Week 1 Activities

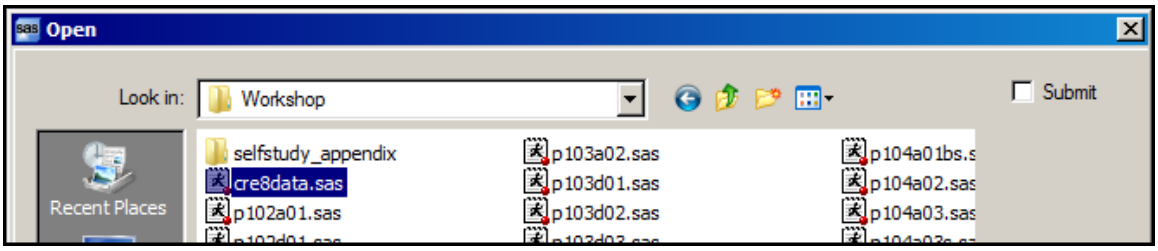
1. Creating Course Data in the SAS Windowing Environment

You ***must*** complete this exercise to create the course data files. If you do not create the data files, the majority of programs in this course will fail.

a. Start the SAS windowing environment. If you see a pop-up window that references a change notice or getting started with SAS, click **Close**. By default, the SAS windowing environment consists of a left pane containing the Results and Explorer windows and a right pane containing the Output, Log, and Editor windows.

b. Click  (**Open**) when the Editor window is the active window or select **File** ⇨ **Open Program**.

c. In the Open window, navigate to the file location to find **cre8data** and click **Open**.



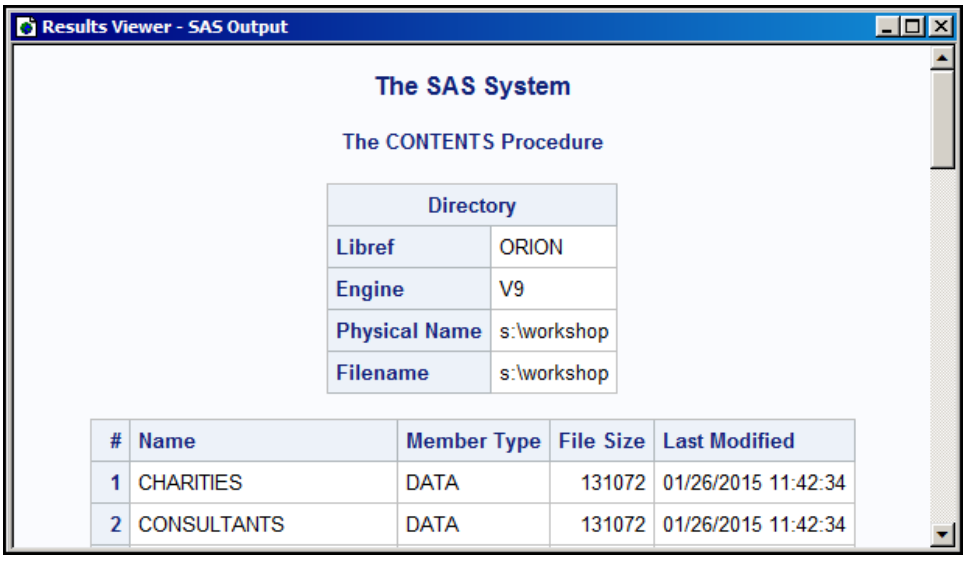
d. In the Editor window for the **cre8data** program, find the %LET statement shown below.

e. If your data files are to be created at a location other than **s:\workshop**, change the value that is assigned to the **path** macro variable to reflect the location. If your data files are created in **s:\workshop**, then no change is needed.

The **cre8data** program uses forward slashes for portability across operating environments. UNIX and Linux require forward slashes. Windows accepts forward slashes and might convert them to backslashes.

f. Click  (**Submit**) or press F3 to submit the program.

g. In the Results Viewer window, verify that the output contains a list of data files.



h. Go to the Log window and click (**New**) or select **Edit** ⇨ **Clear All** to clear the Log window.

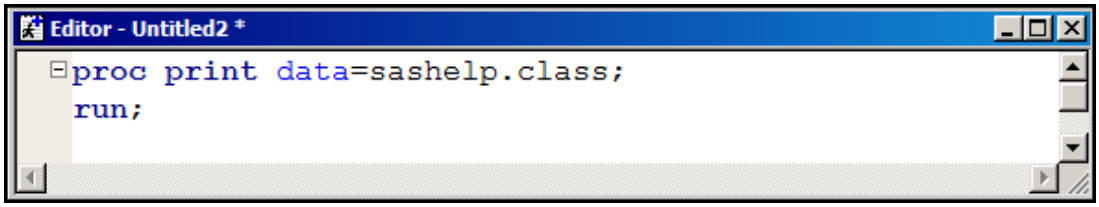
i. Close the Editor window for **cre8data** by clicking the **X** in the right corner of the window.

2. Exploring the SAS Windowing Environment

Using the Primary Interface Windows

a. Select **View** ⇨ **Enhanced Editor** to open a new Editor window.

1) In the Editor window, enter the PROC PRINT step shown below.



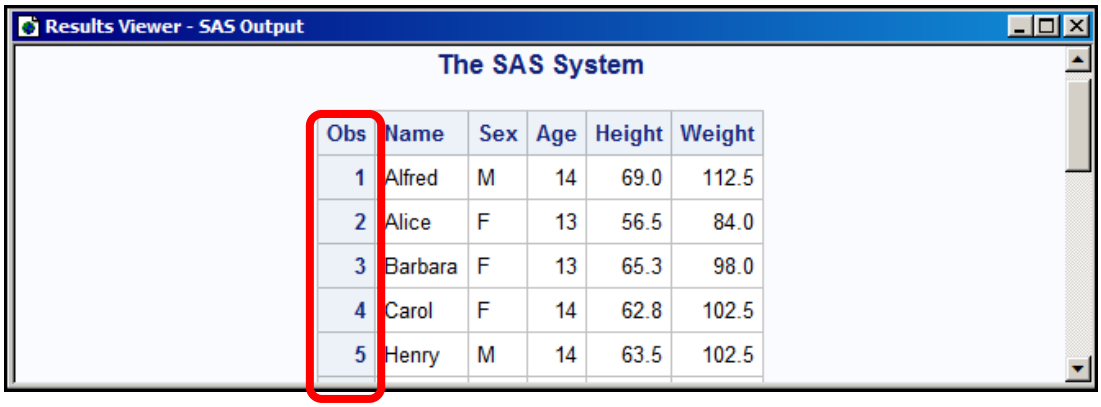
The Enhanced Editor is used when you use the Editor window.

2) Click (**Submit**) or press F3 to submit the program. If the program runs successfully, the Results Viewer window automatically appears and shows the PROC PRINT output.

3) Go to the Log window and check the log for the two notes below. If you see any warnings or errors, return to the Editor window, fix any mistakes, and rerun the program.

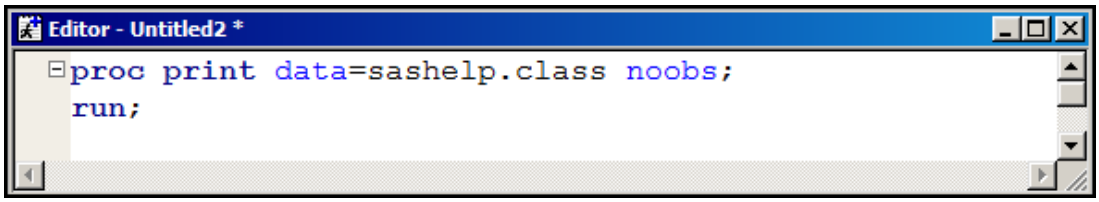
```
NOTE: There were 19 observations read from the data set SASHELP.CLASS.
NOTE: PROCEDURE PRINT used (Total process time):
```

4) Return to the Results Viewer window. Notice that the PROC PRINT output contains an **Obs** column.



Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5

5) Return to the Editor window and add the NOOBS option to eliminate the **Obs** column.



The NOOBS option is in the PROC PRINT statement before the semicolon.

6) Click (**Submit**) or press F3 to submit the program.

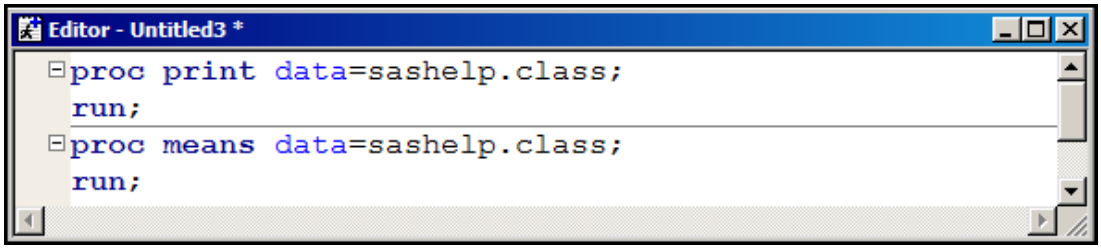
7) View the information in the Results Viewer window and the Log window. Notice that the information in these windows is cumulative. The most recent information is added at the bottom.

8) Close the Log window by clicking the **X** in the right corner of the window. Select **View** ⇨ **Log** to reopen the log. The Log window still contains the information from the previous two submissions.

9) To clear the Log window, click (**New**) when the Log window is the active window. You can also select **Edit** ⇨ **Clear All** to clear the Log window.

b. Create another program. Click (**New**) from an existing Editor window or select **View** ⇨ **Enhanced Editor**.

1) In the new Editor window, enter the PROC PRINT step and PROC MEANS step shown below.



An asterisk (*) at the end of a filename means that the program was not saved.

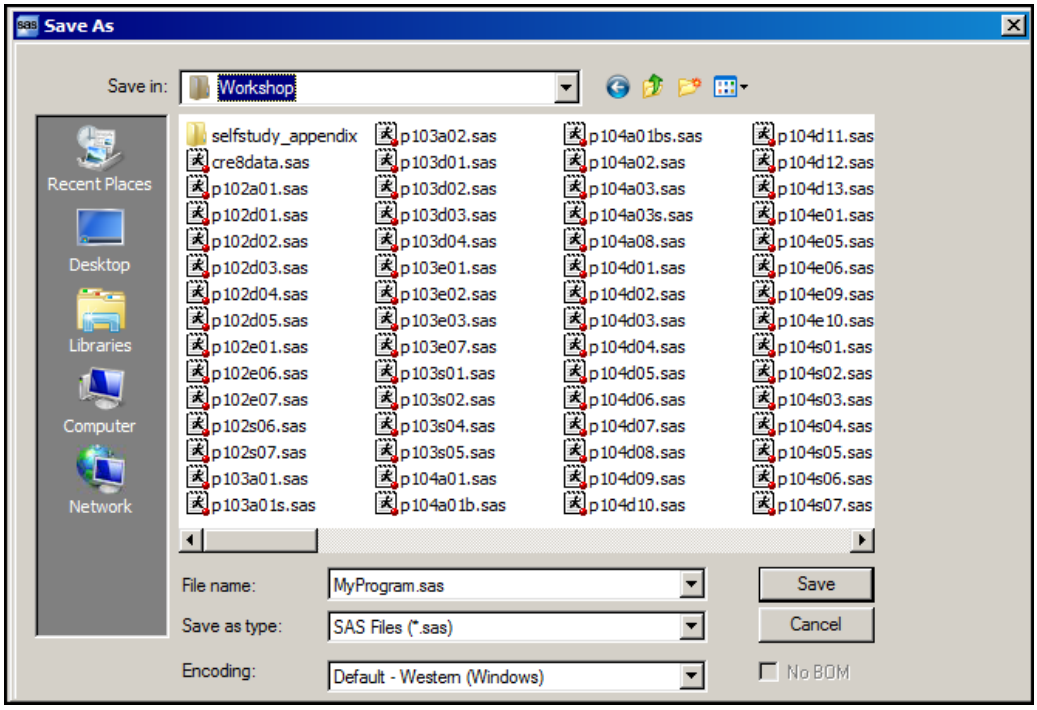
2) Click (**Submit**) or press F3 to submit the program. If the program runs successfully, the Results Viewer window automatically appears and shows the PROC PRINT and PROC

MEANS output. Do not forget that the Results Viewer is cumulative. The most recent information is added at the bottom.

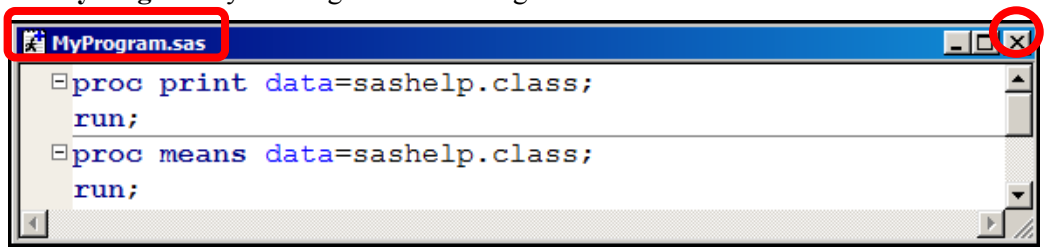
3) Go to the Log window. Check the log for notes. If you see any warnings or errors, return to the Editor window, fix any mistakes, and rerun the program.

4) Return to the Editor – Untitled3 window. Click (**Save**) or select **File** ⇨ **Save As** to save the program.

5) In the Save As window, choose a file location such as **s:\workshop**, name the file **MyProgram**, and click **Save**.



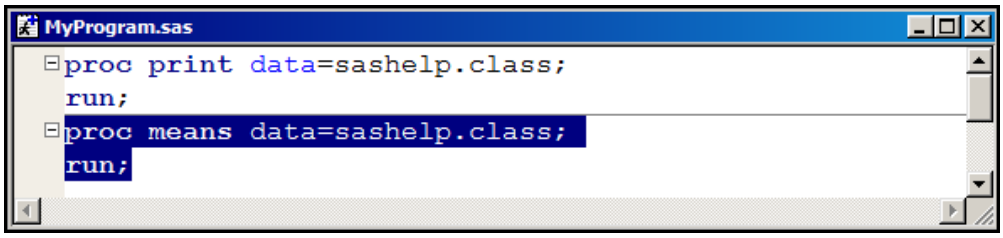
6) Notice that the Editor window now appears with the program name. Close the Editor window for **MyProgram** by clicking the **X** in the right corner of the window.



c. Open the program that you saved and closed. To open a program, click (**Open**) when the Editor window is the active window or select **File** ⇨ **Open Program**.

1) In the Open window, navigate to the file location to find **MyProgram** and click **Open**.

2) Submit a portion of the program. In the Editor window, highlight the PROC MEANS step (two lines of code). Click (**Submit**) or press F3 to submit the highlighted code.

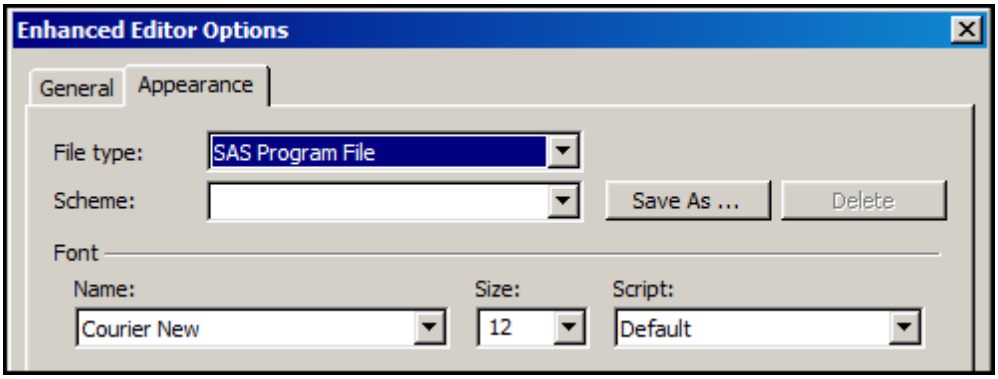


3) View the Results Viewer window and the Log window. Notice that the last submission submitted only the PROC MEANS step.

Customizing the Enhanced Editor

d. Return to the Editor window for **MyProgram**. If you want, click the **Maximize** button in the top right corner of the window to maximize the window.

e. The appearance and functionality of the Enhanced Editor can be customized. To customize the Enhanced Editor, select **Tools** ⇨ **Options** ⇨ **Enhanced Editor** from the main toolbar.



1) In the Enhanced Editor Options window, two tabs contain editor options. On the Appearance tab, increase the font size and click **OK**. Notice the change of the text's font size in the Editor window.

2) To browse a list of the function key definitions for the windowing environment, select **Tools** ⇨ **Options** ⇨ **Keys** to access the Keys window. Notice the following key definitions:

   - F1 is help.
   - F3 is end.
   - F6 is log.
   - F8 is zoom off and submit.

   The End command is an alias for the Submit command when it is initiated in the Editor window.

3) The function key definitions can be customized. For example, F12 can be set to clear the log and submit the program. This function key is used in an Editor window. Enter the following command in the Definition column for F12:

```
clear log; submit
```

4) Close the Keys window by clicking the **X** in the right corner of the window or by pressing F3.

f. Return to the Editor window for **MyProgram**. Press F12. Confirm that the Log window contains only the messages for the PROC PRINT and PROC MEANS steps that were submitted.

Customizing Results

g. By default, the results created in the Results Viewer window are cumulative HTML4 output. To clear the previous output, you can add ODS statements to the program to close the existing output and start new output. Add the following two ODS statements to the beginning of **MyProgram**:

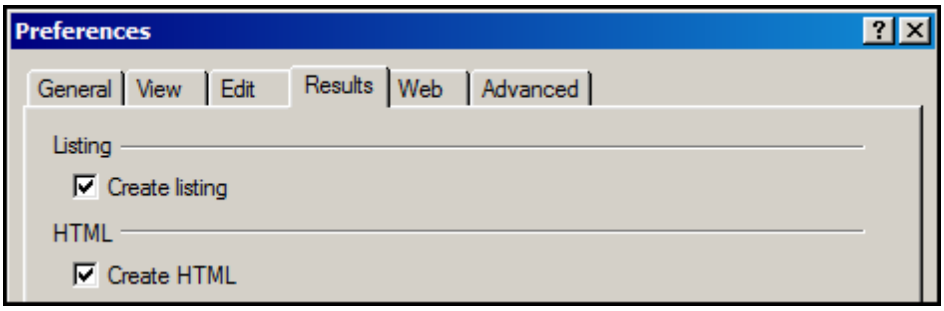
```
ods html close; ods html;
```

h. Click (**Submit**) or press F3 to submit the modified program. Verify that the Results Viewer window contains only one PROC PRINT output and one PROC MEANS output.

i. In addition to creating HTML4 output in the Results Viewer window, you can create text output in the Output window.

1) Select **Tools** ⇨ **Options** ⇨ **Preferences** and click the **Results** tab. The Create HTML check box is already selected.

2) Select the **Create listing** check box to create text output. Click **OK**.

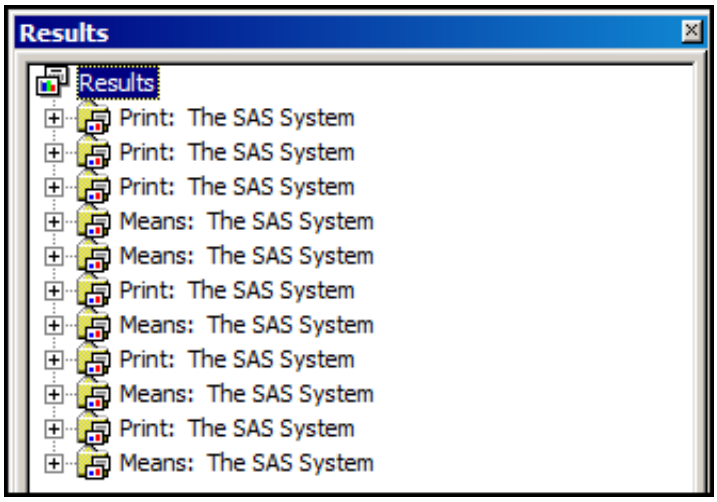


j. Submit the program.

1) Verify that the Results Viewer window contains PROC PRINT and PROC MEANS output. The Results Viewer window is not cumulative when you submit the two ODS statements.

2) In addition, verify that the PROC PRINT and PROC MEANS output is also visible in the Output window as text output. The Output window is cumulative. The most recent information is added at the bottom.

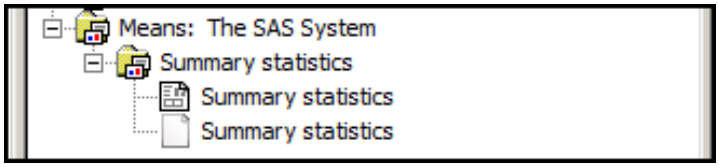
3) The Results window is used to navigate the results. The window contains bookmarks that you can expand and collapse.



k. Select the last **Means** node in the Results window.

1) Click the plus sign in front of **Means** to expand the node.

2) Click the plus sign in front of **Summary statistics** to expand it. Each report bookmark contains an icon that indicates the file type, such as HTML or LISTING (text output).



3) Double-click one of the report bookmarks to view the corresponding report in the appropriate window.

l. The previously defined F12 key can be modified to clear the Log window, clear the Output window, and clear the Results window.

1) To modify F12, select **Tools** ⇨ **Options** ⇨ **Keys** to access the Keys window.

2) Enter the following command in the Definition column for F12:

```
clear log; clear output; odsresults; clear;
```

3) Close the Keys window by clicking the **X** in the right corner of the window or by pressing F3.

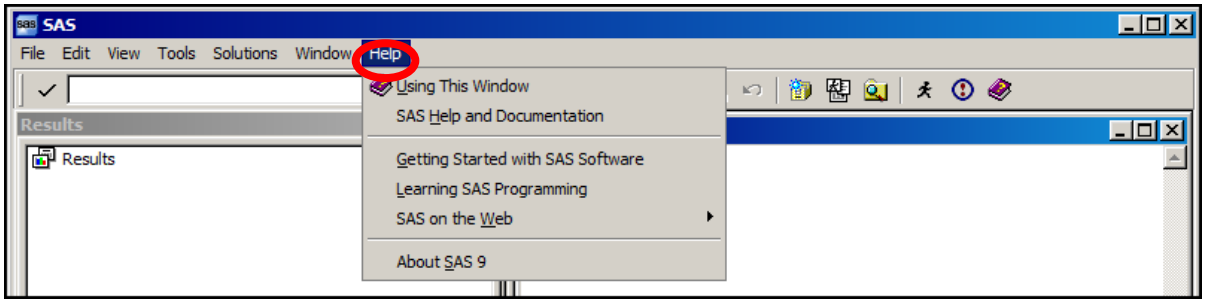
4) Press F12. Confirm that the Log, Output, and Results windows are cleared.

m. Return to the Editor window for **MyProgram** and click (**Save**) or select **File** ⇨ **Save** to save the program.

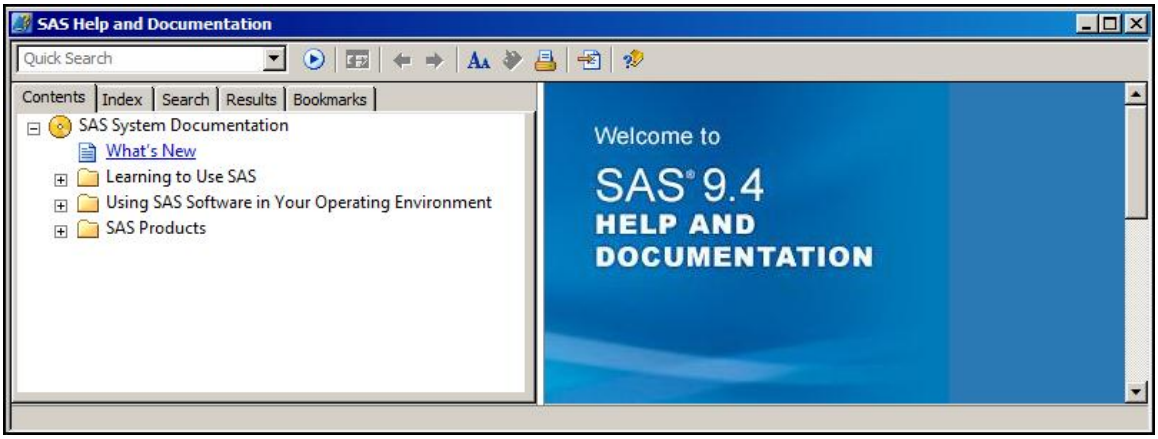
n. Close the Editor window for **MyProgram** by clicking the **X** in the right corner of the window.

3. Accessing Help and Documentation

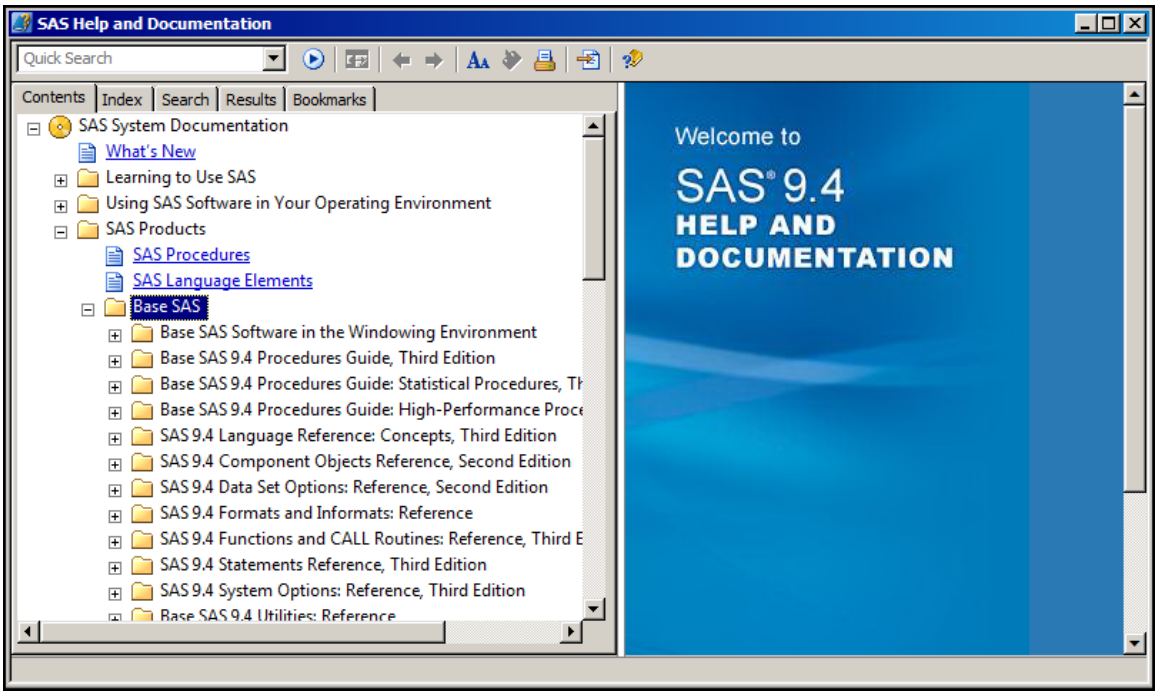
SAS Help and SAS documentation can be accessed from the **Help** drop-down menu.



a. Click **Help** ⇨ **SAS Help and Documentation** to be directed to a window that displays SAS Help and documentation.

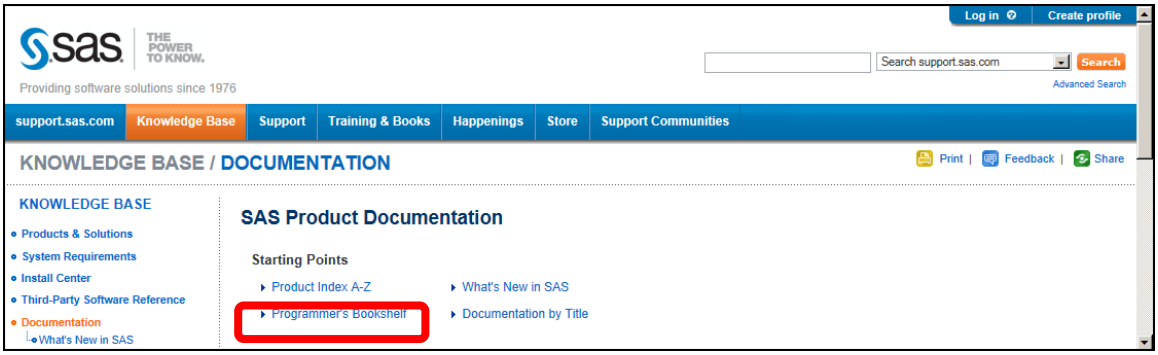


b. To view the syntax documentation for a specific product, expand **SAS Products** on the **Contents** tab. Choose the desired product, such as Base SAS, to view the product documentation. Close the window when you are finished browsing.



c. Alternatively, you can access the documentation for a SAS product directly from the following SAS Product Documentation web page: **http://support.sas.com/documentation/**.

d. From this web page, select **Programmer's Bookshelf**. Then choose the link for the appropriate version of SAS.



The Programmer's Bookshelf contains selected documentation for SAS products such as Base SAS.

e. Browse the Programmer's Bookshelf web page. Close the window after browsing it.

4. Correcting Quotation Marks in the SAS Windowing Environment

a. In the SAS windowing environment, click (**Open**) when the Editor window is the active window or select **File** ⇨ **Open Program**.

b. In the Open window, navigate in the file structure to find **p102e14** and click **Open**. Notice that the closing quotation mark for the DLM= option in the INFILE statement is missing.

c. Click (**Submit**) or press F3 to submit the program.

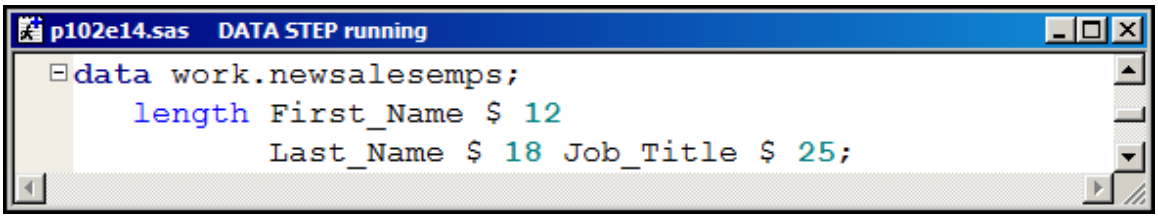
d. In the Log window, notice that there are no messages following each step in the log. The absence of messages often indicates unbalanced quotation marks.

Partial SAS Log

```
71      data work.newsalesemps;
72         length First_Name $ 12
73                Last_Name $ 18 Job_Title $ 25;
74         infile "&path\\newemps.csv" dlm=',;
75         input First_Name $ Last_Name $
76               Job_Title $ Salary;
77      run;
78
79      proc print data=work.newsalesemps;
80      run;
81
82      proc means data=work.newsalesemps;
83         var Salary;
84      run;
```

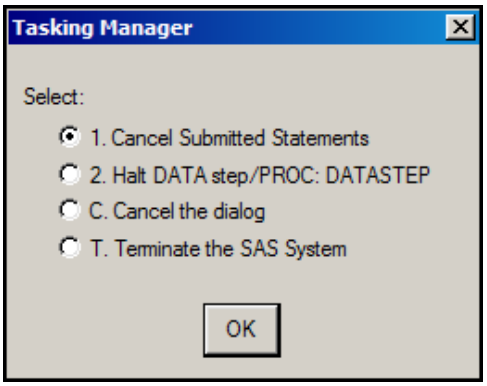
e. In the Log window, click (**New**) or select **Edit** ⇨ **Clear All** to clear the Log window.

f. Return to the program. Notice the "DATA STEP running" message in the banner of the Editor window. This message appears because the RUN statement was viewed as part of the character literal and not as a step boundary.

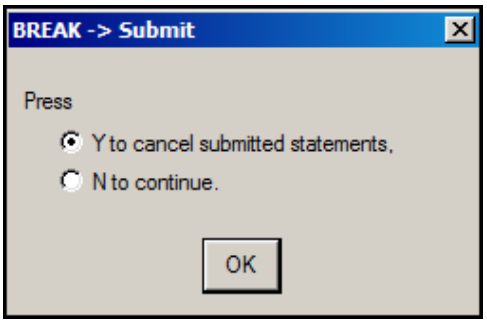


g. To stop the DATA step from running, click (**Break**) or press the Ctrl and Break keys.

h. Select the **1. Cancel Submitted Statements** radio button in the Tasking Manager window. Click **OK**.



i. Select the **Y to Cancel submitted statements.** radio button. Click **OK**.



j. Add a closing quotation mark to the DLM= option in the INFILE statement to correct the program.

```
   infile "&path\newemps.csv" dlm=',';
```

k. Click (**Submit**) or press F3 to submit the program.

l. In the Results Viewer window, view the PROC PRINT and PROC MEANS output.

m. In the Log window, verify that no errors or warnings appear.

n. Click (**New**) or select **Edit** ⇨ **Clear All** to clear the Log window.

o. In the Editor window, click (**Save**) to save the program.

5. Diagnosing Errors in the SAS Windowing Environment

a. Click (**Open**) when the Editor window is the active window or select **File** ⇨ **Open Program** to open a program.

b. In the Open window, navigate in the file structure to find **MyProgram**. Click **Open**.

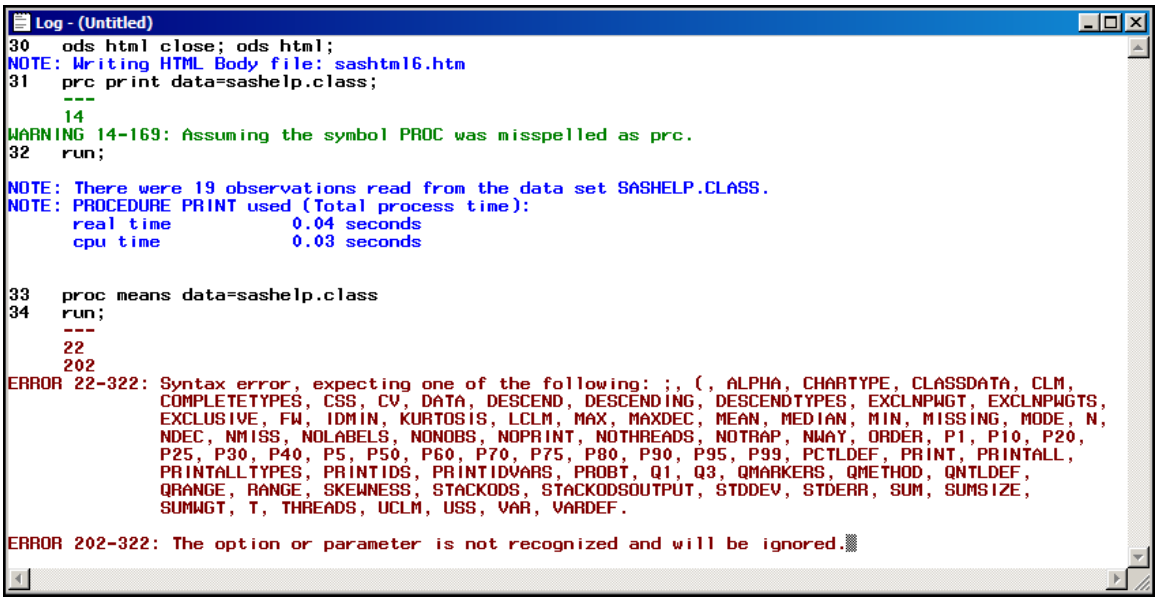
c. Add two mistakes to the program. Remove the letter **o** from the first PROC step and remove the semicolon after the last reference to **sashelp.class**.

```
ods html close; ods html;
prc print data=sashelp.class;
run;
proc means data=sashelp.class
run;
```

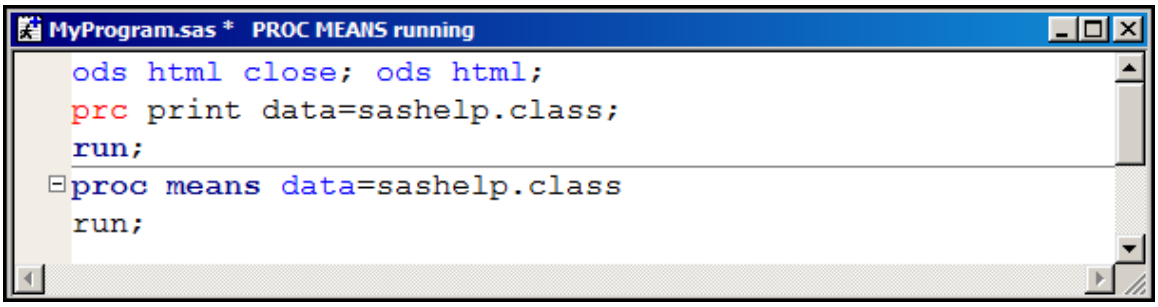
d. Click (**Submit**) or press F3 to submit the program.

e. In the Results Viewer and Output windows, notice that there is PROC PRINT output, but no PROC MEANS output.

f. In the Log window, scroll through the log. Notes appear as blue text, warnings as green text, and errors as red text.

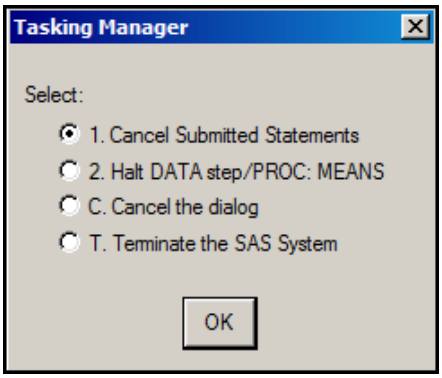


g. Return to the Editor window. Notice the text on the title bar that states "PROC MEANS running."

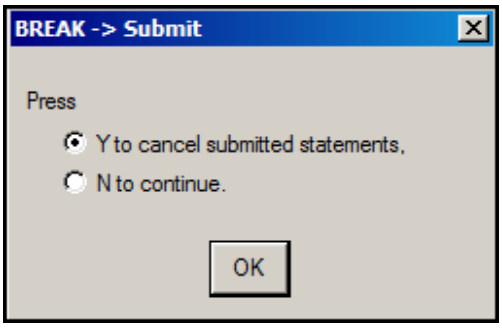


h. To stop the step from running, click (**Break**) or press the Ctrl and Break keys.

i. Select the **1. Cancel Submitted Statements** radio button in the Tasking Manager window. Click **OK**.



j. Select the **Y to cancel submitted statements.** radio button. Click **OK**.



k. The program is no longer running, so fix the two mistakes. Clear the log, submit the program, and verify that there are no errors or warnings in the log.