An Introduction to SAS/ASSIST® Software

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INTRODUCTION

SAS/ASSIST software is a user-friendly front-end to the SAS System. Its "push-button" menus provide options for many of the tasks you would want to perform. Selections are made and acted upon without the user having to write any SAS code. Programs can be saved that will be run repetitively. The SAS/ASSIST interface can be customized to better suit the needs of the user and the environment of the work to be accomplished.

ASSIST is designed to be self-explanatory; however, some hands-on experience can be a helpful training aid for the novice user.

SAS/ASSIST can be invoked by typing **assist** on the command line, by clicking on the appropriate icon on the toolbar, or by selecting **Globals** and **SAS/ASSIST** from the pull-down or pop-up menus. The default Primary Menu will appear.
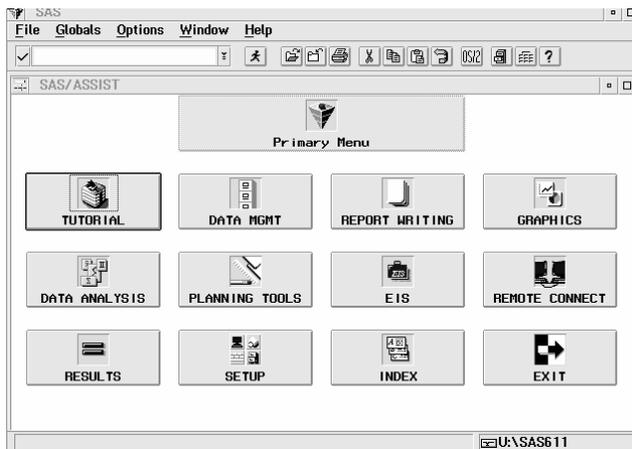
DATA MANAGEMENT

One of the first things you might want to do in the SAS System is browse or edit a set of data. Click on the **DATA MGMT** button in ASSIST. A wide range of tasks can be specified from the following menu, including doing SQL queries on the data, importing data from other formats, creating subsets, and so on. Some of the options require specific SAS products to be licensed in order to be enabled, such as SAS/FSP® to do full-screen browsing or editing of SAS da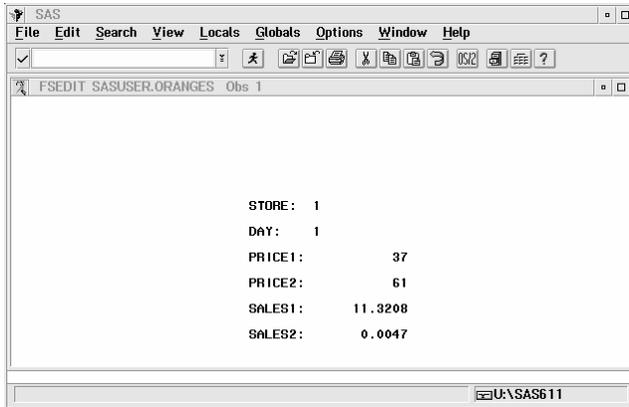ta sets and SAS/ACCESS® to access external database files. An INDEX button can help you get to a specific task easily if you are unsure as to which path would get you to it, and a HELP button is provided as standard on most ASSIST screens.
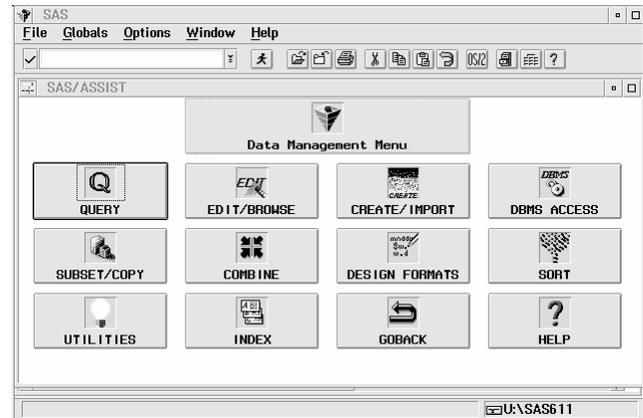
Click on **EDIT/BROWSE**, **Edit data** and **Tabular format** to view the data as a table where the rows are observations and the columns are variables. Select **Active data set:** and from the choices that are presented, use **SASUSER.ORANGES**, which is distributed with SAS/ASSIST. Then click on the **RUN** button. The screen which appears shows the data, which you can scroll around in and make changes to.

Note that if you use the arrow keys on the keyboard to move to a data value, you must press **Enter** or click on the line for that observation with the mouse to select it before you can make any changes to the data. This is because the "Update Mode" is initially set to record-locking, to prevent you from accidentally editing the wrong observation. To switch to member-locking, which allows you to edit a record without selecting it first, click on **Edit** from the pull-down menu, select **Update** and then change the Update Mode to **member** and click on **OK**. You can then make changes to the data by scrolling around with the arrow keys.
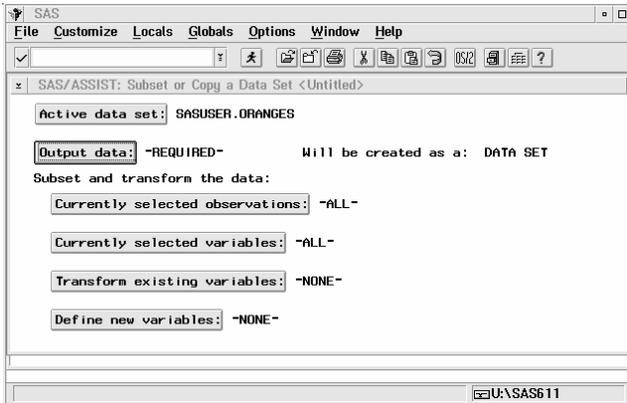
Sometimes it may be more convenient to edit one observation at a time. Select **File** and **End** to exit from the tabular display editor, and **Goback**, then select **Single observation** and **Run**.

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SAS — File Edit Search View Locals Globals Options Window Help

FSEDIT SASUSER.ORANGES   Obs 1

```
STORE:   1
DAY:     1
PRICE1:       37
PRICE2:       61
SALES1:   11.3208
SALES2:    0.0047
```

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SAS — File Globals Options Window Help

SAS/ASSIST: Enter Numeric Expression

Enter Numeric Expression

Initialization for: TOTSALES

Select:
○ Variable...   ○ Function...   ○ Constant...

○ +   ○ −   ○ *   ○ <=   ○ <   ○ =
○ >   ○ ** ○ <= ○ ^=   ○ >= ○ (○)

Expression being built:
[   ]
[   ]
[   ]

Undo last operation   Edit the expression

OK   Cancel   Reset   Help

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Make changes to the data by moving the cursor to the data value you want to edit and typing the appropriate new value. Scroll through the data set by selecting **View** from the pull-down menu, then either **Next observation**, **Previous observation**, or **Go to observation number**. You can also use the **Page Up** and **Page Down** keys.

Browsing a data set would look similar on the screen, with a choice of either tabular or single-observation display. The only difference is that changes could not be made to the data.
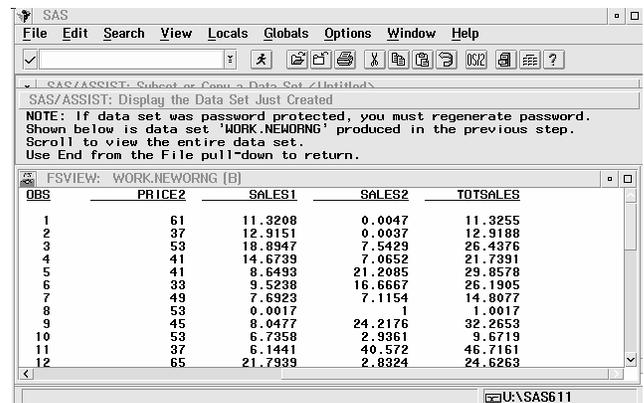
To create a new variable, you must store the data in a new data set. Use **File**, **End** and then **Goback** (three times) to get to the Data Management menu, and select **SUBSET/COPY**.

SAS — File Customize Locals Globals Options Window Help

SAS/ASSIST: Subset or Copy a Data Set <Untitled>

Active data set: SASUSER.ORANGES

Output data: -REQUIRED-   Will be created as a: DATA SET

Subset and transform the data:

Currently selected observations: -ALL-

Currently selected variables: -ALL-

Transform existing variables: -NONE-

Define new variables: -NONE-

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Click on **Output data** to give a new name to the data set you will be creating, and type **neworng** for the **Data set/View** name. Select **OK** at the bottom of the screen, then **Define new variables** from the next screen. This gets you to a window labeled Define or Modify a Variable. Type **totsales** for the Variable name, and **Total sales** as a label. Click on **Initialize** to indicate how the new variable will be defined.
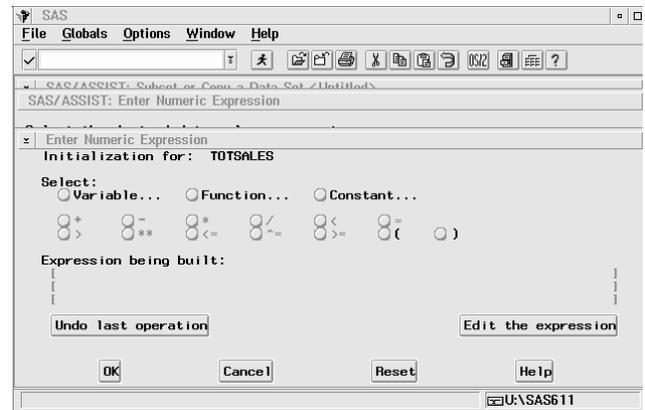
Click on the "radio button" by Variable to choose the first variable for the expression which will calculate totsales. Select **sales1** from the data set. Click on the radio button for the addition operator (**+**), then Variable again and choose **sales2**. Click on **OK** three times, then select **Locals** from the pull-down menu, and **Run**. The new data set will be created from the existing one with the addition of the new, computed variable. You will automatically be placed in a browser to view the results (specifically, PROC FSVIEW in browse mode). Scroll to the right to see the new variable.

SAS — File Edit Search View Locals Globals Options Window Help

SAS/ASSIST: Display the Data Set Just Created

NOTE: If data set was password protected, you must regenerate password.
Shown below is data set 'WORK.NEWORNG' produced in the previous step.
Scroll to view the entire data set.
Use End from the File pull-down to return.

FSVIEW: WORK.NEWORNG [B]

| OBS	PRICE2	SALES1	SALES2	TOTSALES
1	61	11.3208	0.0047	11.3255
2	37	12.9151	0.0037	12.9188
3	53	18.8947	7.5429	26.4376
4	41	14.6739	7.0652	21.7391
5	41	8.6493	21.2085	29.8578
6	33	9.5238	16.6667	26.1905
7	49	7.6923	7.1154	14.8077
8	53	0.0017	1	1.0017
9	45	8.0477	24.2176	32.2653
10	53	6.7358	2.9361	9.6719
11	37	6.1441	40.572	46.7161
12	65	21.7939	2.8324	24.6263

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Being in browse mode, you cannot make changes to the data here, but could go into edit to do so. Select **File**, **End** twice and then **Goback** to return to the Primary Menu.

With a small data set, you might want to generate a simple listing. Choose **REPORT WRITING** and **LISTING**, then click on **Active data set:** and scroll down to **WORK.NEWORNG** and select it if it is not already selected.

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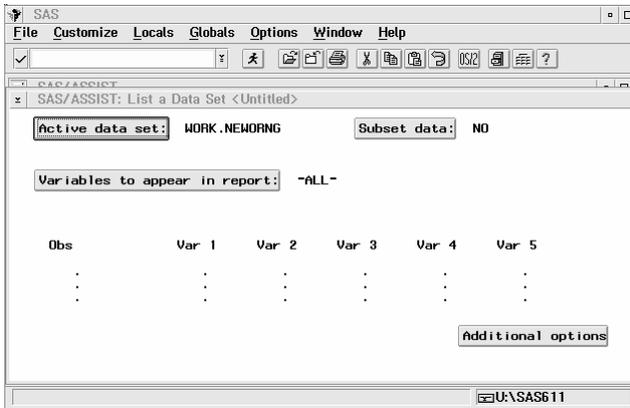
Click on **Additional options** to see what specifications are available there. If you click on the box to the left of **Print observation number**, a check mark (or **x**, depending on the operating system) will appear to indicate that option has been turned on. Click on **OK** and then use the **Locals** pull-down and **Run** to generate the listing. You will be placed in the Output window to view this. **File** and **End** returns you to ASSIST. Doing **File** and **End** again returns you to the Report Writing Menu.

More detailed tabulations can be produced by using the **Tables** option. For example, click on **Third style**. Click on **Variables** to choose the variables to appear in the table; click on **Price1**, **Price2**, **Sales1**, **Sales2**, and then **OK**. Click on **Statistic** and choose **Mean** to compute averages of these variables, then **OK**. Click on **Class** and select **Store** to use as a classification variable, then **OK**.
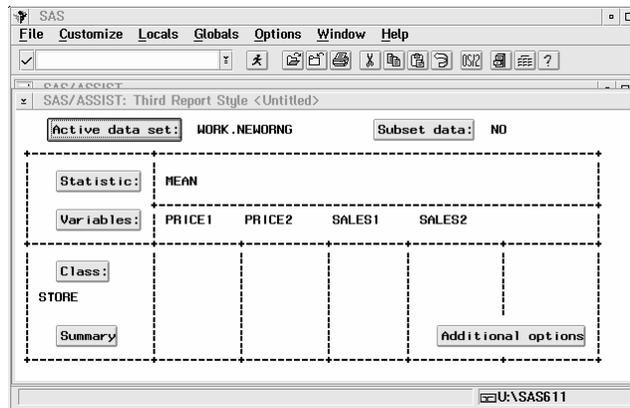
Use the **Locals** pull-down menu and **Run** to see the display that is produced. Use the **File** and **End** menus to return to ASSIST.

SAVING RESULTS

If you have a task you wish to run repetitively, such as creating this table whenever the data are updated, you may save the selections made. Use the **File** pulldown, and **Save**. Give a name to this task (of up to seven characters, beginning with a letter or underscore) and a description.
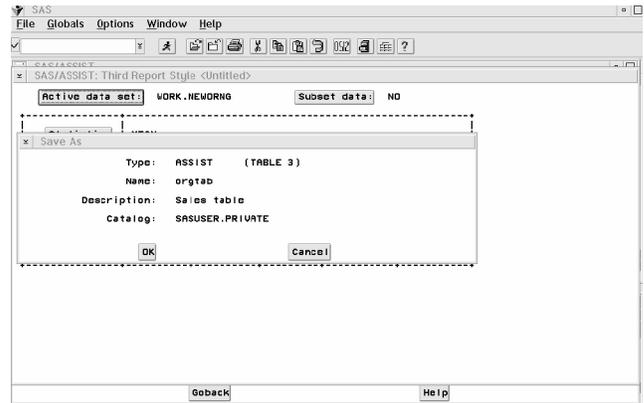

To access saved tasks, use the **File** pull-down again and **Open**. Place an **s** on the Cmd line to select the task you wish to use. Then you can make changes if desired and use **Locals** and **Run** to rerun the task.

You can also view the source code used to run a task, rather than just the window selections. From the main menu (which you can get to by using **File** and then **Primary Menu)**, click on the **Results** button and then select **Result Manager**. Other things you can do with the saved program include editing it (with an **e** on the line by its name) or browsing it (**b**), which can be a way of learning SAS coding. An **x** will cause the program to execute.
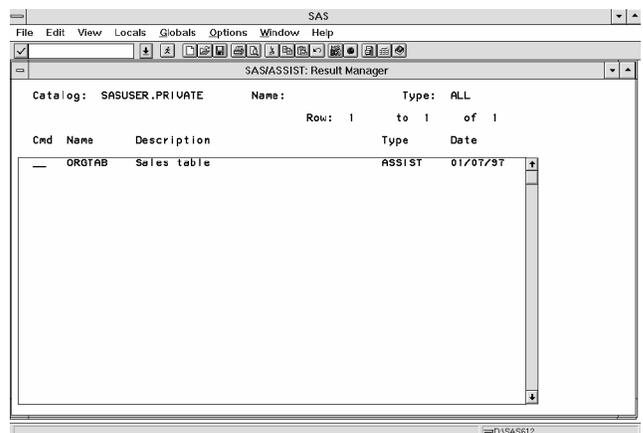
GRAPHICAL DISPLAYS

Next we will look at generating some graphics displays of the data. From the Primary Menu, click on the **GRAPHICS** button, then select **High resolution...** and **BAR CHARTS**. Click on **Vertical bar charts** and **Simple** as the style to use. Click on **Chart variable:** and from the list of the variables in the data set select **Day**. Click on **Bar values:** and for Statistic to be charted click on the "radio button" by **Mean**. Click on **Analysis variable:** and select **TOTSALES** and then **OK**. The task is completely specified and **Locals** and **Run** from the pull-down menu will cause the graph to be produced.
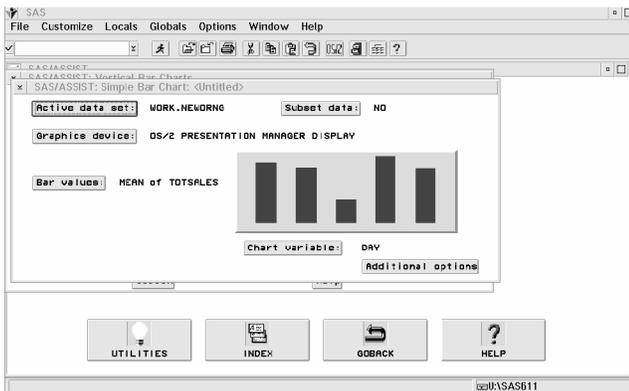
Close the graph window (**File**, **End**) and save this task specification by using **File** and **Save** and choosing a new name and description, such as **orgsale** and **Oranges chart**, respectively.

We will look at how easy it is to specify other types of graphics. Use **File**, **End** and **Goback** (twice) to return to the graphics menu. Choose **PLOTS** and **Simple X*Y plot...**. Click on **Active data set:** and from the list that shows up choose **SASUSER.RETAIL**. For the **Vertical axis:** use the **SALES** variable and for the **Horizontal axis:** select **DATE**. Use **Locals** and **Run** to view the graph.

Mapping is also easy with the use of SAS/ASSIST. Go back to the graphics menu and choose **Maps**. Select **Former Soviet Union...**, and then click on **Run** without selecting an active data set, and you will get a basic choropleth map of the countries of the former Soviet Union. Use **File** and **End** to close the display of the map, then **Goback** and select **Pacific**. For **Area to map:** choose **Japan**, and then click on **Run**. The map that is displayed is all solid and you can't see the prefectures. We will look at how to use options available to improve the display. Close the map, and click on **Additional options**, then **Pattern**

options... Click on the radio button by **Empty** for the 1st pattern, then **OK**, **GOBACK**, and **Run**. We now have an improved map of Japan. We will now look at how to incorporate data values onto the map.

First, we will get some experience in bringing data in from a Lotus worksheet. Go back to the Primary Menu and select **DATA MGMT** again, then **DBMS Access**. Use the **File**, **New** pulldown. Specify **work** as the libref and **onion** as the name of an access descriptor for the source database.
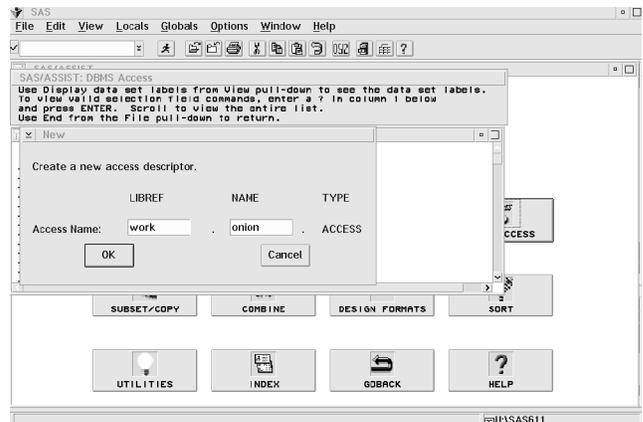
Click on **OK** and then on **.WK4 Files** as the engine type. On the next screen specify the path where this file is stored by giving the file name (such as **onions.wk4**), fully qualified if not in the current directory. Type **yes** over **no** in the **Assign Names** field and in the **Get Column Names** field.
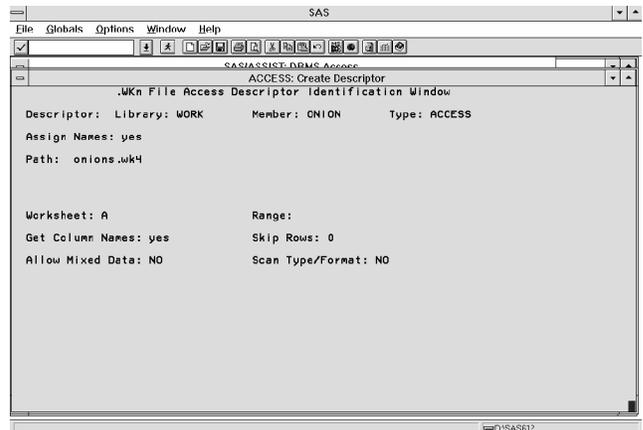
Hit **enter**. Use **File**, **End** twice to get back to the DBMS Access window. Scroll down to **work onion access** and type **cv** on the line to the left of it to **Create** a **View**. Hit **enter**. Type **work** in the field for

Library: and **ondata** in the field for **Member:**, then use **Locals** and **Select all** from the pulldown menu. **File**, **end** to exit this window and the next window. You can go into Edit/Browse to look at the resulting view of the worksheet data.

Next display ranges of the data values on the map of Japan. From the Primary Menu, select **Graphics** and **High resolution**, then **Maps** and **Pacific**. On the next screen click on **Active data set:** and choose **work.ondata** from the choices that appear. For **Variable to map:** choose **Producti**. For **Area to map:** use **Japan**. Click on **Number of Levels:** and then click on the radio button to the left of **Enter number of levels**, then type **2** in the field for number of levels and click on **Goback**. Click on the **Run** button to display the map, showing the areas of higher and lower onion production. If you would like to specify the colors used in the map, click on **Additional options** and **Pattern options**, and type in color names in the appropriate fields for the first two patterns. Use **Customize** to give a title, such as **Onion Production in Japan**.

DATA ANALYSIS

We will now look at some of the analytic capabilities available through the SAS/ASSIST interface. Return to the Primary Menu and click on **DATA ANALYSIS**. A variety of analyses can be specified, from basic descriptive statistics through regression and time series analysis.
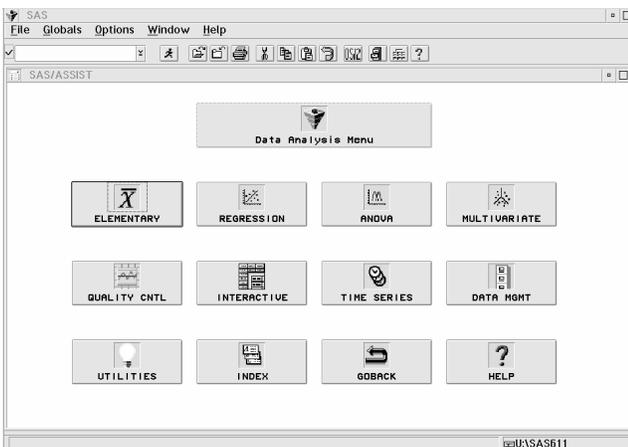
Click on **ELEMENTARY** and **Summary statistics...** . For **Active data set:** use **SASUSER.FITNESS**. Click on **Variables:** and select **Age**, **Weight**, **Runtime**, and **Maxpulse**, then click on the **OK** box. For **Class:** select **Group**. Then choose descriptive statistics,

such as **Minimum**, **Maximum**, and **Mean**. Use the **Locals** pulldown and **Run** to perform the analysis. You will be placed in the Output window to view the results. Use **File**, **End** to close this, then **File**, **Save**. In the field for **Name:** type **Fitstat** and for **Description:** something like **Fitness stats**, then click on **OK**. Use **File**, **End** and **Goback** to return to the Data Analysis menu.

We will also specify a regression analysis. Click on the **REGRESSION** button, then **Linear regression...**. For **Dependent:** select **RUNTIME** as the dependent variable for the model, and for **Independent:** select variables such as **AGE**, **WEIGHT**, **MAXPULSE**, and **OXYGEN**.
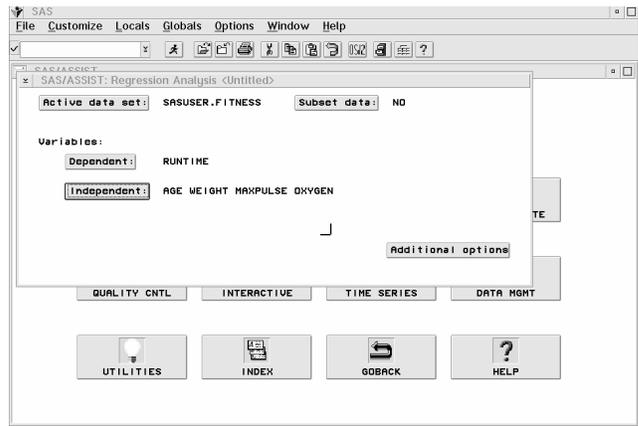

Use the **Locals** pulldown and **Run** to estimate this regression equation. After viewing the results, you can easily add or delete variables and run the model again. Then return to the Primary Menu (**File**, **End** and then **File**, **Primary Menu**).

CUSTOMIZATION

There are several ways in which you can customize the SAS/ASSIST environment to suit your work. Most of the screens in ASSIST use a new menu style where you use the **Locals** and **Run** pulldown to submit a task. This was implemented to conform more with how SAS operates outside of the ASSIST interface. If you prefer to have buttons at the bottom of the screen for **RUN** and other functions, you can change this. Click on **SETUP** and then under **Profiles:** click on **User...** . By **Menu style** type **Old** over **New**. Use **File**, **End** and **Goback**. If you look at one of the menu screens now, such as the one for specifying a Linear regression, you will now have a row of buttons at the bottom of the screen for running

a specified task and other operations.

You can also develop your own menu to be used instead of the default Primary Menu. From **SETUP**, select **Profiles:**, **User...** and over the field for **Type:** enter **PRIVATE MENU** and press the **Enter** key. In the field for **Use private menu** type **Yes**. There are other options you can set as to what you would like to have appear on the private menu, such as a link back to ASSIST's Primary Menu. Use **File**, **End** to close this, and **Goback**, then click on the **EXIT** button. You will be placed in your own Private Menu with your saved applications on buttons that can be selected, and standard features on buttons at the bottom of the menu. You can always get to the full capabilities of SAS/ASSIST by using the button for its Primary Menu. If at any time you want to enter directly into the standard menu rather than your own, you can type **assist logon=no** on the command bar. Alternatively, you can edit your user profile to not use the Private Menu.
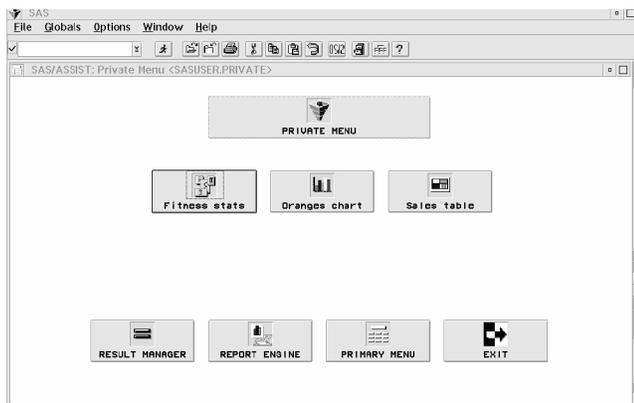
CONCLUSION

This introduction has provided a brief look at some of the many capabilities of SAS/ASSIST Software. You are encouraged to explore other menu choices and options on your own. Once you are accustomed to moving through the SAS/ASSIST interface, specifying tasks can be as easy as "point and click".

REFERENCES

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