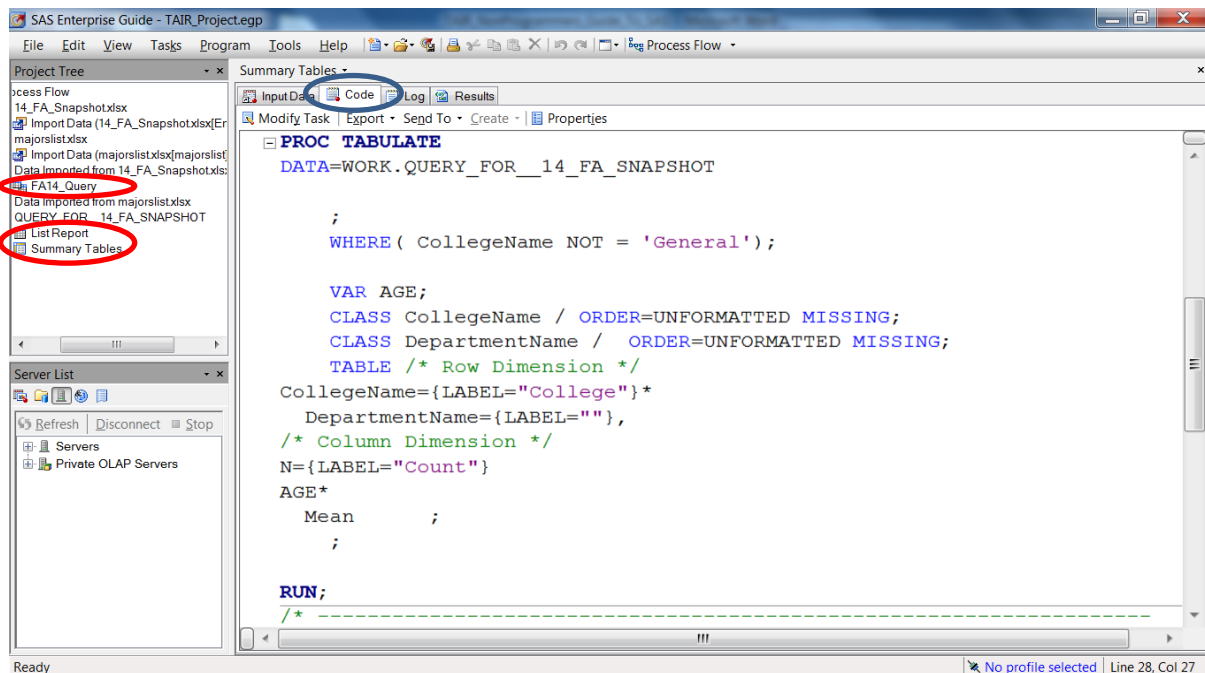
College	Department	Count	AGE Mean
Arts and Sciences	Arts&Sci-Interdepartmental	820	31.80
	Biology	504	22.02
	Business and Economics	749	27.29
	Chemistry and Physics	121	21.69
	Dance	92	21.32
	English, Speech, and Foreign Language	114	25.04
	Fashion and Textiles	174	22.10
	History and Government	172	26.75
	Mathematics and Computer Science	171	23.49
	Music and Drama	215	23.47
	Psychology and Philosophy	376	23.35
	Sociology and Social Work	267	26.65
Health Sciences	Visual Arts	158	25.60
	Communication Sciences and Disorders	226	25.29
	Dental Hygiene	225	24.00
	Health Studies	314	28.31
Nursing	Kinesiology	689	21.56
	Nutrition and Food Sciences	492	25.40
Professional Education		2224	24.06
	Family Sciences	421	23.86
	ProfEd-Interdepartmental	739	25.26

Generated by the SAS System ("Local", W32\_7PRO) on March 01, 2015 at 1:59:39 PM

6) To change or update the report you just created click the **Modify Task** button (circled in Red above).

### Moving Code Over to Base SAS for Recurring Jobs

- 1) Open Base SAS (SAS 9.2 or 9.3) and under **File** on the **Menu bar** select **New Program**.
- 2) Go back to SAS Enterprise Guide and for every Table, Report, and Query you just created there will be a **Code** tab.
  - a. Double click on the created item (circled in Red below) and select the **Code** tab (circled in Blue below).
  - b. Copy and paste the code into Base SAS.



**PROC TABULATE**

```
DATA=WORK.QUERY_FOR_14_FA_SNAPSHOT

;
WHERE( CollegeName NOT = 'General' );

VAR AGE;
CLASS CollegeName / ORDER=UNFORMATTED MISSING;
CLASS DepartmentName / ORDER=UNFORMATTED MISSING;
TABLE /* Row Dimension */
CollegeName={ LABEL="College" } *
DepartmentName={ LABEL="" },
/* Column Dimension */
N={ LABEL="Count" }
AGE*
Mean ;

RUN;
```



- 3) Your finished product should look something like the screen shot below. Be sure to copy PROC IMPORT from page 1 of this Word document to make sure your code will import your data. Also be sure to change the data set names to match the data you imported (circled in Red below).
- 4) Click the **Run** button to run your code.

```

proc import DATAFILE = 'C:\TAIR\14_FA_Snapshot.xlsx' DBMS=xlsx OUT = FA14 REPLACE;
run;

proc import DATAFILE = 'C:\TAIR\majorslist.xlsx' DBMS=xlsx OUT = majorslist REPLACE;
run;

PROC SQL;
CREATE TABLE WORK.QUERY_14FA AS
SELECT t1.TERM, t1.ETHNIC, t1.GENDER, t1.CAMPUS, t1.MAJOR, t2.CollegeName, t2.DepartmentName,
t2.SCHOOLName, t1.AGE, t1.SCH, t1.SCH DE
FROM WORK.FA14 t1 INNER JOIN WORK.MAJORSLIST t2 ON (t1.MAJOR = t2.Major)
WHERE t1.LEVEL2 = 'UG';
QUIT;

PROC TABULATE DATA=WORK.QUERY_14FA
WHERE (CollegeName NOT IN ('General'));
VAR AGE;
CLASS CollegeName / ORDER=UNFORMATTED MISSING;
CLASS DepartmentName / ORDER=UNFORMATTED MISSING;
TABLE /* Row Dimension */
CollegeName={LABEL="College"}*
DepartmentName={LABEL=""},
/* Column Dimension */
N={LABEL="Count"}
AGE*Mean
;;
RUN;

proc report data=WORK.QUERY_14FA nowd;

```

NOTE: 51 Lines Submitted. C:\Users\Laptop Ln 18, Col 41

- 5) Your output will look like this (scroll down to see the PROC REPORT):

The SAS System		Count	AGE Mean
College			
Arts and Sciences	Arts&Sci-Interdepartmental	820	31.80
	Biology	504	22.02
	Business and Economics	749	27.29
	Chemistry and Physics	121	21.69
	Dance	92	21.32
	English, Speech, and Foreign Language	114	25.04
	Fashion and Textiles	174	22.10
	History and Government	172	26.75
	Mathematics and Computer Science	171	23.49
	Music and Drama	215	23.47
	Psychology and Philosophy	376	23.35
	Sociology and Social Work	267	26.65
	Visual Arts	158	25.60
Health Sciences	Communication Sciences and Disorders	226	25.29
	Dental Hygiene	225	24.00

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