



Philip R Holland, Holland Numerics Ltd

SAS[®] Enterprise Guide or SAS[®] Studio: Which is Best for You?

Agenda

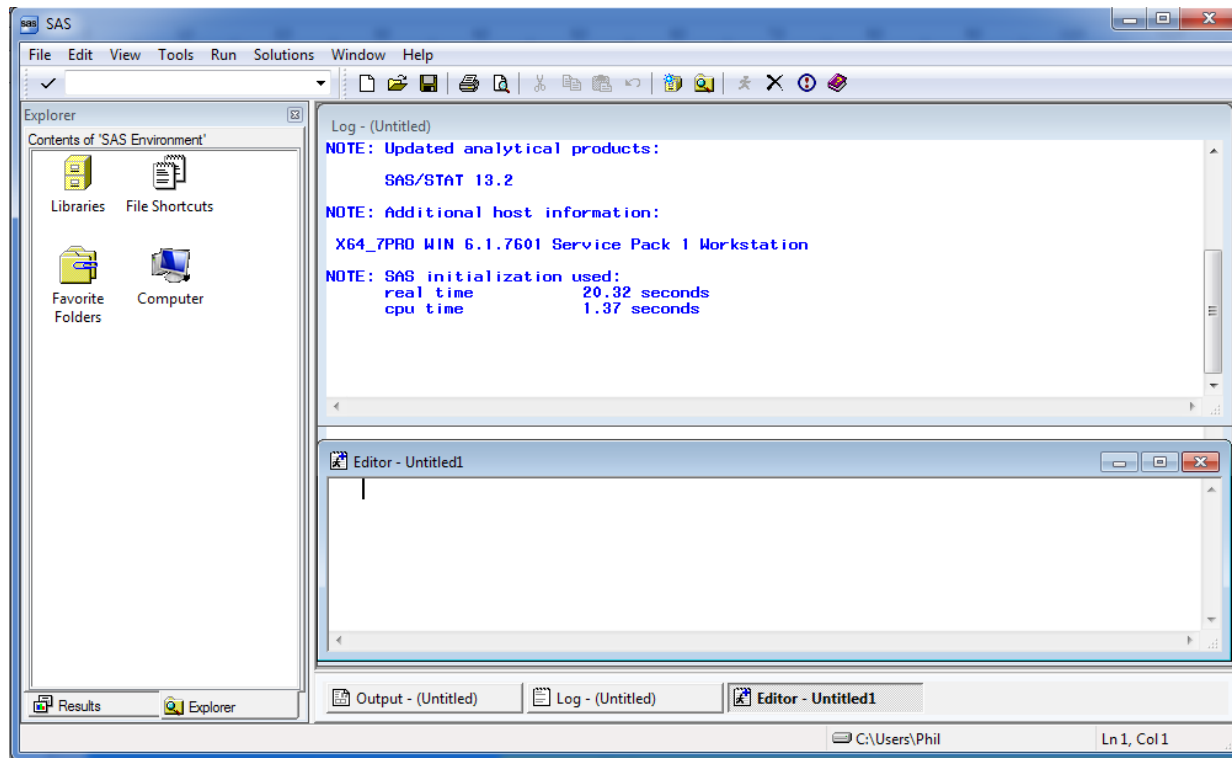
- Introduction
- Windows Users
- Linux and Other Platform Users
- Academic Users
- Non-programming Data Analysts
- Novice SAS Programmers
- Power Users
- Interface Developers
- Conclusions

Introduction

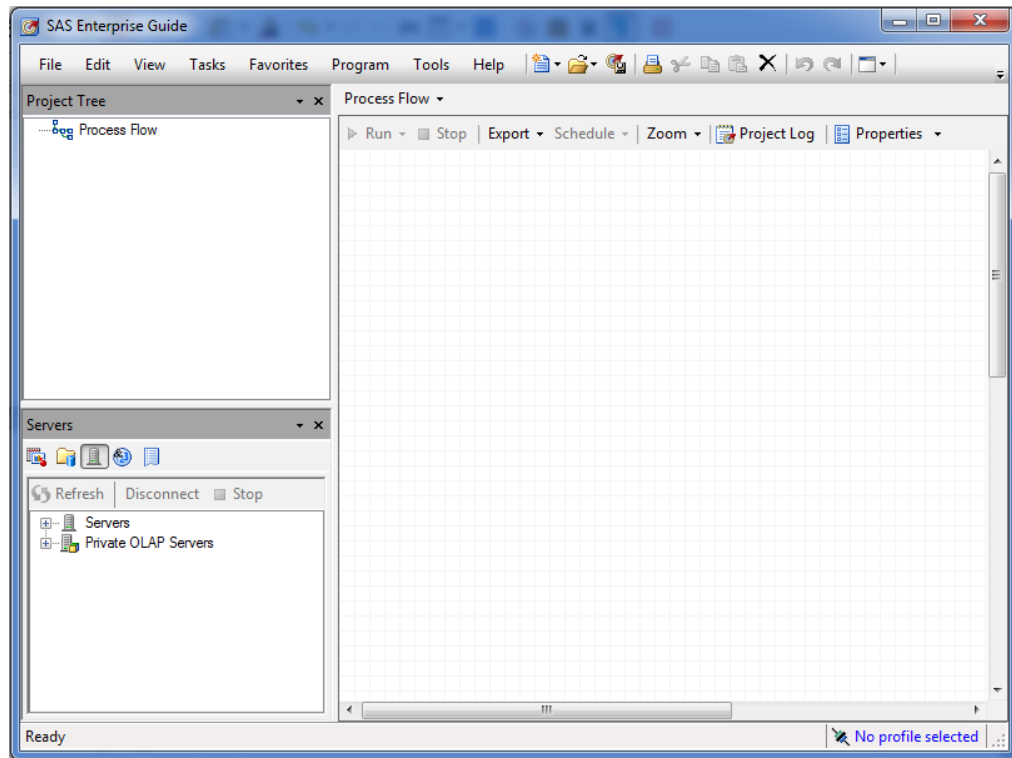
- Early 1980's: SAS offered users a “?” to prompt them to type in programming statements.
- Late 1980's: the Display Manager (DMS) was introduced, where users could view their code, log and output together.
- Early 2000's: Enterprise Guide was introduced and offered interactive access to remote SAS servers from a Windows PC.
- 2014: SAS Studio was introduced for users on any platform that can be used to access a suitable web browser, because the interface to SAS was actually a web page.



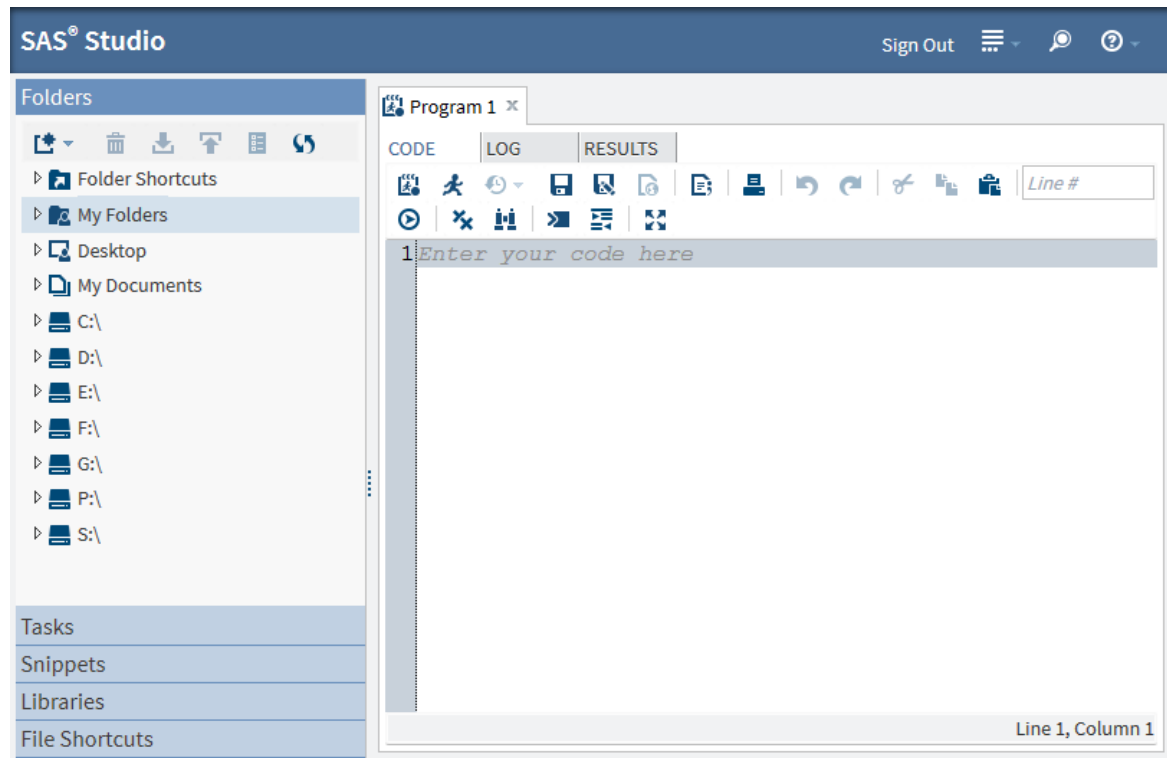
Windows Users: Interactive SAS (DMS)



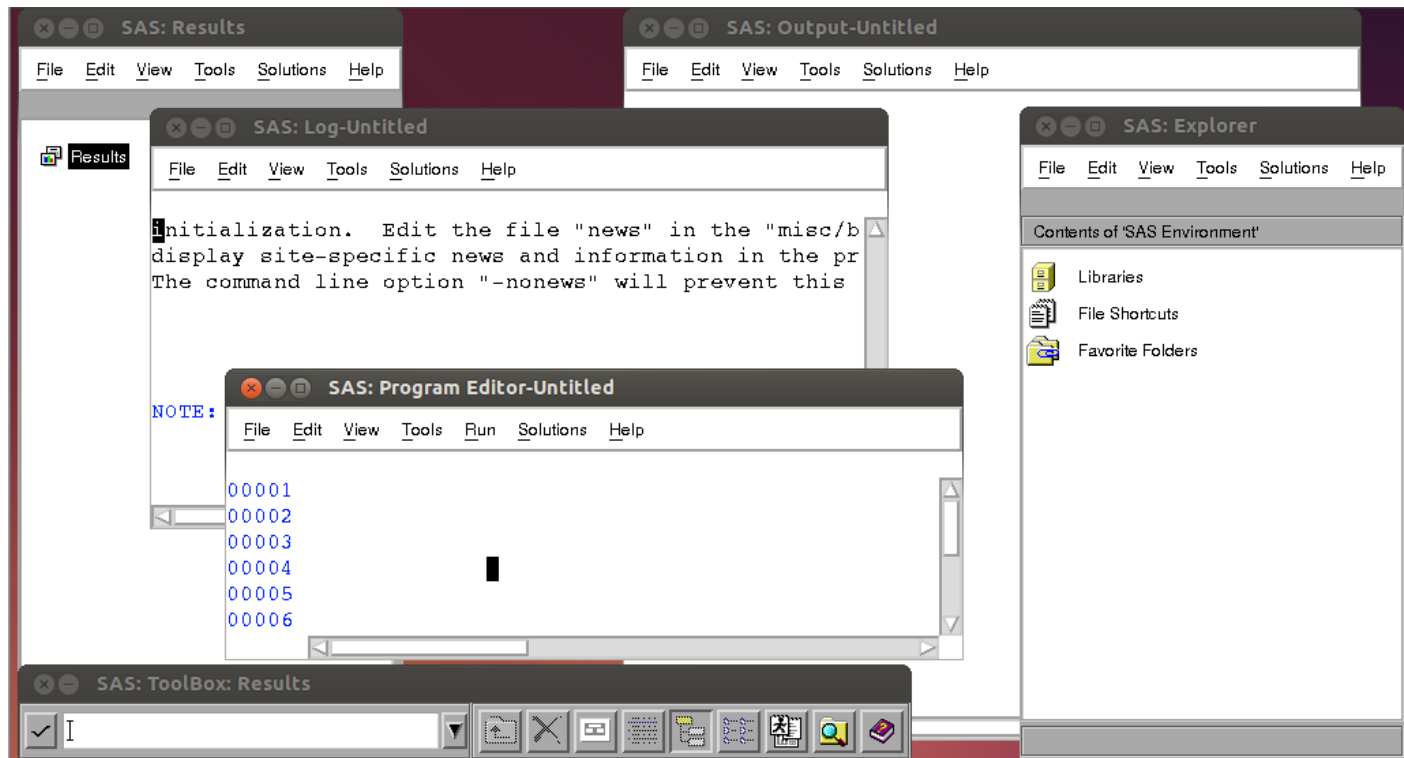
Windows Users: Enterprise Guide



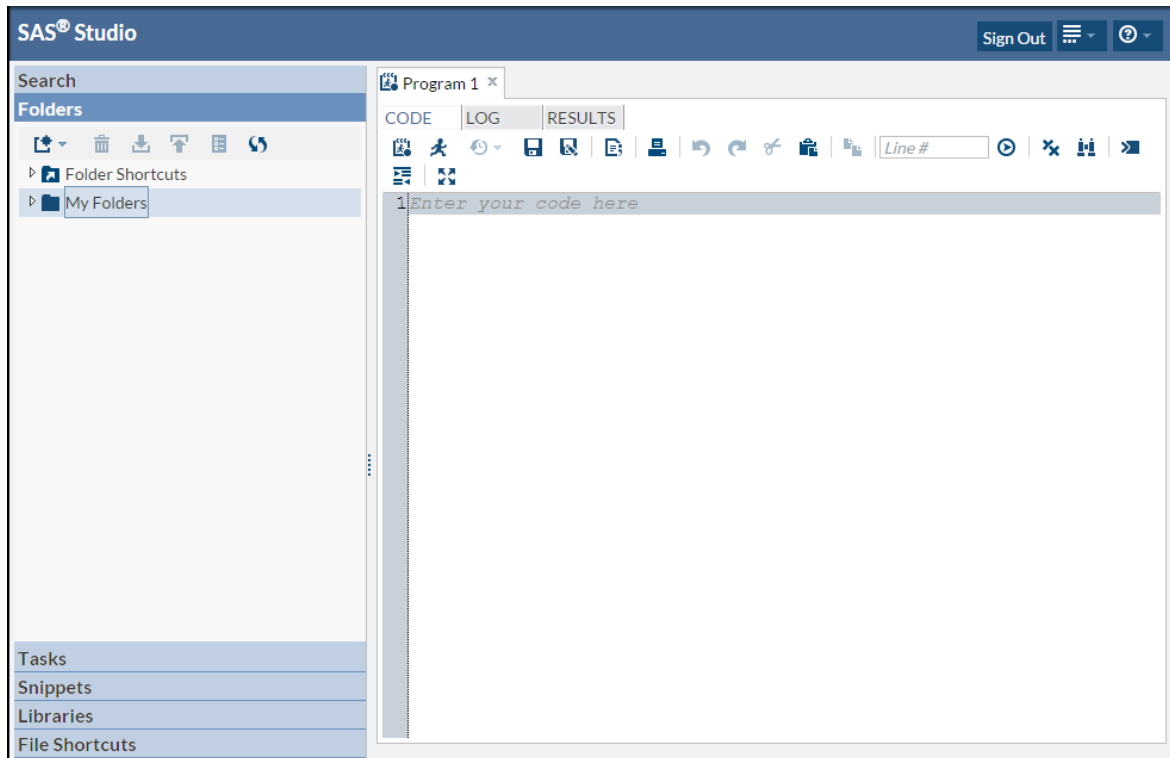
Windows Users: SAS Studio



Linux Users: Interactive SAS (DMS)



Linux and Other Platform Users: SAS Studio (SAS-U)

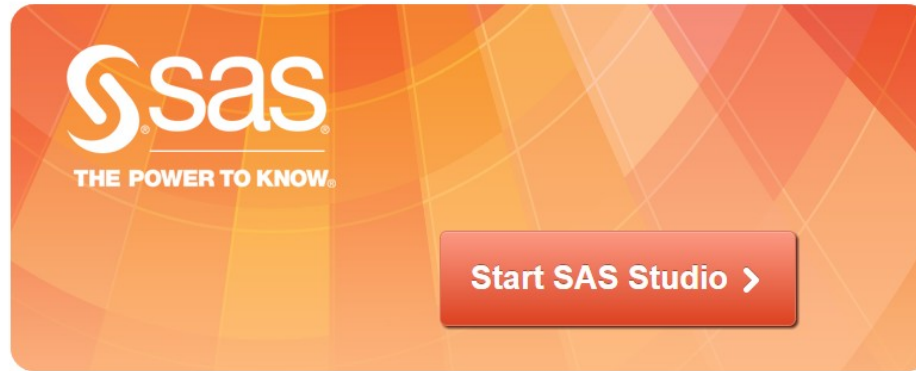


Academic Users: SAS University Edition (SAS-U)

SAS® University Edition: Information Center



Welcome



NOTIFICATIONS

 Checking for updates...

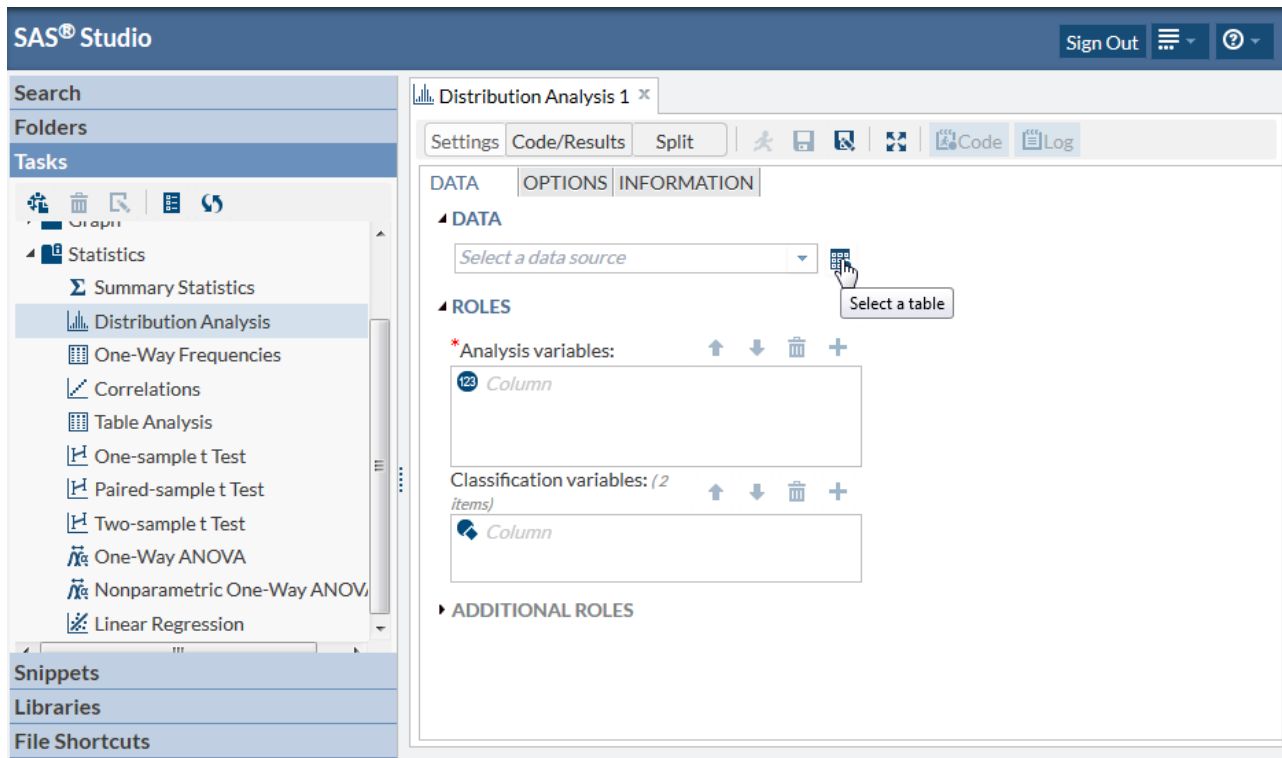
RESOURCES

[Communities](#) (collaborate and share best practices)
[Installation Documentation](#)
[Frequently Asked Questions \(FAQ\)](#)

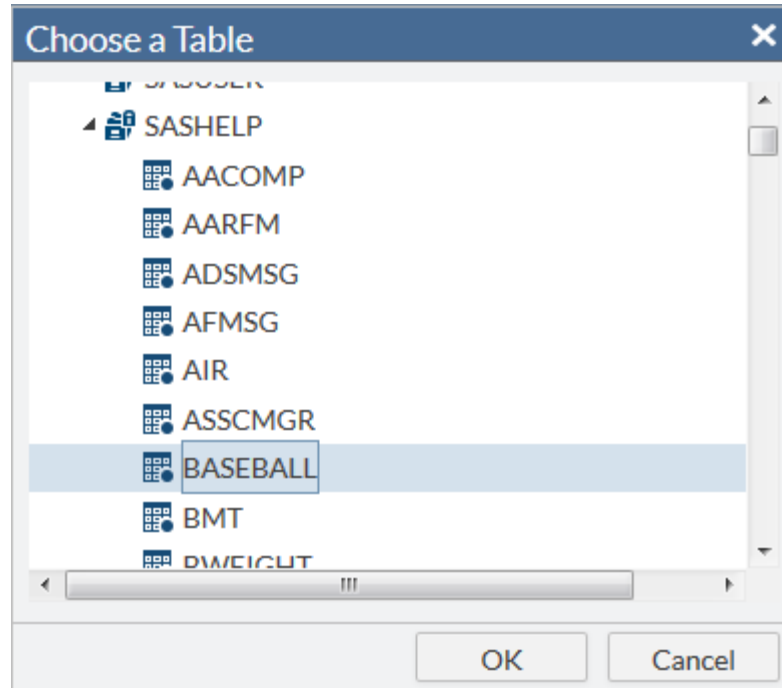
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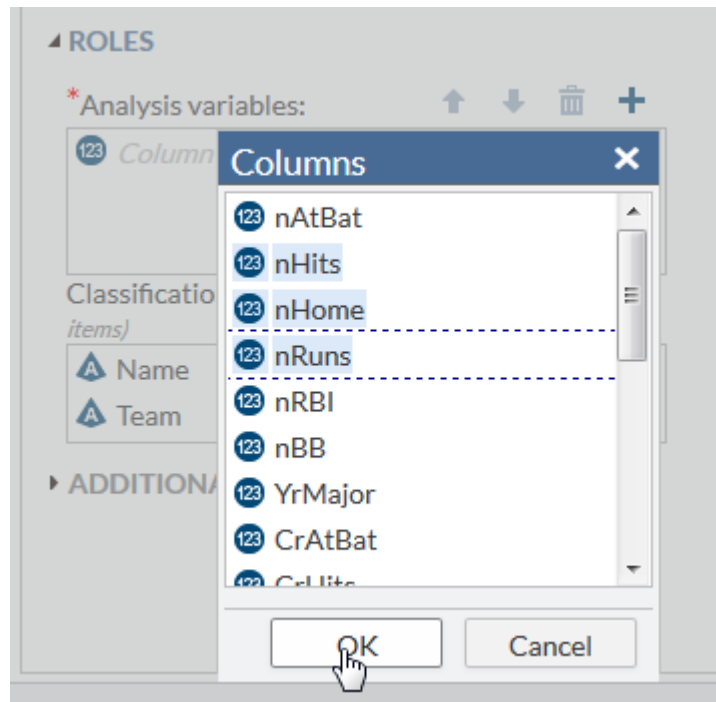
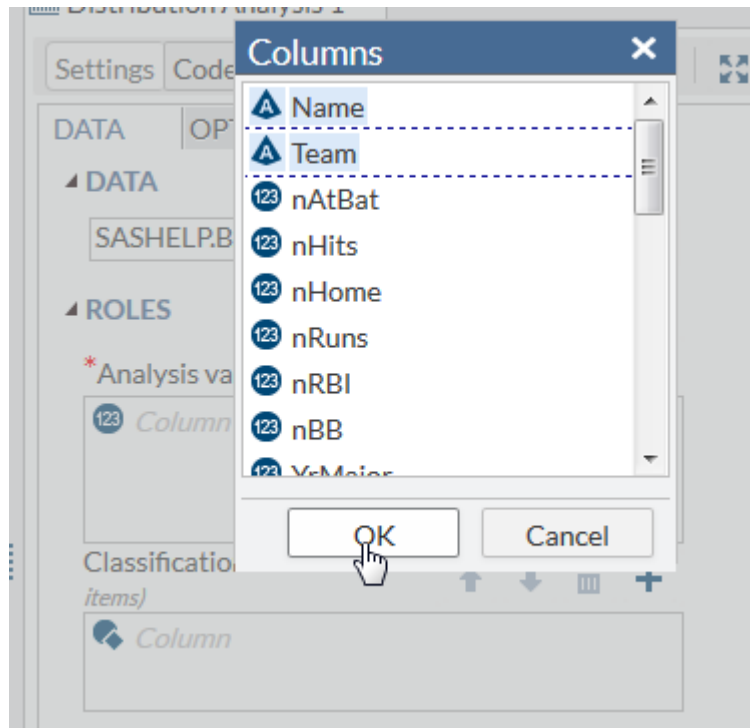
Non-programming Data Analysts: SAS Studio - 1



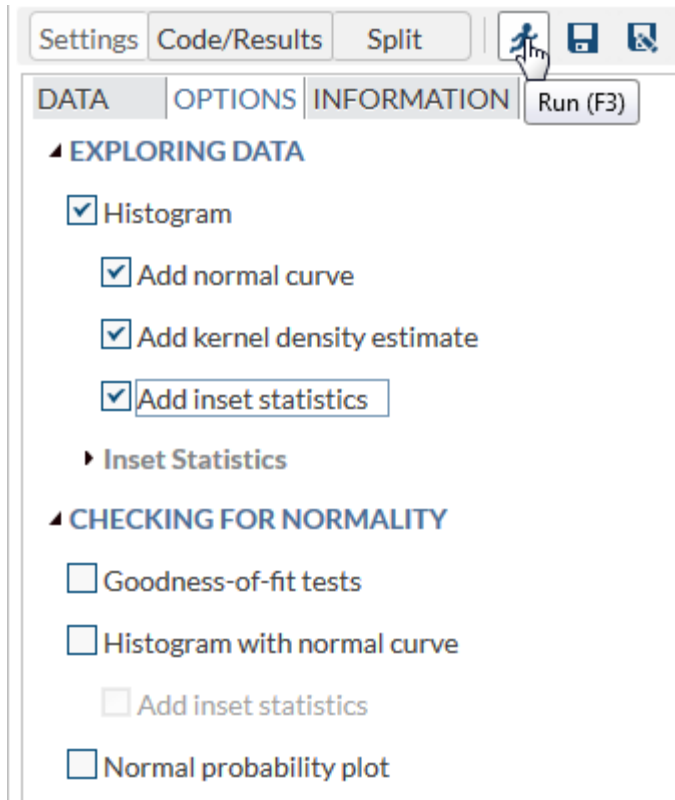
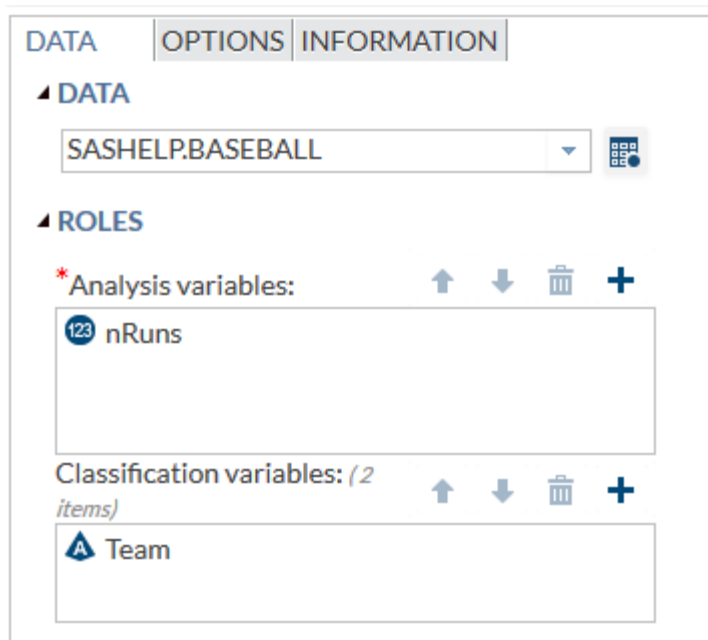
Non-programming Data Analysts: SAS Studio - 2



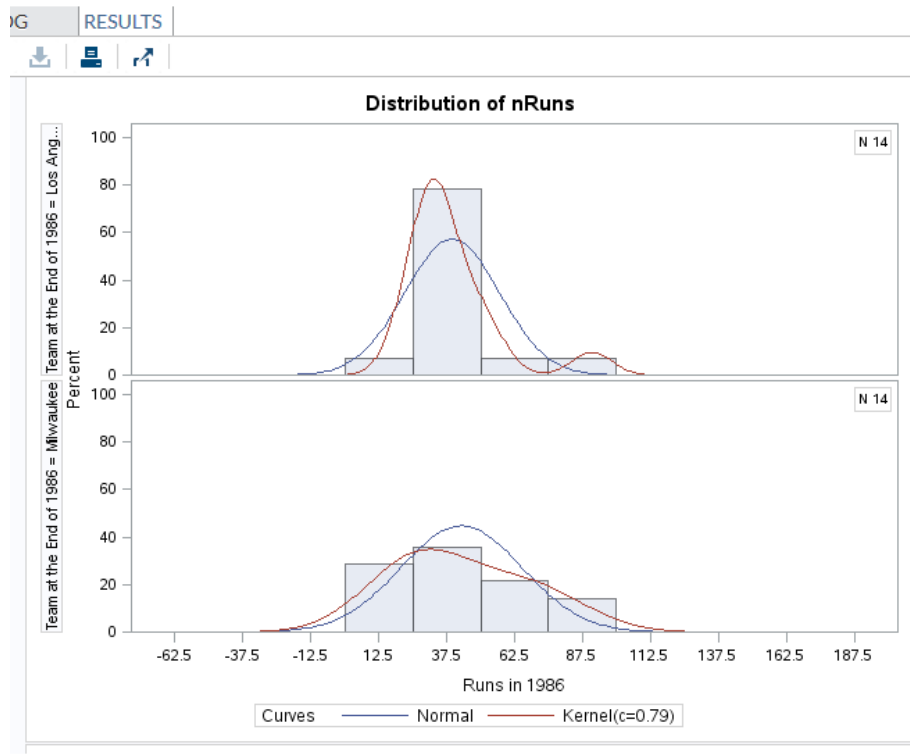
Non-programming Data Analysts: SAS Studio - 3



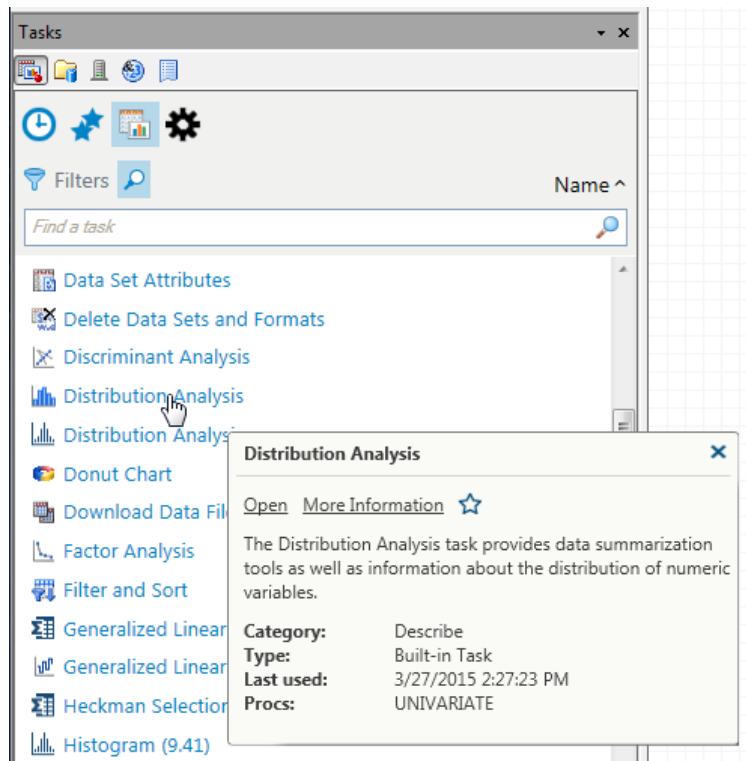
Non-programming Data Analysts: SAS Studio - 4



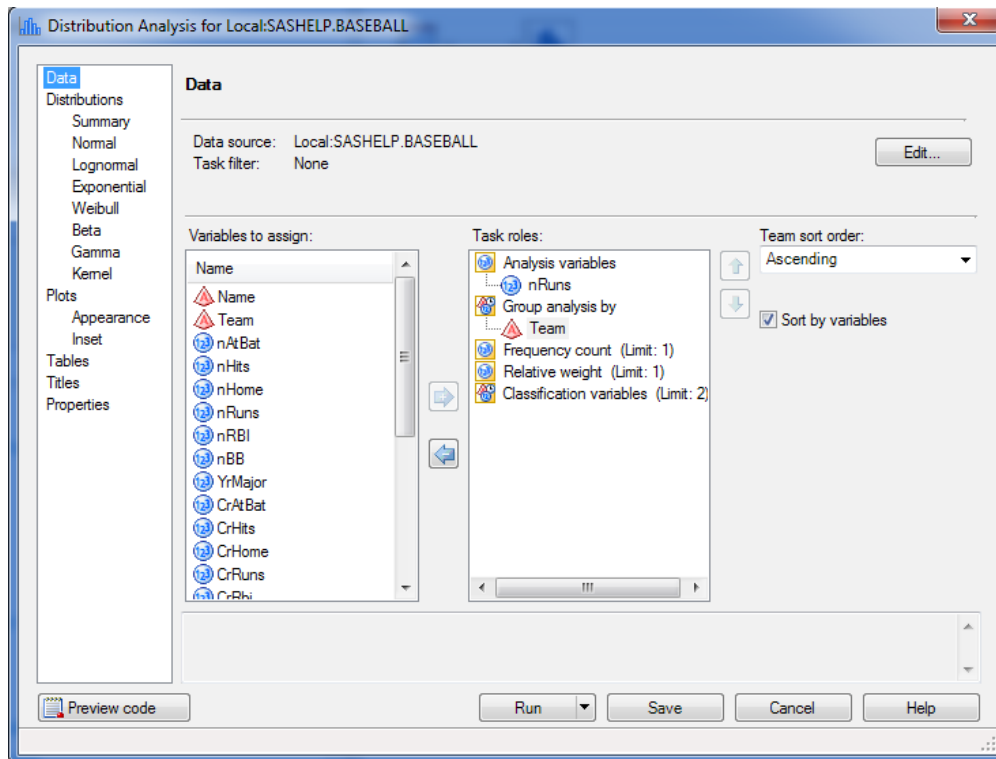
Non-programming Data Analysts: SAS Studio - 5



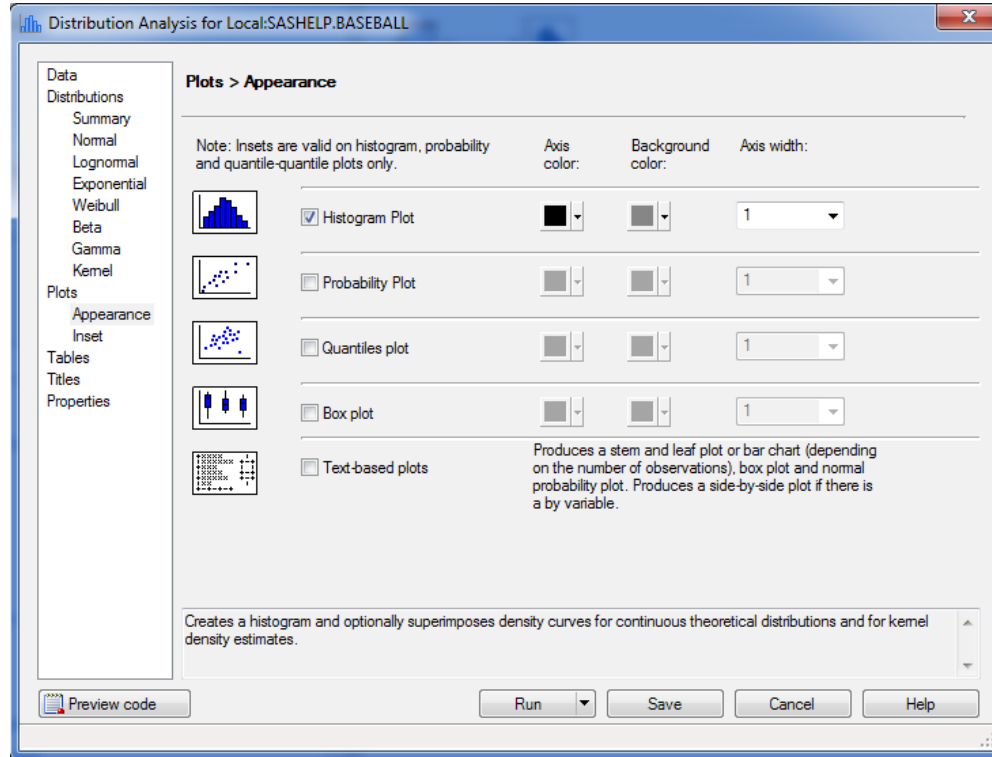
Non-programming Data Analysts: Enterprise Guide - 1



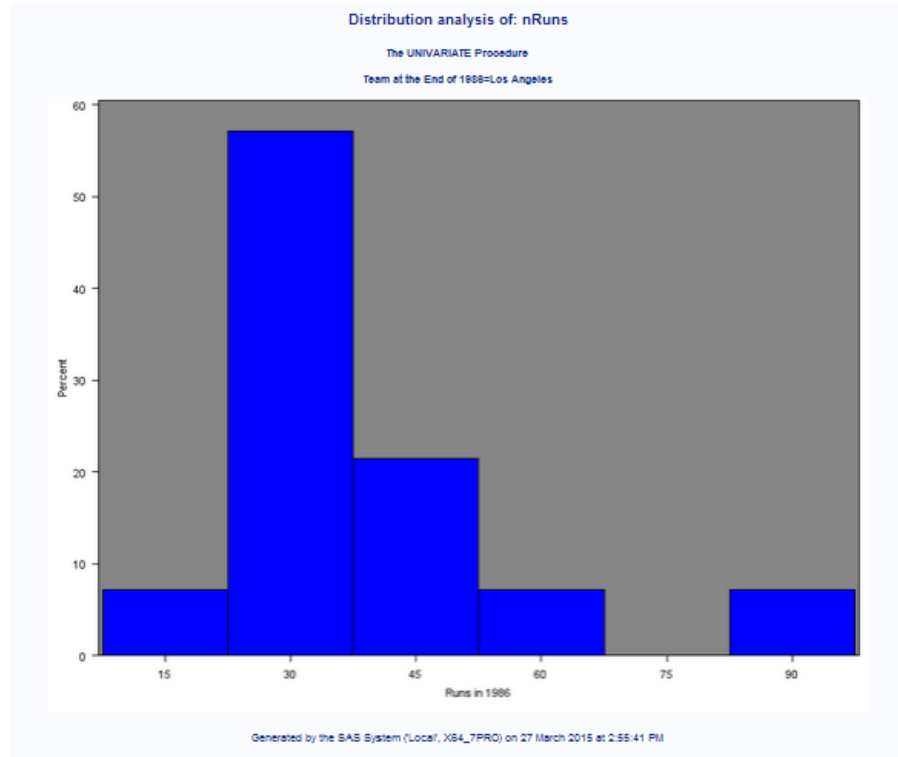
Non-programming Data Analysts: Enterprise Guide - 2



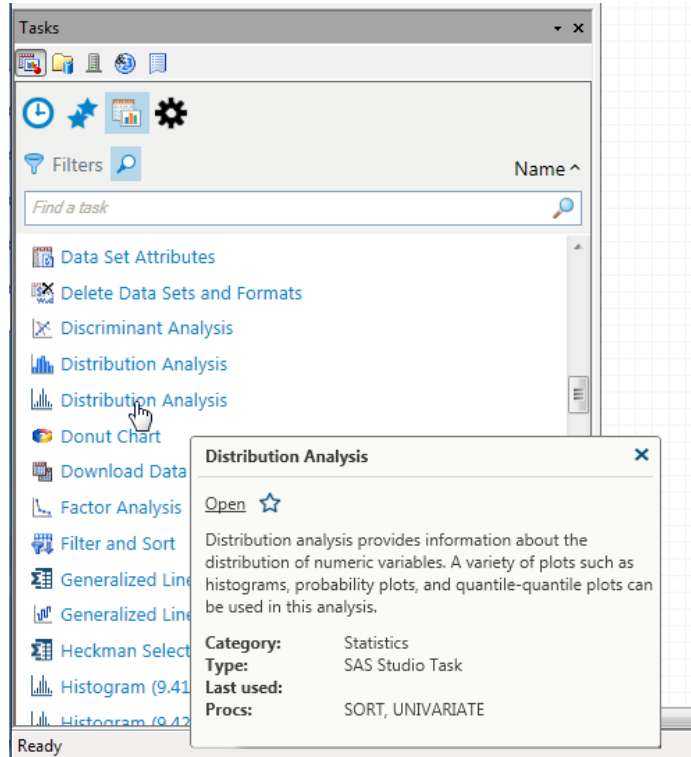
Non-programming Data Analysts: Enterprise Guide - 3



Non-programming Data Analysts: Enterprise Guide - 4

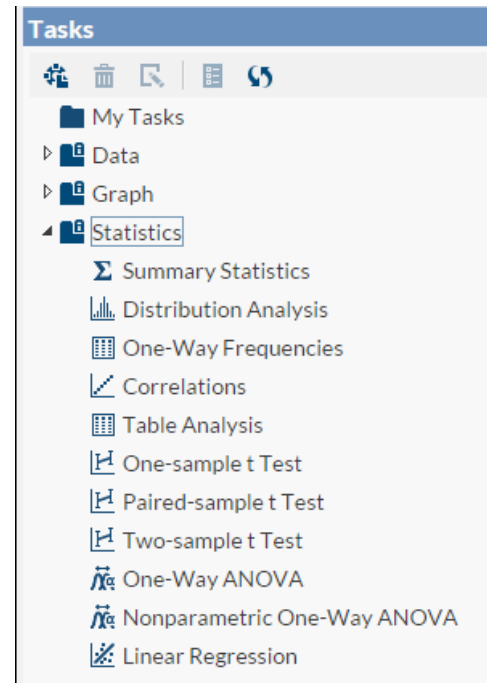
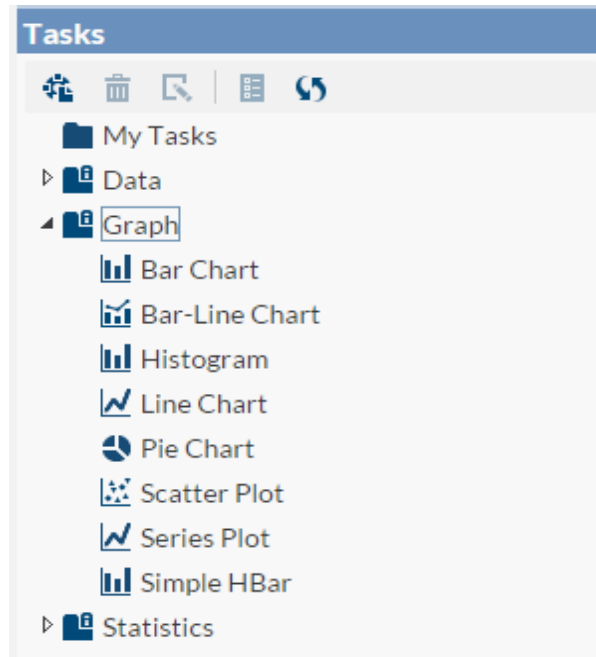
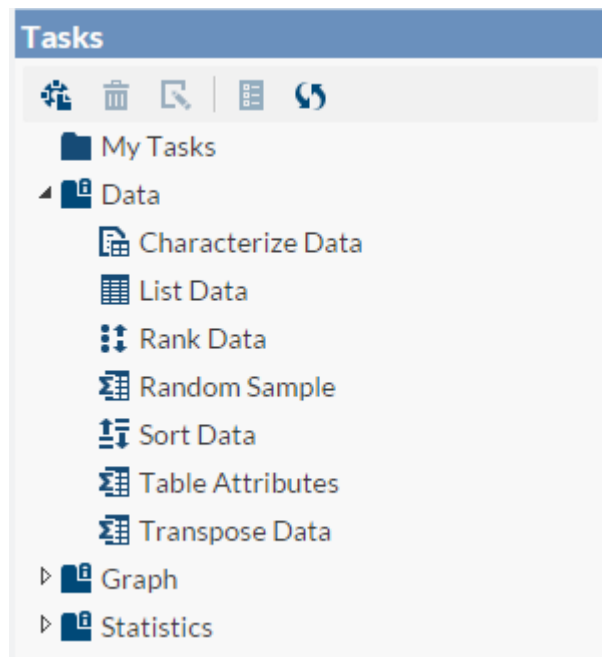


Non-programming Data Analysts: Enterprise Guide - 5

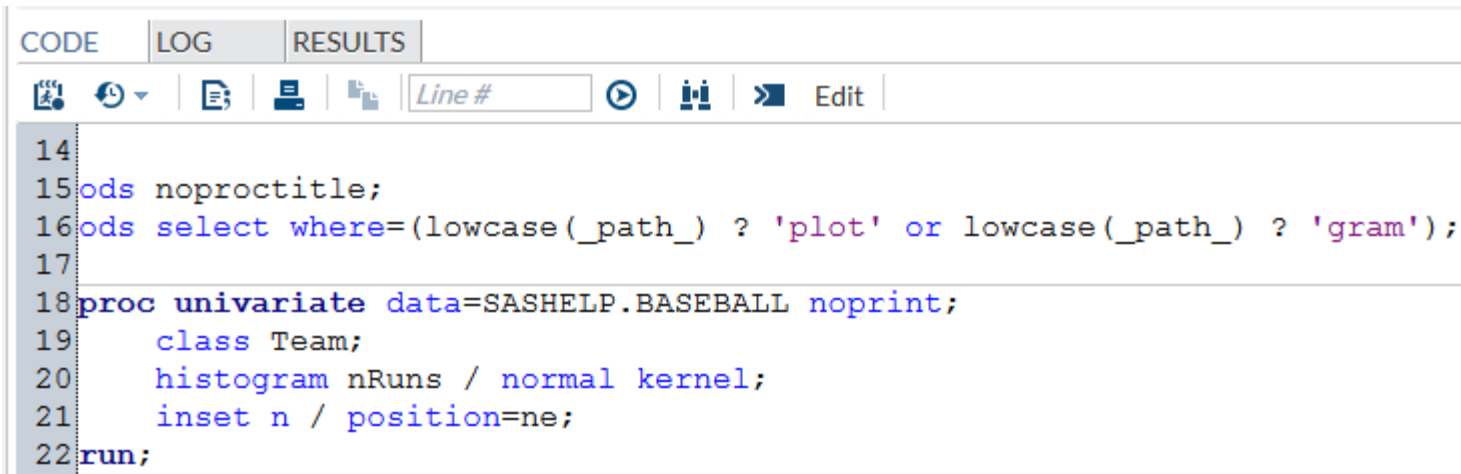


You can also use SAS Studio tasks in Enterprise Guide 7.1, if SAS Studio is installed on the same PC.

Novice SAS Programmers: SAS Studio - 1



Novice SAS Programmers: SAS Studio - 2

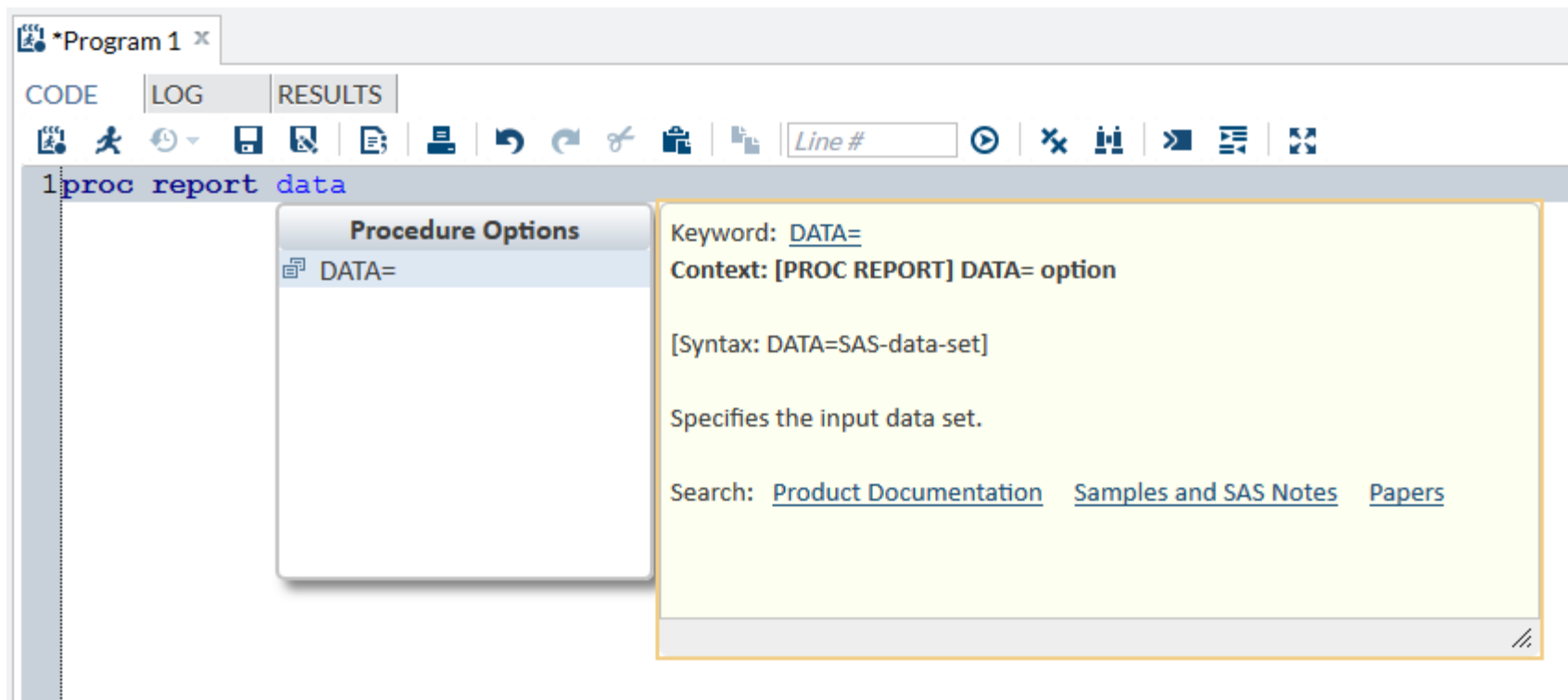


The screenshot shows the SAS Studio interface with three tabs: CODE, LOG, and RESULTS. The CODE tab is active. Below the tabs is a toolbar with icons for file operations, execution, and editing. The code editor contains the following SAS code:

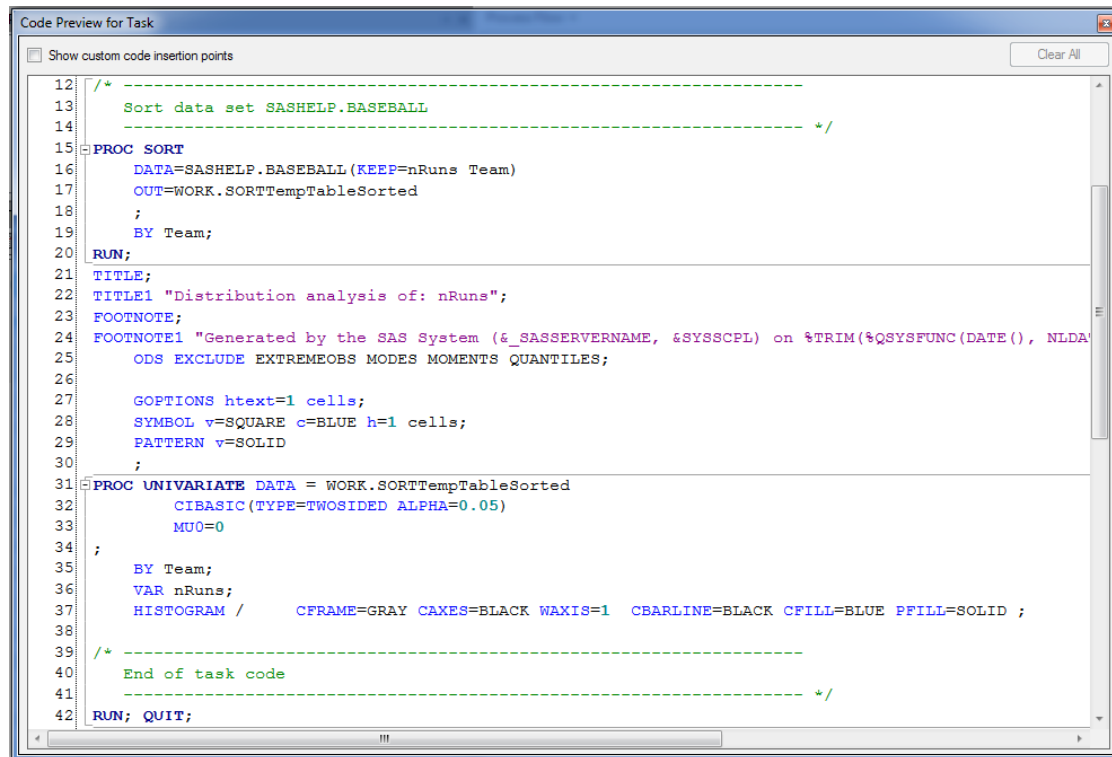
```
14  
15ods noproctitle;  
16ods select where=(lowercase(_path_) ? 'plot' or lowercase(_path_) ? 'gram');  
17  
18proc univariate data=SASHELP.BASEBALL noprint;  
19    class Team;  
20    histogram nRuns / normal kernel;  
21    inset n / position=ne;  
22run;
```



Novice SAS Programmers: SAS Studio - 3



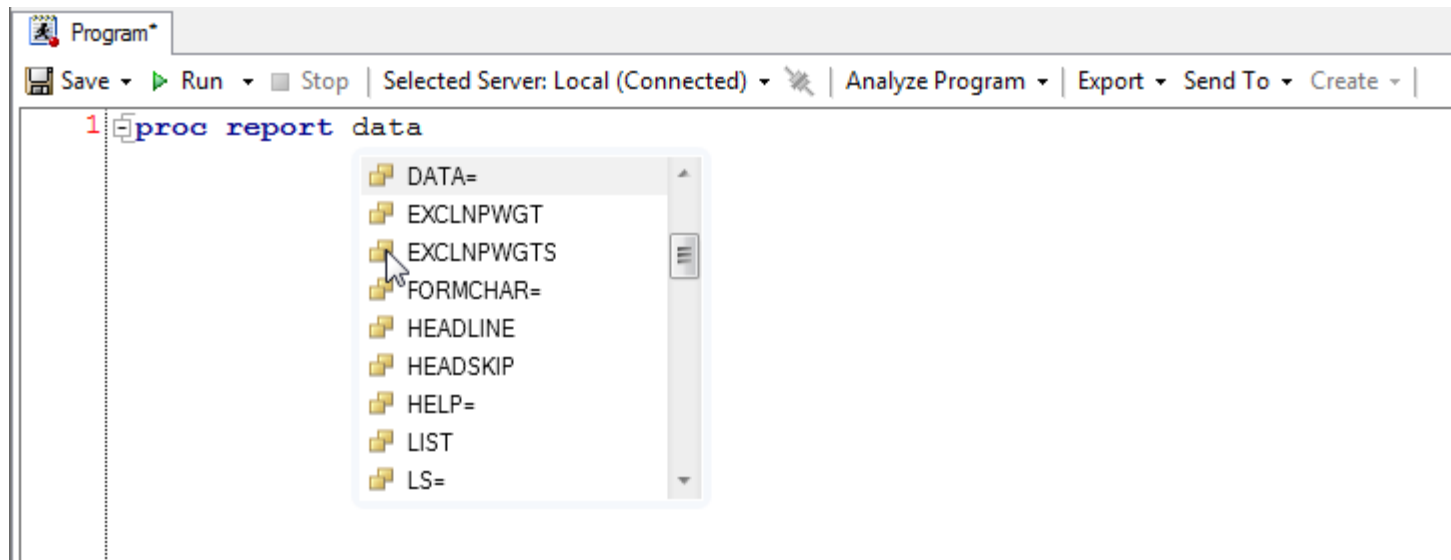
Novice SAS Programmers: Enterprise Guide - 1



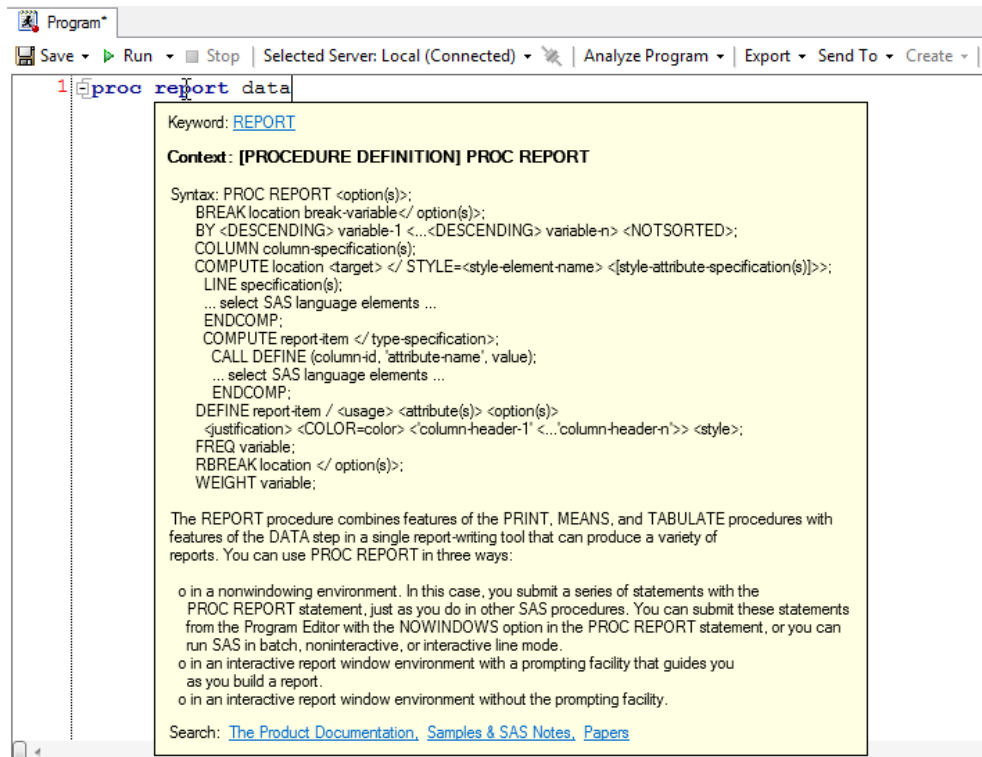
```
12  /* -----  
13  Sort data set SASHELP.BASEBALL  
14  ----- */  
15  PROC SORT  
16  DATA=SASHELP.BASEBALL(KEEP=nRuns Team)  
17  OUT=WORK.SORTTempTableSorted  
18  ;  
19  BY Team;  
20  RUN;  
21  TITLE;  
22  TITLE1 "Distribution analysis of: nRuns";  
23  FOOTNOTE;  
24  FOOTNOTE1 "Generated by the SAS System (&_SASSERVERNAME, &SYSSCP) on %TRIM(%QSYSFUNC(DATE()), NLDA  
25  ODS EXCLUDE EXTREMEOBS MODES MOMENTS QUANTILES;  
26  
27  GOPTIONS htext=1 cells;  
28  SYMBOL v=SQUARE c=BLUE h=1 cells;  
29  PATTERN v=SOLID  
30  ;  
31  PROC UNIVARIATE DATA = WORK.SORTTempTableSorted  
32  CIBASIC(TYPE=TWO SIDED ALPHA=0.05)  
33  MU0=0  
34  ;  
35  BY Team;  
36  VAR nRuns;  
37  HISTOGRAM / CFRAME=GRAY CAXES=BLACK WAXIS=1 CBARLINE=BLACK CFILL=BLUE PFILL=SOLID ;  
38  
39  /* -----  
40  End of task code  
41  ----- */  
42  RUN; QUIT;
```



Novice SAS Programmers: Enterprise Guide - 2



Novice SAS Programmers: Enterprise Guide - 3



The screenshot shows the SAS Enterprise Guide interface. At the top, there is a menu bar with options like 'Program', 'Save', 'Run', 'Stop', 'Selected Server: Local (Connected)', 'Analyze Program', 'Export', 'Send To', and 'Create'. Below the menu bar, the main window displays the documentation for the `PROC REPORT` statement. The documentation is titled 'Keyword: REPORT' and 'Context: [PROCEDURE DEFINITION] PROC REPORT'. It includes the syntax for the `PROC REPORT` statement, listing various options and their usage. The syntax is as follows:

```
PROC REPORT <option(s)>;  
  BREAK location break-variable </ option(s)>;  
  BY <DESCENDING> variable-1 <...> <DESCENDING> variable-n <NOTSORTED>;  
  COLUMN column-specification(s);  
  COMPUTE location <target> </ STYLE=<style-element-name> <[style-attribute-specification(s)]>>;  
  LINE specification(s);  
  ... select SAS language elements ...  
ENDCOMP;  
COMPUTE report-item </ type-specification>;  
  CALL DEFINE (column-id, 'attribute-name', value);  
  ... select SAS language elements ...  
ENDCOMP;  
DEFINE report-item / <usage> <attribute(s)> <option(s)>  
  <justification> <COLOR=color> <'column-header-1' <...> 'column-header-n'> <style>;  
FREQ variable;  
RBREAK location </ option(s)>;  
WEIGHT variable;
```

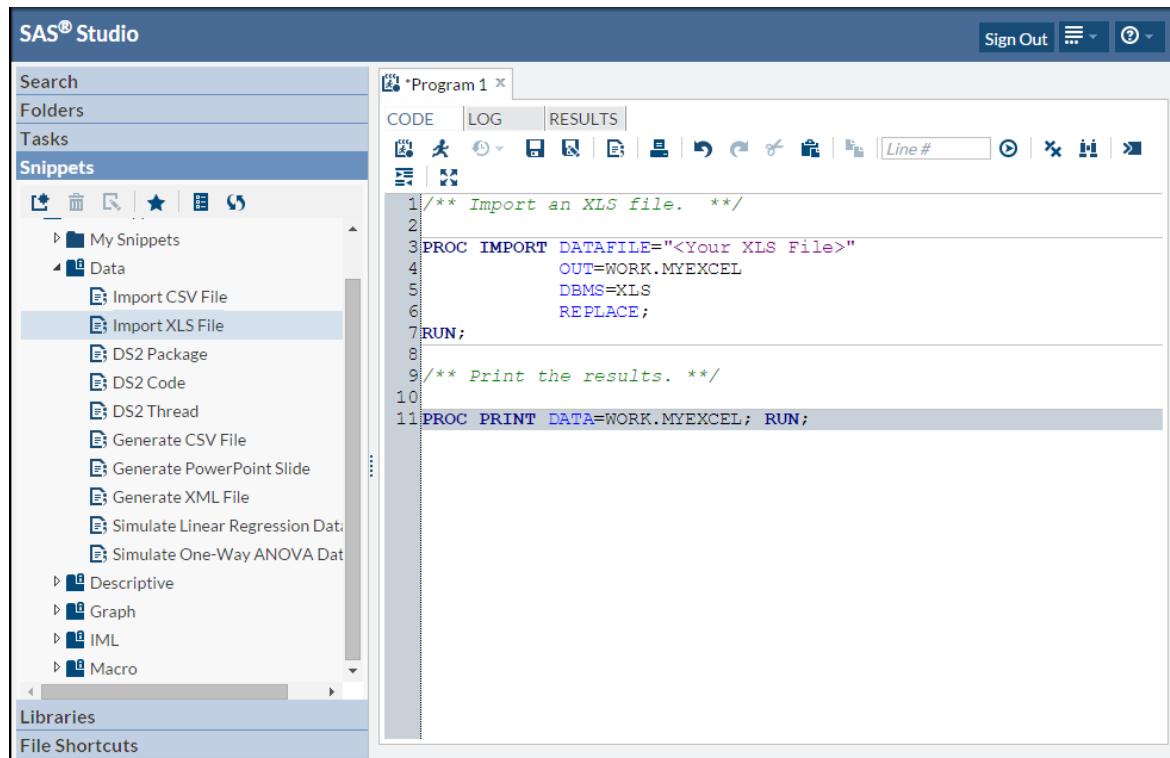
The documentation also includes a paragraph explaining that the `REPORT` procedure combines features of the `PRINT`, `MEANS`, and `TABULATE` procedures with features of the `DATA` step in a single report-writing tool that can produce a variety of reports. It states that you can use `PROC REPORT` in three ways:

- o in a nonwindowing environment. In this case, you submit a series of statements with the `PROC REPORT` statement, just as you do in other SAS procedures. You can submit these statements from the Program Editor with the `NOWINDOWS` option in the `PROC REPORT` statement, or you can run SAS in batch, noninteractive, or interactive line mode.
- o in an interactive report window environment with a prompting facility that guides you as you build a report.
- o in an interactive report window environment without the prompting facility.

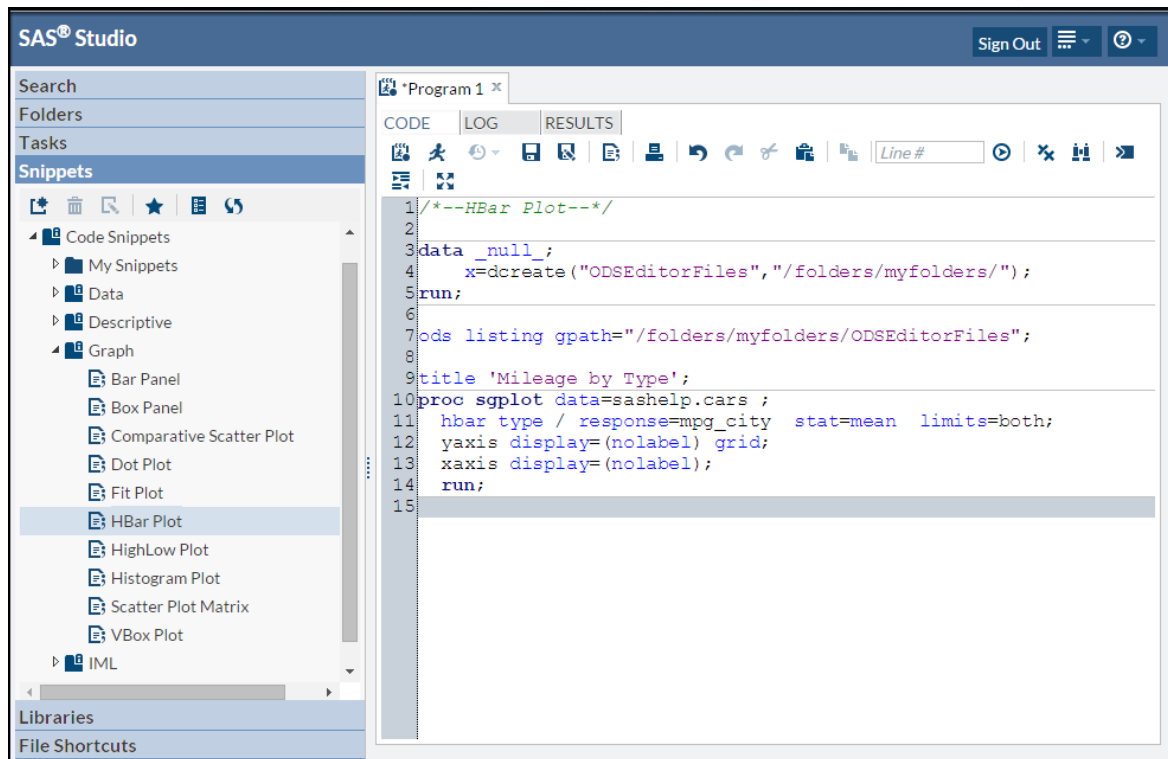
At the bottom of the documentation window, there is a search bar with the text 'Search: [The Product Documentation](#), [Samples & SAS Notes](#), [Papers](#)'.



Power Users: SAS Studio - 1

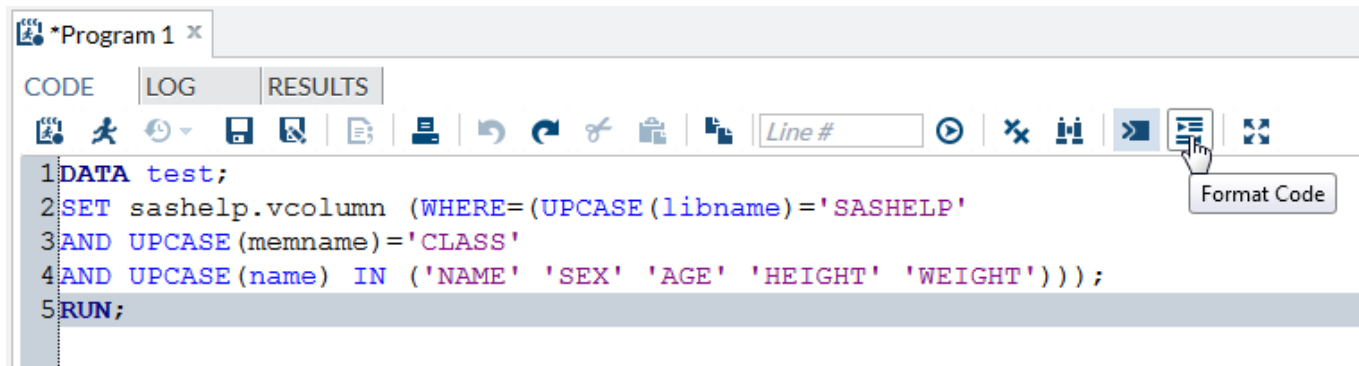


Power Users: SAS Studio - 2



Power Users: SAS Studio - 3

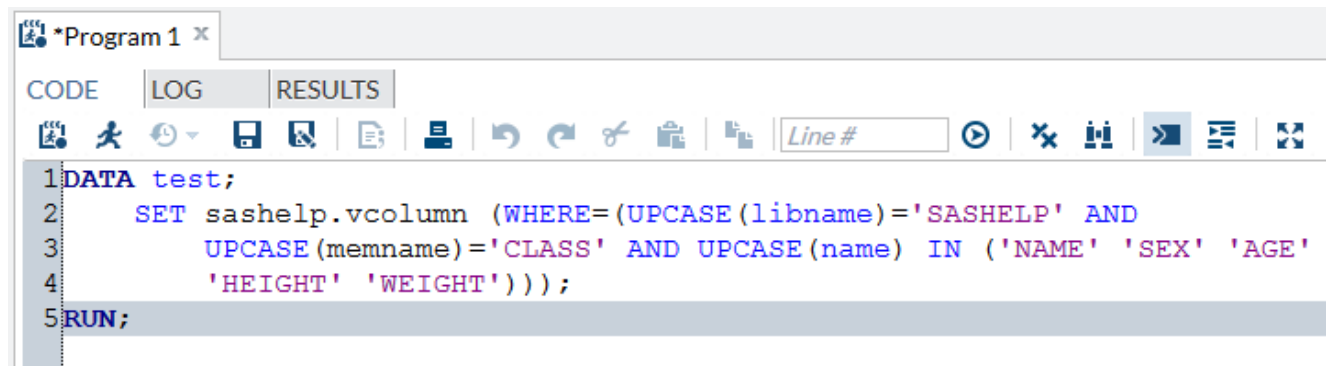
Before code
formatting



The screenshot shows the SAS Studio interface with a code editor window titled '*Program 1 x'. The editor has tabs for CODE, LOG, and RESULTS. A toolbar with various icons is visible, including a 'Format Code' button. The code is as follows:

```
1 DATA test;  
2 SET sashelp.vcolumn (WHERE=(UPCASE(libname)='SASHELP'  
3 AND UPCASE(memname)='CLASS'  
4 AND UPCASE(name) IN ('NAME' 'SEX' 'AGE' 'HEIGHT' 'WEIGHT')));  
5 RUN;
```

After code
formatting

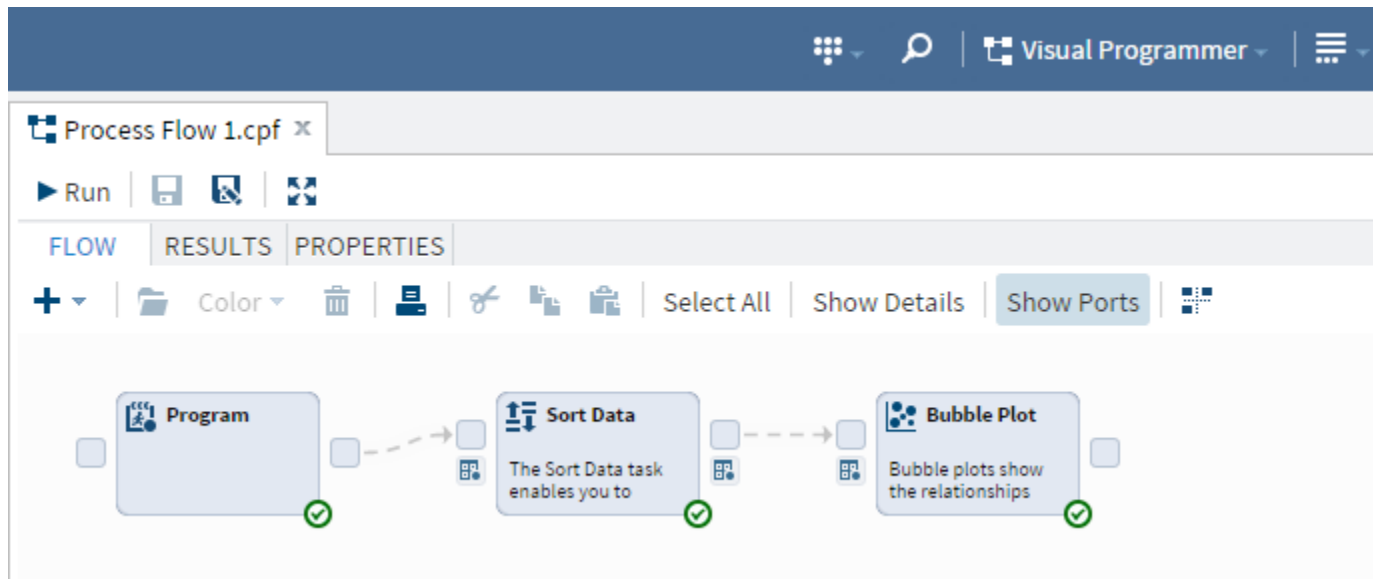


The screenshot shows the same SAS Studio interface, but the code is now formatted with proper indentation. The code is as follows:

```
1 DATA test;  
2     SET sashelp.vcolumn (WHERE=(UPCASE(libname)='SASHELP' AND  
3         UPCASE(memname)='CLASS' AND UPCASE(name) IN ('NAME' 'SEX' 'AGE'  
4             'HEIGHT' 'WEIGHT')));  
5 RUN;
```

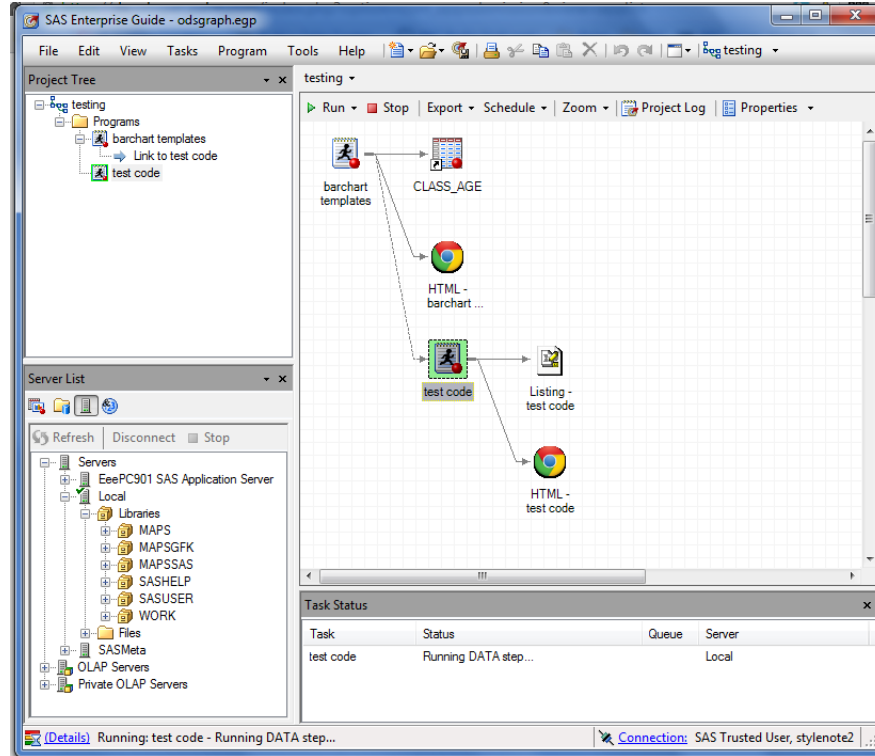


Power Users: SAS Studio 3.3 - STOP PRESS!!

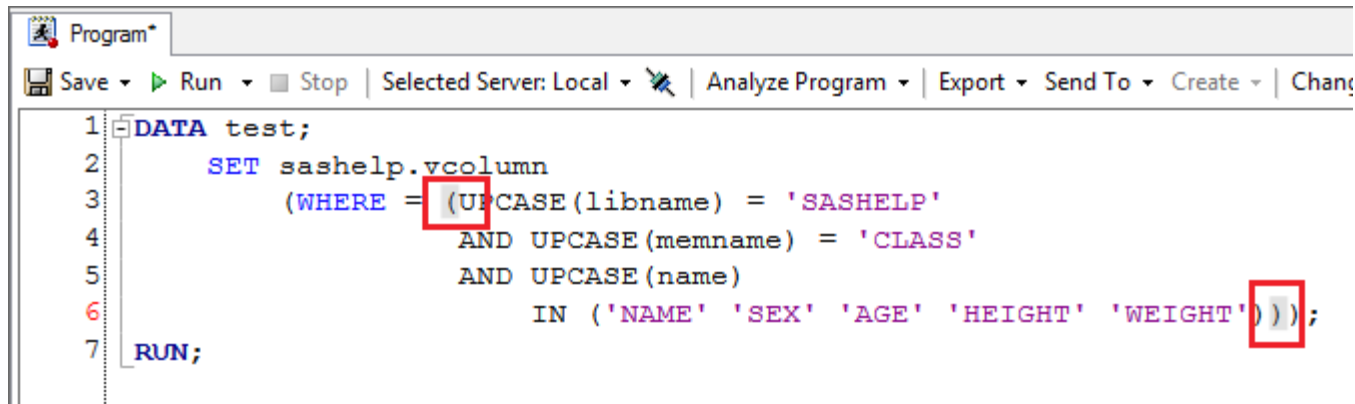


Process Flows can now be used and saved as *.cpf files in SAS Studio 3.3.

Power Users: Enterprise Guide - 1



Power Users: Enterprise Guide - 2



The screenshot shows the SAS Enterprise Guide interface. At the top is a menu bar with options: Save, Run, Stop, Selected Server: Local, Analyze Program, Export, Send To, Create, and Change. Below the menu bar is a code editor window titled 'Program*'. The code in the editor is as follows:

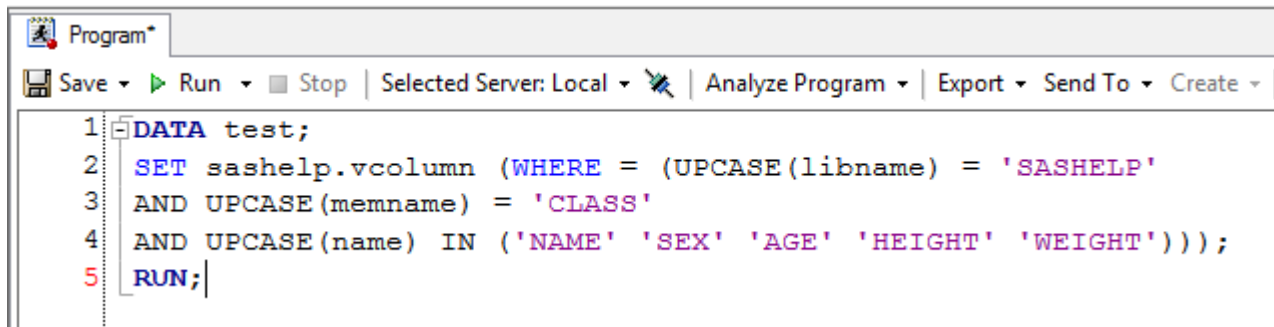
```
1 DATA test;  
2     SET sashelp.vcolumn  
3       (WHERE = (UPCASE(libname) = 'SASHELP'  
4                 AND UPCASE(memname) = 'CLASS'  
5                 AND UPCASE(name)  
6                 IN ('NAME' 'SEX' 'AGE' 'HEIGHT' 'WEIGHT')));  
7 RUN;
```

Red boxes highlight the opening parenthesis of the WHERE clause on line 3 and the closing parenthesis on line 6.



Power Users: Enterprise Guide - 3

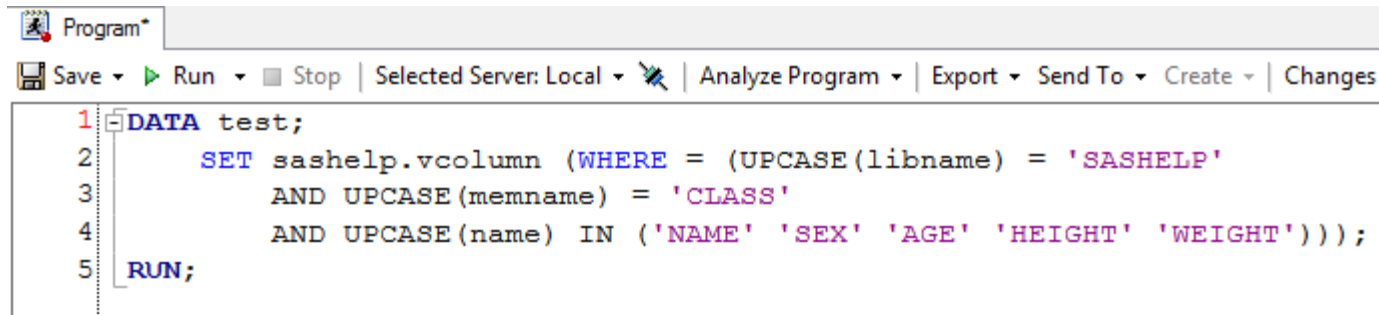
Before code
formatting



The screenshot shows the SAS Enterprise Guide code editor window titled "Program*". The toolbar includes icons for Save, Run, Stop, and buttons for "Selected Server: Local", "Analyze Program", "Export", "Send To", and "Create". The code is as follows:

```
1 DATA test;  
2 SET sashelp.vcolumn (WHERE = (UPCASE(libname) = 'SASHELP'  
3 AND UPCASE(memname) = 'CLASS'  
4 AND UPCASE(name) IN ('NAME' 'SEX' 'AGE' 'HEIGHT' 'WEIGHT')));  
5 RUN;
```

After code
formatting

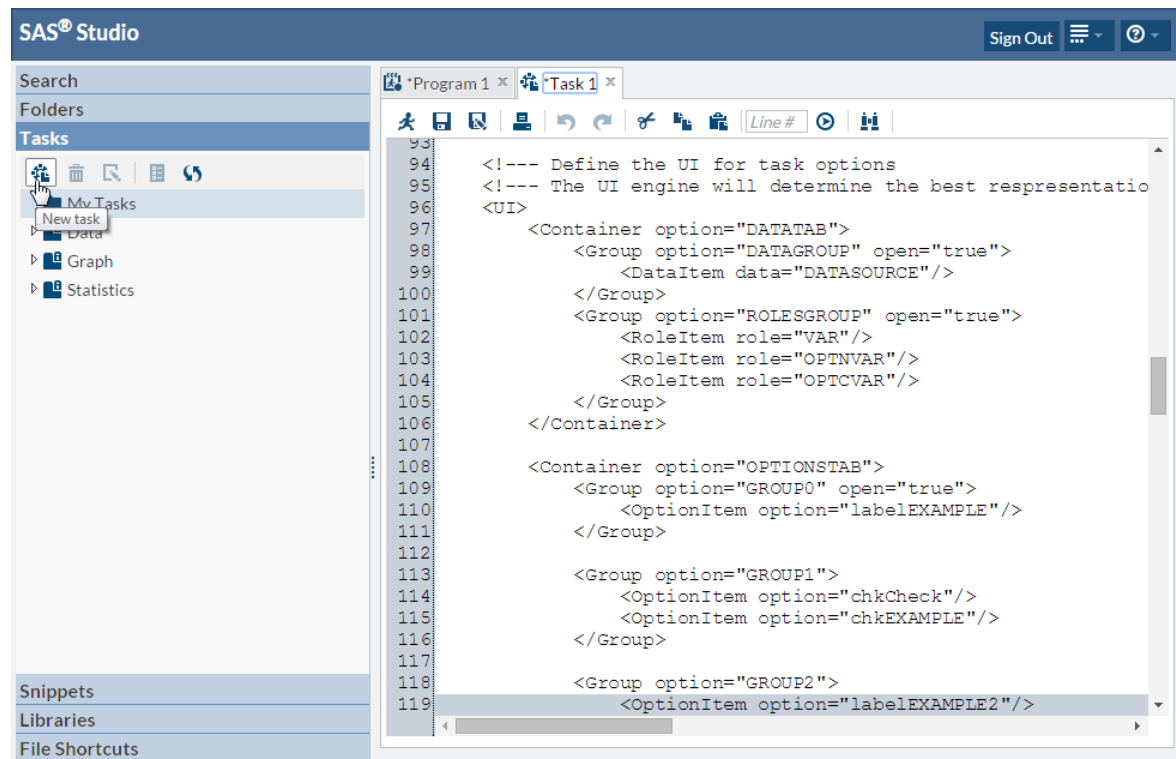


The screenshot shows the same SAS Enterprise Guide code editor window after formatting. The code is now properly indented:

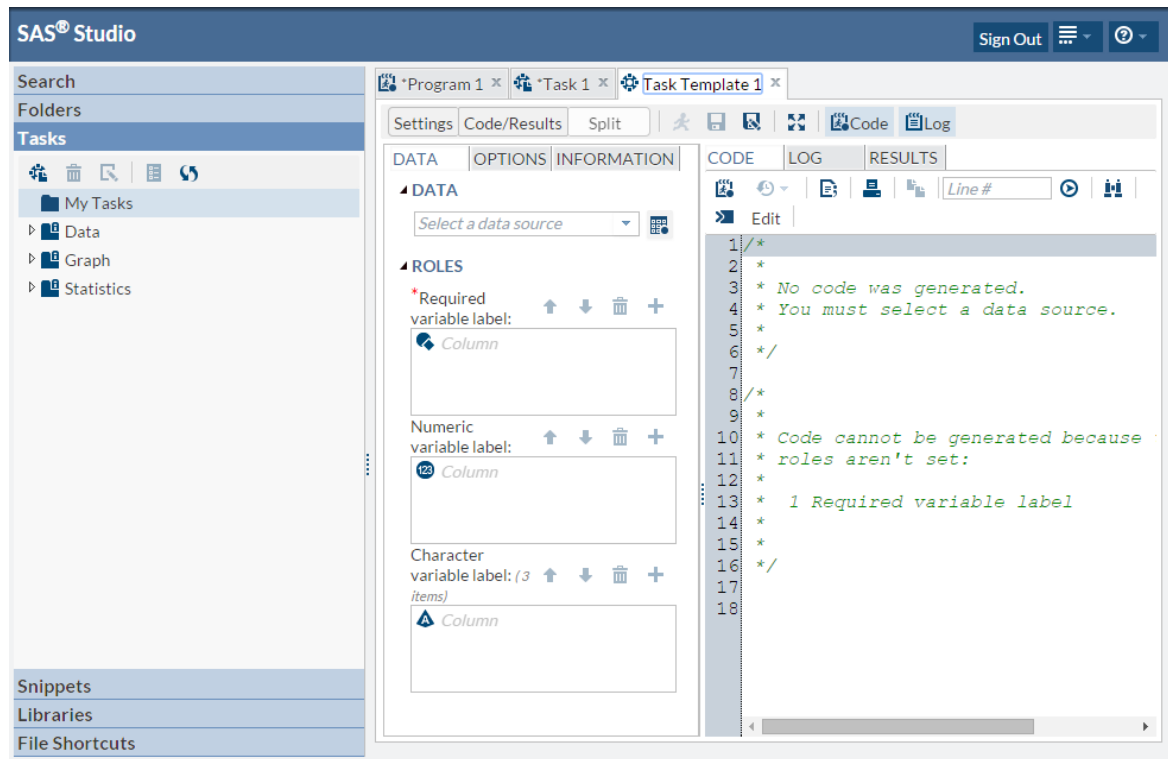
```
1 DATA test;  
2     SET sashelp.vcolumn (WHERE = (UPCASE(libname) = 'SASHELP'  
3         AND UPCASE(memname) = 'CLASS'  
4         AND UPCASE(name) IN ('NAME' 'SEX' 'AGE' 'HEIGHT' 'WEIGHT')));  
5 RUN;
```



Interface Developers: SAS Studio - 1



Interface Developers: SAS Studio - 2



Conclusions

- Academic users should take advantage of SAS Studio, as it is available as a free SAS programming environment in SAS University Edition.
- Novice and intermediate programmers should consider SAS Studio and Enterprise Guide as equally valid alternatives, provided they are working on Windows PCs, otherwise SAS Studio is the recommended option.
- Power Users should, in spite of peer pressure and inertia, be converting their environment of choice from Display Manager to Enterprise Guide. The change will give them access to vastly improved editing functionality, as well as the ability to create a collection of links to relevant documents.
- Interface and Task Developers have to consider whether they want to develop Tasks for SAS Studio or Enterprise Guide, but with the knowledge that SAS Studio Tasks are also available to Enterprise Guide 7.1.



Contact details

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