

Using SAS programs from the Stat 422 website with the SAS Web Editor

SAS is a very powerful program for data management and analysis, and it is the main program featured in my Engineering Outreach (EO) Stat 422 recorded lectures. As mentioned in my introductory email note to students, there are other computing options for my EO Stat 422 course, but SAS is convenient for this course because of the SAS macro programs that are provided by the author of our text (also available on my lecture webpage). Using the Web Editor interface is very straightforward for running SAS programs that do not call external data sets or macro programs. However, when using externally-read data sets (data not in the SAS program, which are read in with the CARDS statement) or when using macro programs, you need to make a few changes to run the programs. This document shows how to run both types of SAS programs in the Web Editor environment.

These instructions assume that you have already created a SAS Profile and can access the Web Editor. Registration instructions are available at:

<http://support.sas.com/ondemand/manuals/SASWebEditorStudent.pdf>

Once you have a profile and have registered to use SAS for this course, you can access the Web Editor login directly at:

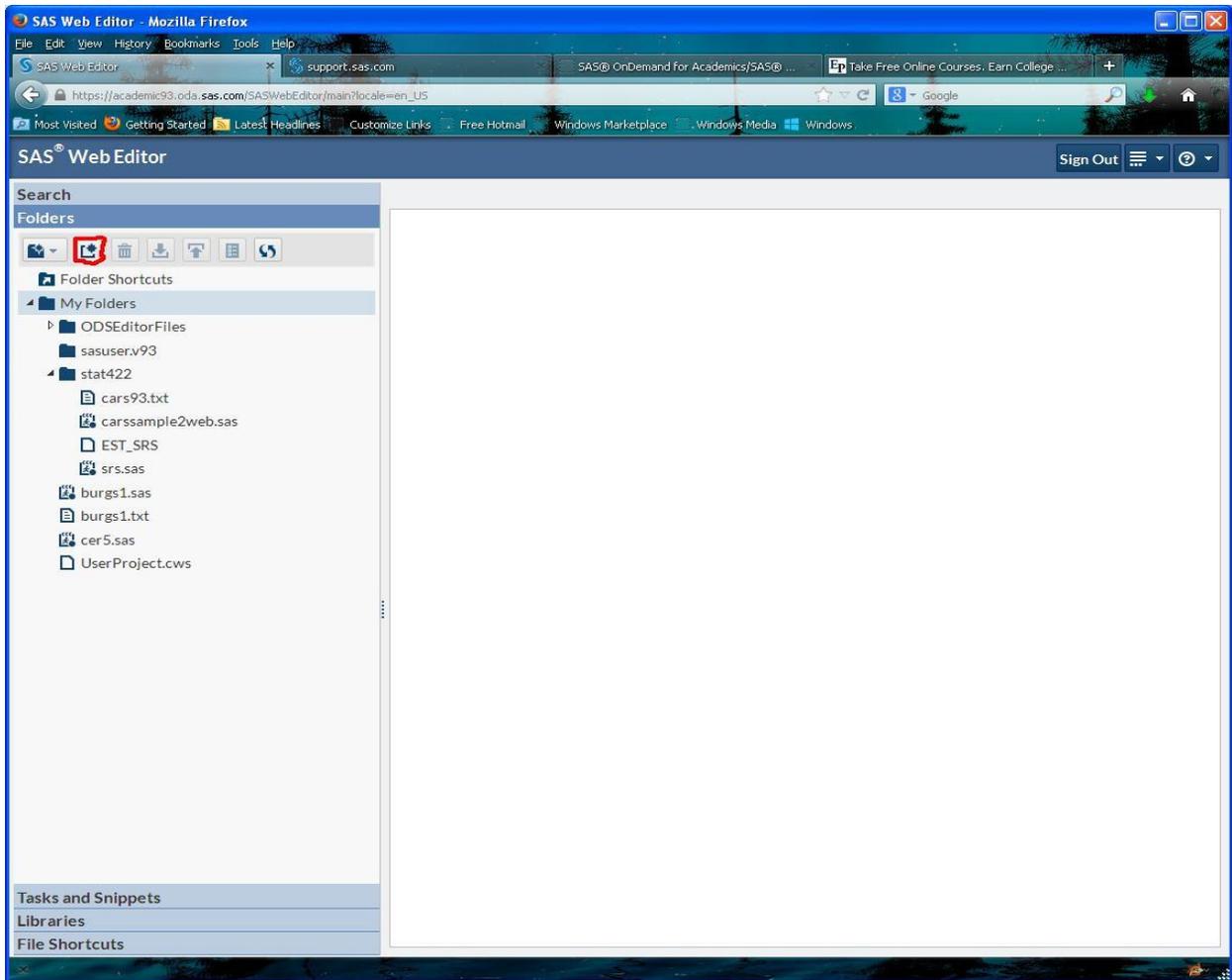
<https://academic93.oda.sas.com/SASWebEditor/>

1. The easy case of a SAS program with no external data or macro programs.

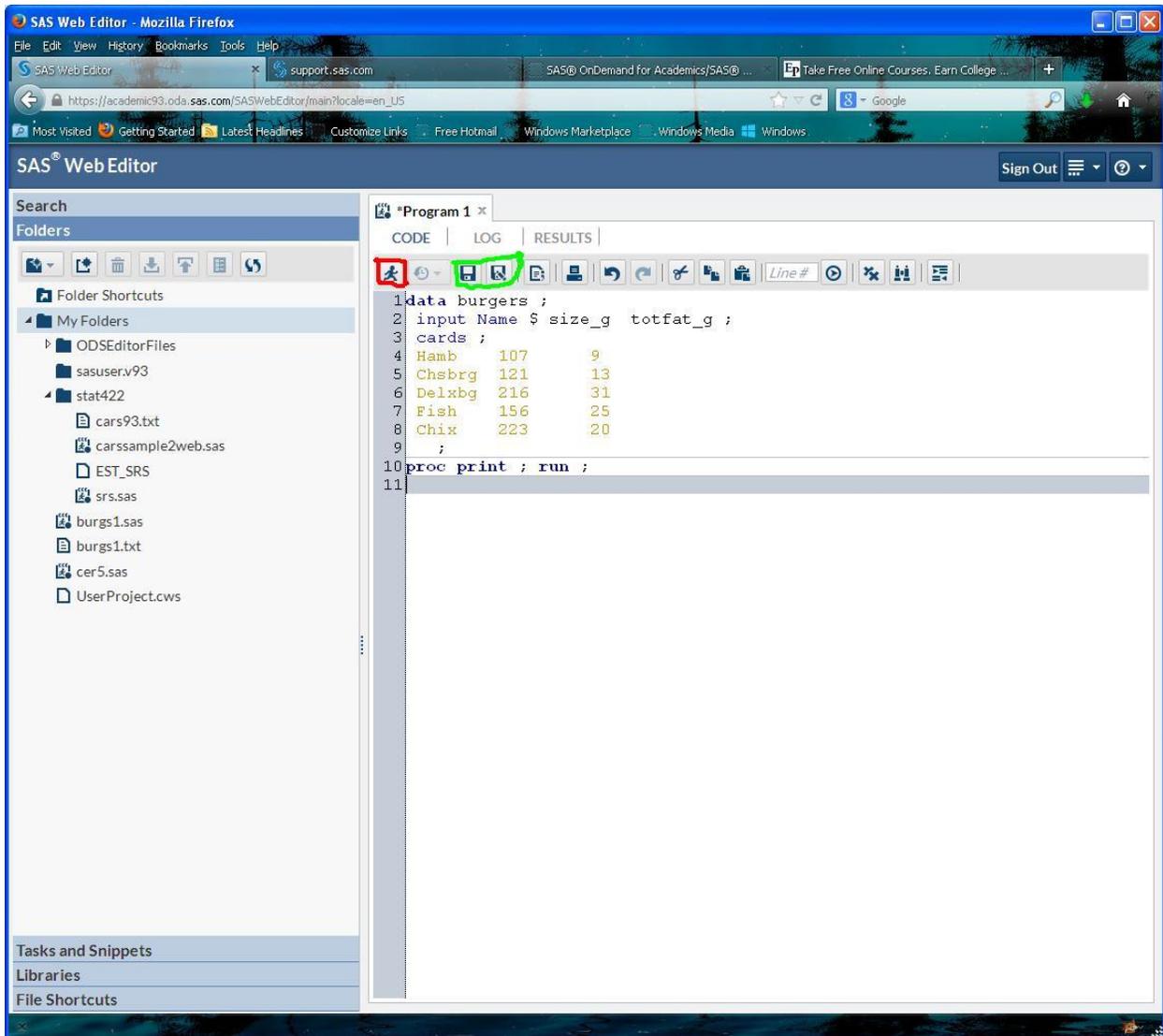
Consider the following SAS code:

```
data burgers ;  
input Name $ size_g totfat_g ;  
cards ;  
Hamb      107      9  
Chsbrg    121     13  
Delxbrg   216     31  
Fish      156     25  
Chix      223     20  
;  
proc print ; run ;
```

This is nearly the same code as shown in the link 'SAS Intro material' with my second lecture. This code can be directly pasted into the Web Editor program window and submitted. When you first start the SAS Web Editor you should see a window something like this:



For now do not worry about the information in the pane on the left. The big area on the right is where the SAS code window goes. It may already have a code window open for you. If not (like in my picture) just click the button that I have circled in red to open a New SAS program window. Now you can take the SAS code from above and directly paste it into the program window as shown below:



To submit the program, click the Run button that I have circled in red. You should always save your programs, you can save them on your Web Editor account by clicking one of the two buttons that I have circled in green. Once saved, you should see your program listed in the left hand pane, as we see with SAS programs such as `burgs1.sas` and others shown above. When you run the program, the right hand window is now replaced with the results window from your program. If there were errors (none should occur from this program) it may open the log window instead to show you error messages. You can explore the other buttons above the code window to see what they do, and you can go between the three tabs (CODE, LOG, RESULTS) to see what they each show.

2. The more interesting case of a SAS program with both external data and macro programs.

The real convenience of using SAS for my Stat 422 class is in using the macro programs, but the Web Editor interacts with external files and external data differently than regular PC SAS programs. These instructions will show you one way to edit my programs so that they run on the Web Editor interface.

Our example is the program linked with the label 'SAS sampling program' with my second lecture:

```
options ls = 80 nodate formdlim= '-' ;

%include 'd:\srs' ;
%include 'd:\est_srs' ;

data cars93 ;
  length manufac $ 13 model $ 10 ;
  infile 'd:\cars93.txt' firstobs = 2 ;
  input MANUFAC $ MODEL $ TYPE $ MINPRICE MIDPRICE MAXPRICE MPGCITY MPGHIGH
        AIRBAGS DRIVETR CYLINDR LITERS HPOWER RPMMAX US TYPECODE ROW ;
  run ;
proc print ; run ;
proc means ; run ;

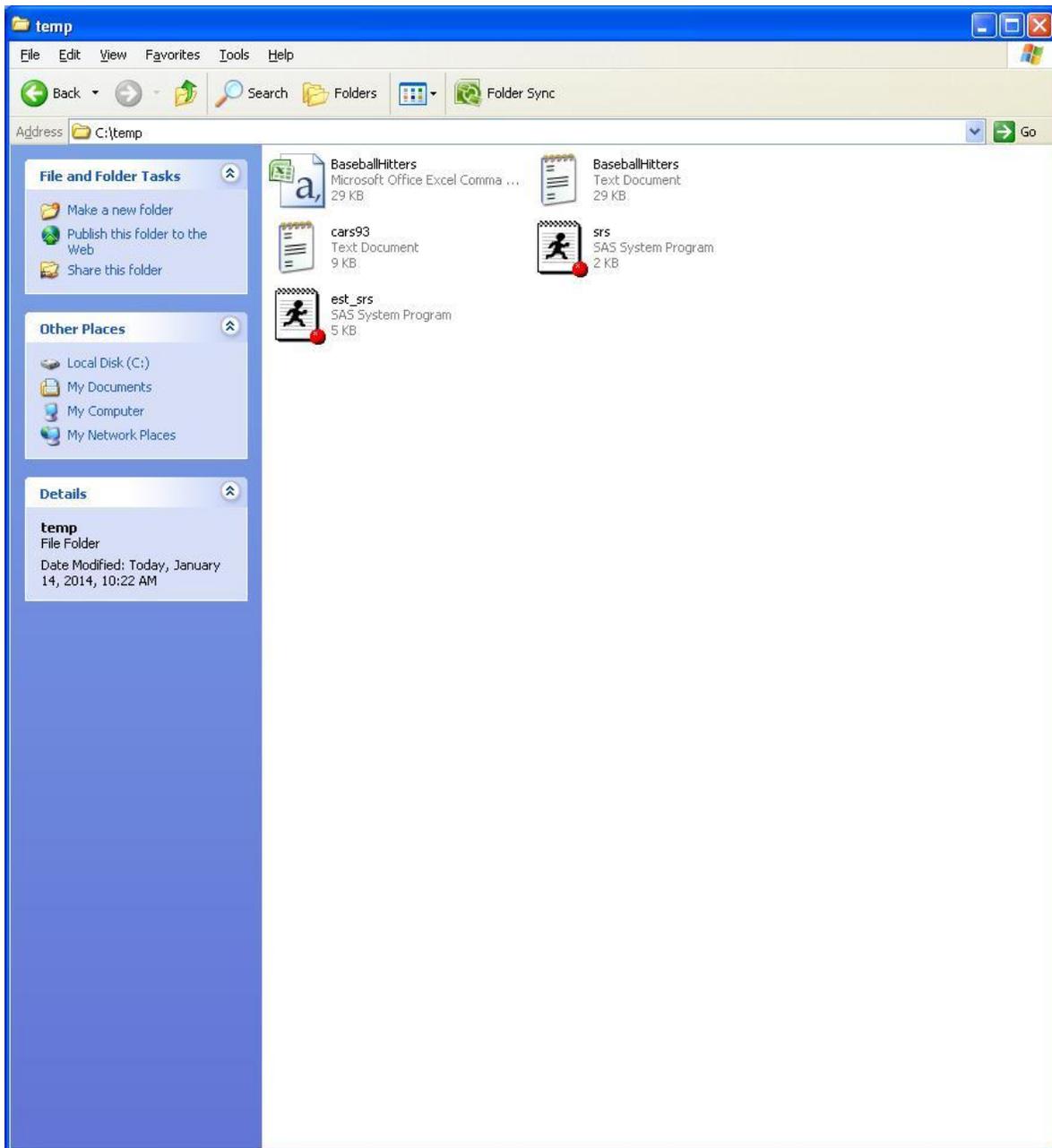
%srs(frame=cars93,npop=92,n=10,sample=cars93_srs,seed=21934) ;

proc print data = cars93_srs ; run ;

%est_srs(sample=cars93_srs,npop=92,response=mpgcity,param=mean) ;
```

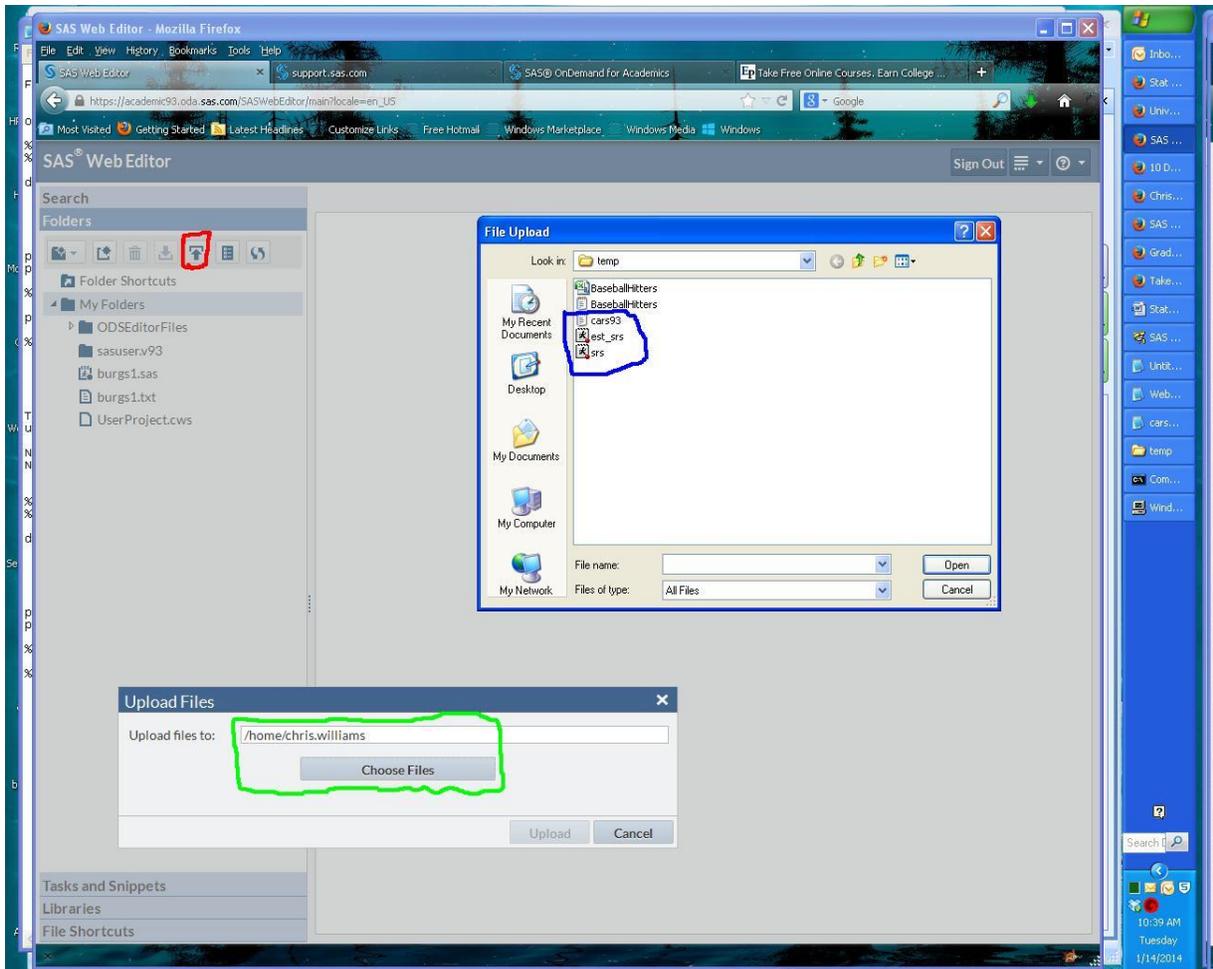
This program reads a data set from an external file, then after a few other procedures (print and means), the program calls two macro programs called %srs and %est_srs . These macro programs were read earlier from the files that contain them, srs. and est_srs. , respectively using %include statements. The Web Editor will not run these programs because it is unable to locate macro files or data files on our local computer. What we will do to make this program run on the Web Editor is to first copy the macro files and data files to our local computer, then we will upload them to a folder in our SAS Web Editor account. Then we will make small changes to the program above to tell SAS to find those files on our Web Editor account.

First we copy the three files (srs, est_srs, and cars93.txt) from the website to our local computer. Shown below is our directory on our Windows computer after copying the files:



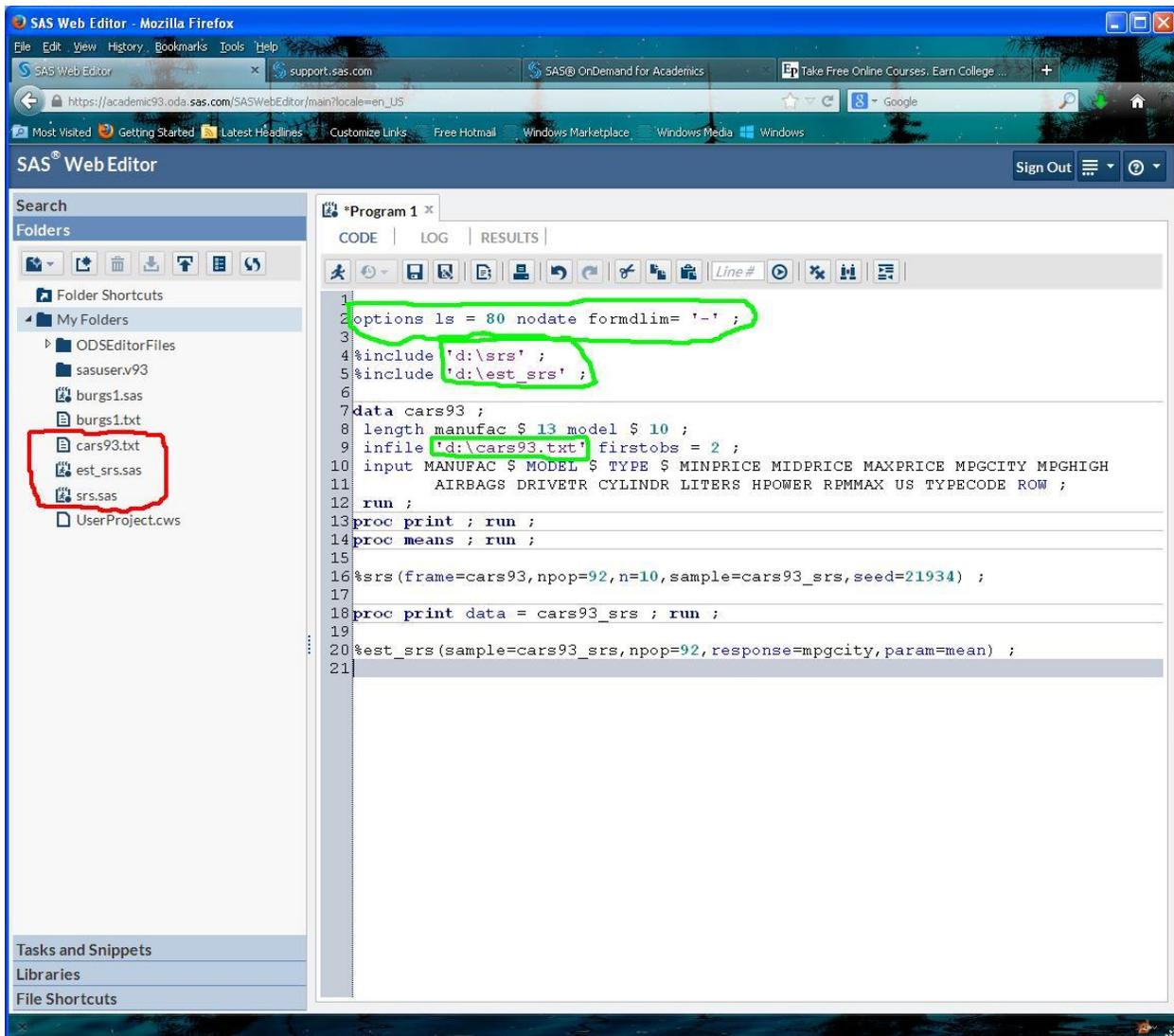
Notice that we renamed the file called 'srs.' on my webpage to 'srs.sas' when we copied it, and we did the same with the 'est_srs.' file. We did not have to do this, but the important thing is to know the exact file name (including upper or lower case) after we upload it to our SAS Web Editor account.

Shown below is a screenshot of the SAS Web Editor window as we are preparing to upload our three files:



In the Web Editor window, we first click the button circled in red to upload files. Then the Upload Files window opens, and I have circled in green the 'Choose Files' button that we click to look for our files on our local computer. I have also circled in green information about where the files will be located, we will need that information later. Finally, we also see our 'temp' directory on our local computer, and I have circled the three files in blue that we want to upload.

After uploading the files, I have pasted in the SAS program called 'SAS sampling program' exactly as it appears off of my website, as we saw above:



Here we see the three files we uploaded on the left circled in red. In our program window, I have circled in green the parts of the SAS program that we must change. The options statement is used on a PC to format output, so we do not need it here. The other two green circles are on the parts specifying where our files are located. We need to tell the Web Editor where our files are, and we have to give it the filename EXACTLY AS IT APPEARS in the left pane, so that if it is listed in lower case, we have to use lower case.

We must change 'd:\srs' to '/home/chris.williams/srs.sas' ,

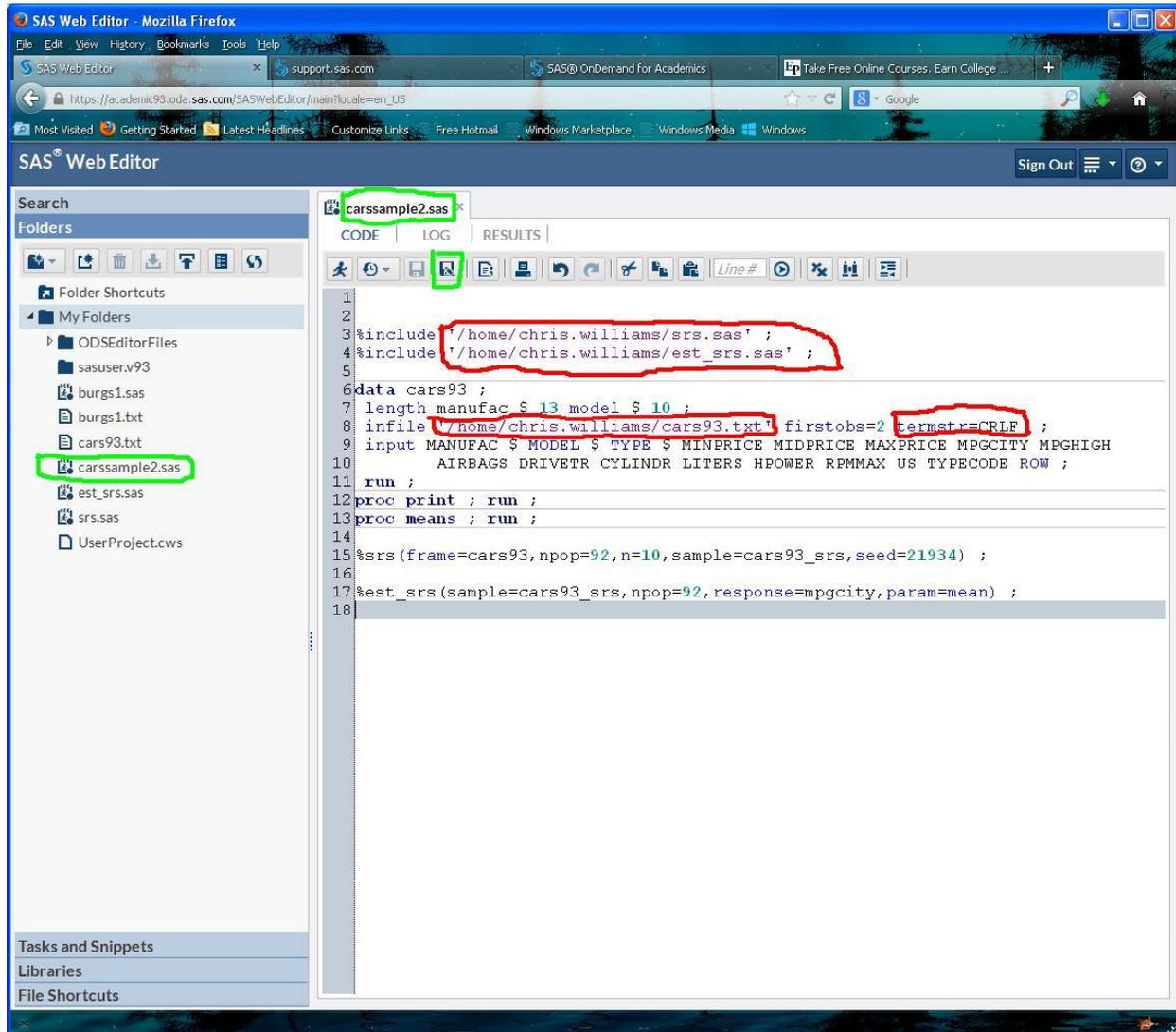
and 'd:\est_srs' to to '/home/chris.williams/est_srs.sas'

and 'd:\cars93.txt' to '/home/chris.williams/cars93.txt'

Note that the /home/chris.williams part of the file location was indicated to us in the Upload Files window that I circled in green earlier. Of course you will have a different name than 'chris.williams' for your file location, since I am using that name! We must make one final addition to the program. When

uploading data from other computers to the Unix servers where the Web Editor is located, carriage-return characters might cause errors reading the data on Unix. To fix this, we insert the extra option TERMSTR=CRLF if uploading data files from a Windows computer, and TERMSTR=CR if uploading data files from a Mac computer.

Below the corrected program is shown:



The screenshot shows the SAS Web Editor interface in Mozilla Firefox. The browser address bar shows the URL: `https://academic93.oda.sas.com/SASWebEditor/main?locale=en_US`. The interface includes a search bar, a left-hand pane for folders, and a main editor area. The editor area displays the following SAS code:

```
1
2
3 %include '/home/chris.williams/srs.sas' ;
4 %include '/home/chris.williams/est_srs.sas' ;
5
6 data cars93 ;
7 length manufac $ 13 model $ 10 ;
8 infile '/home/chris.williams/cars93.txt' firstobs=2 termstr=CRLF ;
9 input MANUFAC $ MODEL $ TYPE $ MINPRICE MIDPRICE MAXPRICE MPG CITY MPGHIGH
10 AIRBAGS DRIVETR CYLINDER LITERS HPOWER RPM MAX US TYPECODE ROW ;
11 run ;
12 proc print ; run ;
13 proc means ; run ;
14
15 %srs (frame=cars93, npop=92, n=10, sample=cars93_srs, seed=21934) ;
16
17 %est_srs (sample=cars93_srs, npop=92, response=mpgcity, param=mean) ;
18
```

Annotations in the image include:

- A green circle around the file name `carssample2.sas` in the top-left pane.
- A green circle around the file name `carssample2.sas` in the top-right pane.
- A green circle around the save button in the editor toolbar.
- Red circles around the include statements on lines 3 and 4.
- Red circles around the `termstr=CRLF` option on line 8.
- Red circles around the `n=10` parameter on line 15.
- Red circles around the `response=mpgcity` parameter on line 17.

I have circled in red the parts of the program that have been changed. Before submitting the program, I saved it with the name `carssample2.sas`, and I have circled in green the button to click to save it, the name on the program file tab, and the name in the left pane showing that it is saved. This program now runs correctly and gives the appropriate output.