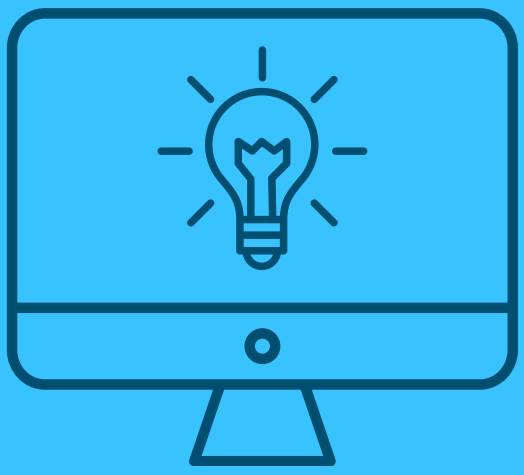
GETTING STARTED IN SAS STUDIO

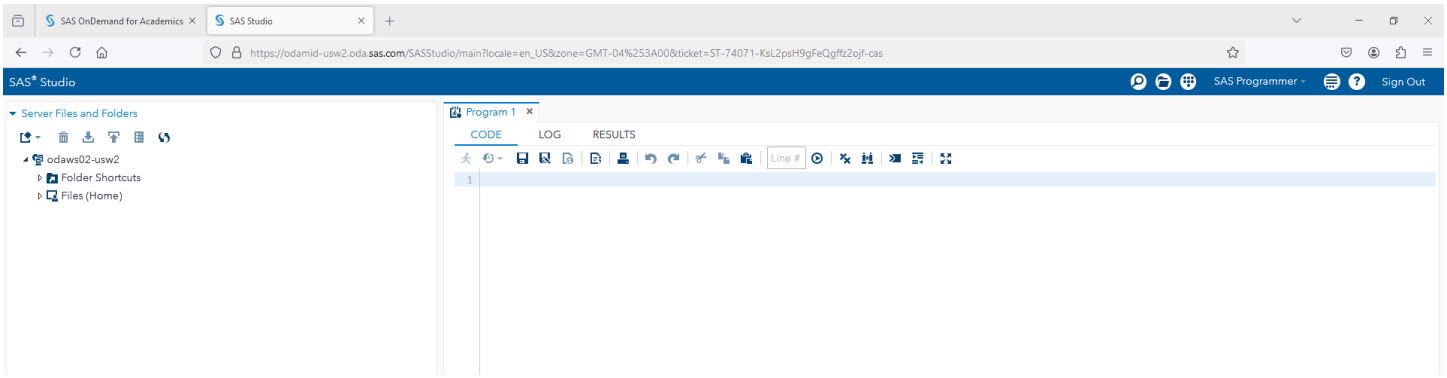


Accessing SAS Studio

- You can access SAS Studio via your web browser (not Chrome) by first registering for an account at this link.
  - I would encourage you to register using your KSU email.
- After you have registered, you can navigate to the SAS OnDemand for Academics page here
  - Click the “Sign In” button at the top right of the page to sign in.

Navigating SAS Studio

- When you sign into SAS Studio, your screen should look like this:

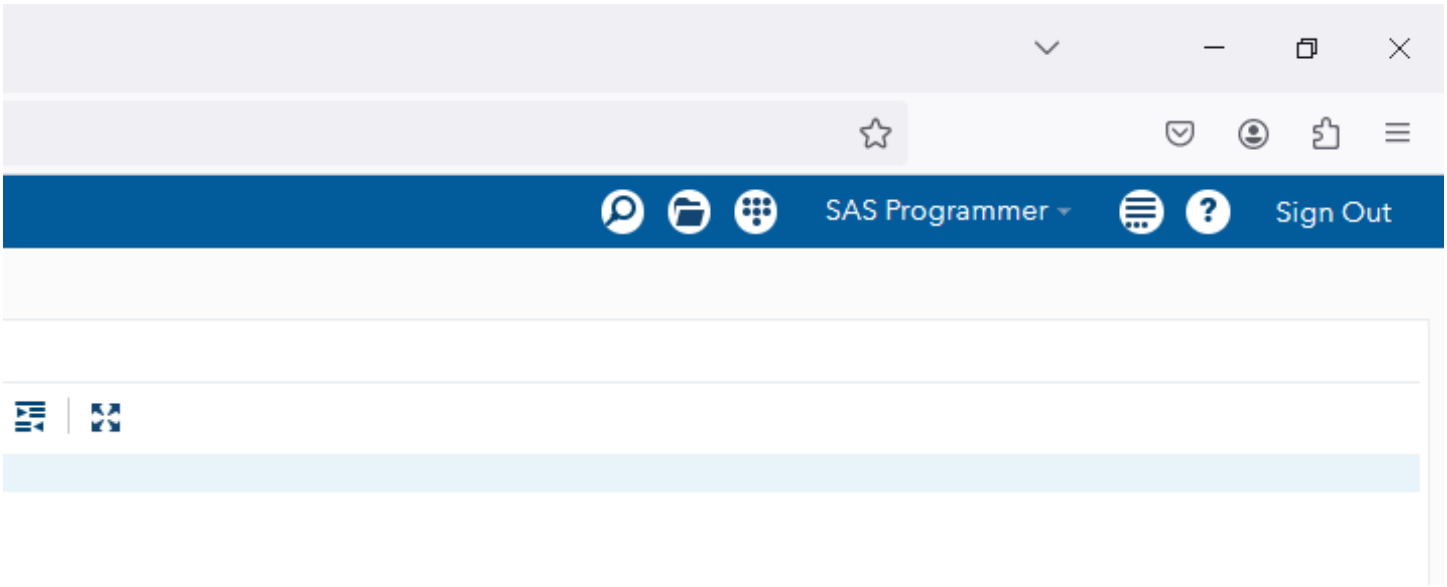


- To the left, you have a file navigation system which allows you to create your own folders to upload data and save code and other SAS output.

- To the right, you have a SAS code script open (titled Program 1), which is where we can type out, modify, save, and execute SAS code.

Opening a Script

- Because we often like to save our code for future use, we can make use of SAS code scripts (which is effectively a text editor). To open a new SAS Script, click on the "dots" button (directly to the left of the SAS Programmer button) in the upper righthand corner of the SAS Studio screen:



- In the dropdown menu, select the top option "New SAS Program". In doing so, a new tab will appear called "Program 2" (or "Program 1" if there wasn't a code script open when you initially opened SAS Studio).

Understanding SAS Programming

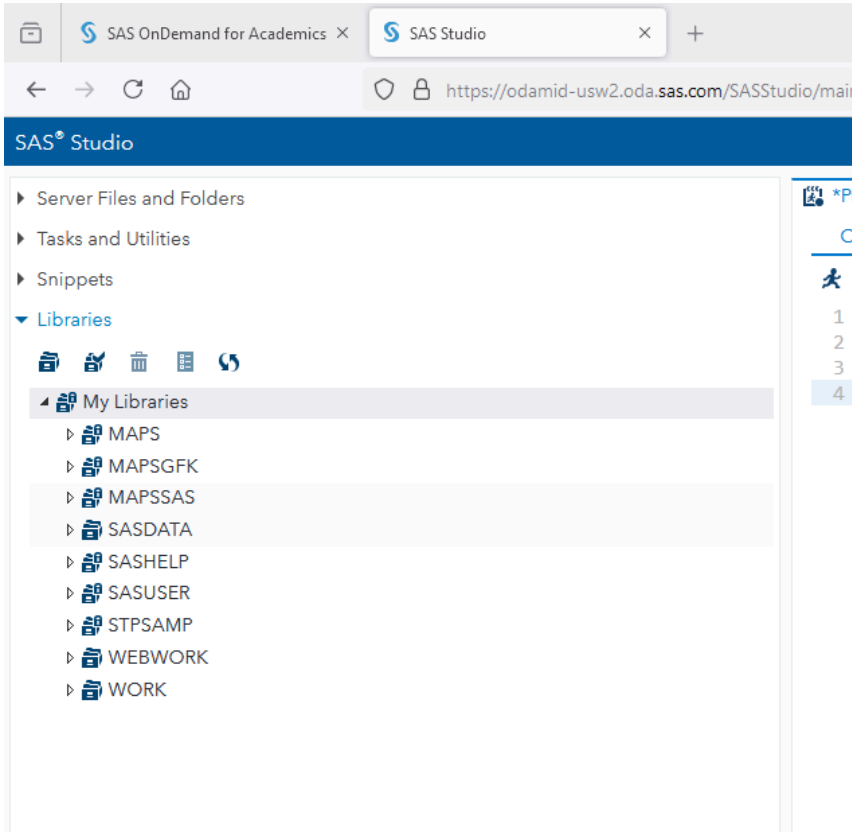
- SAS is a little bit different than R and Python in that it is a *procedure* oriented programming language rather than an *object* oriented programming language.

- Essentially, this means that most of SAS functionality from a data science perspective is centered upon data.

- We can import data from external sources (e.g., an Excel file), but SAS also has datasets preloaded into each SAS session that we can use for practice.

- All datasets, whether we import them or use the preloaded datasets, exist within what are called ***libraries***.
  - A library is a location where datasets (among other things) are stored.

- We can see in the below picture how to navigate to the libraries SAS creates and stores for us by default:



- Later, we will learn how to create our own libraries, which is very useful for project management!

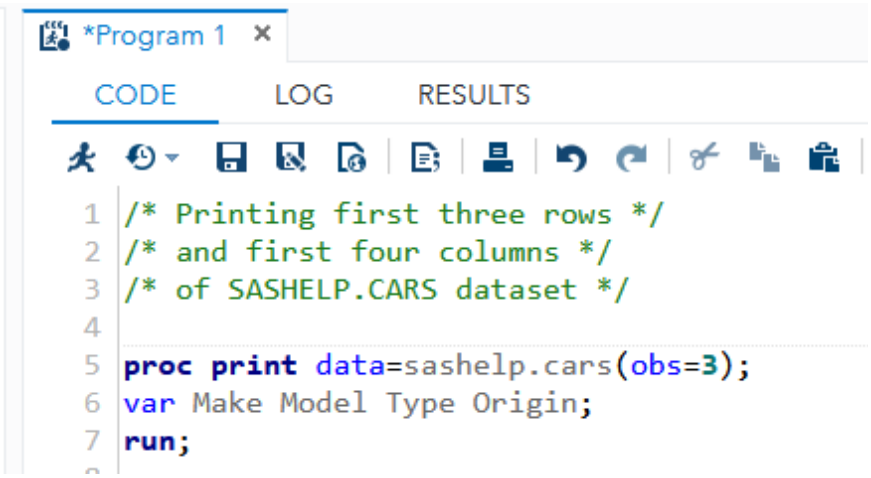
Executing Code

- In the SAS Script, we can write and modify code without actually executing it

- I recommend making comments/notes to ourselves about what the code is doing (or supposed to be doing)
  - This is especially useful when working in teams

- Suppose I want to write code to save the print the first three rows and first four columns of the SASHELP.CARS dataset
  - SASHELP is the name of the library
  - CARS is the name of the package
  - The names of the first four columns are:
    - Make
    - Model
    - Type
    - Origin

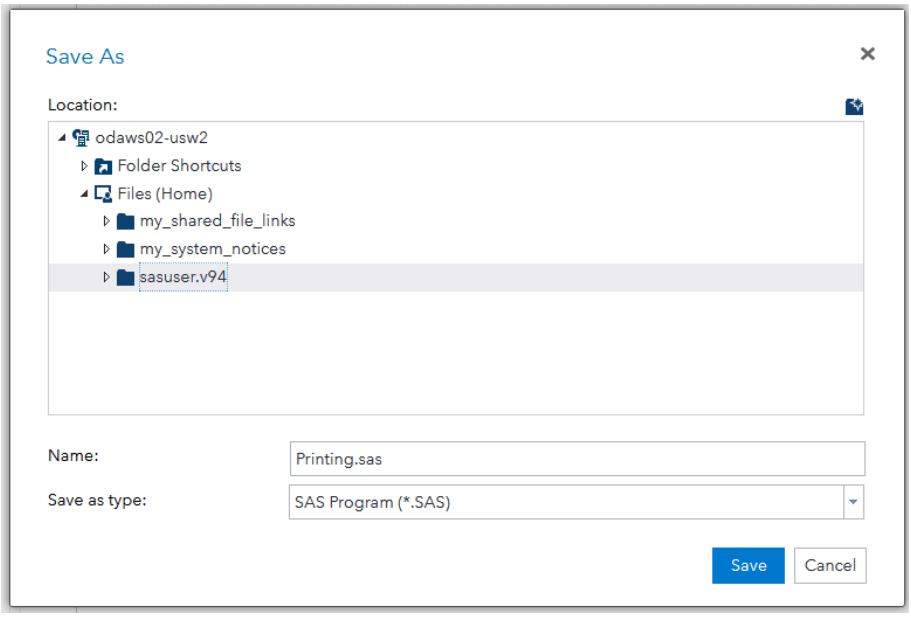
- To do so, I will write the below code:



- Placing a /* symbol at the beginning of a new line indicates to SAS Studio that you are making a note or comment.
  - Note, to close a comment (that is, to indicate to SAS Studio that you are done writing comments), you must finish your comment with a */ symbol.
  - Also note, ALL SAS COMMANDS MUST END WITH A SEMI-COLON **;**

- Also notice, the name of the SAS code script, Program 1, has changed to *Program 1.
  - This is a visual cue to you that the code has been modified since you first opened it.

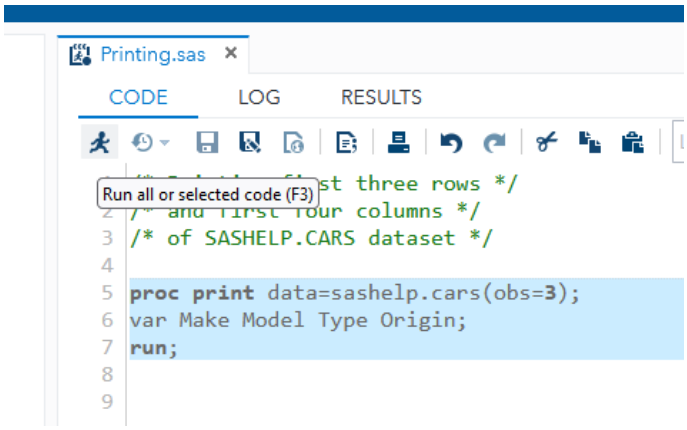
- To save modified code, we can click the floppy disk save icon just to the right of the running man button in the above figure.
  - I will save mine as "Printing". Notice when we do so, we have a choice of where to save it within the SAS Studio file navigation system.
  - I would encourage you to save your code and output within the sasuser.v94 folder. You can create new subfolders within this directory as you wish.



- Now, if we ever close our Printing script, we can open it right back up by double-clicking on the "Printing.sas" file name inside of our sasuser.v94 folder.

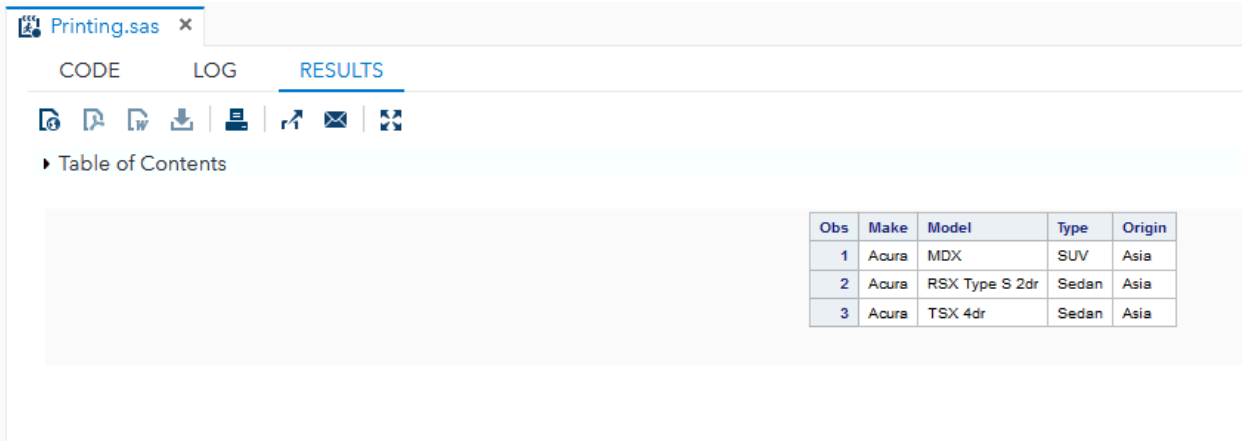
- Now that we've written a little bit of code, how do we get SAS Studio to actually run it? The most direct way:

- With your cursor, highlight the code you'd like to run and click the running man button:



What Happens When Executing Code

- When we run code that executes successfully, generally, the "RESULTS" tab pops up automatically to show us our results.
  - So for us, we get the first three rows and four columns of the SASHELP.CARS dataset in a printed table, just as we requested:



Obs	Make	Model	Type	Origin
1	Acura	MDX	SUV	Asia
2	Acura	RSX Type S 2dr	Sedan	Asia
3	Acura	TSX 4dr	Sedan	Asia

- If the code does not execute successfully, the "LOG" tab pops up automatically and let's us know the ERROR in our code.
  - Note, whenever we execute code in general, whether it executes successfully or unsuccessfully, a LOG message is always produced.
  - It is best practice to regularly consult the LOG as sometimes WARNINGS can also be generated.
    - A WARNING is a message that means our code has executed, but there is something about the way it was executed that is unusual and that the user should be aware of.