Chapter 31
Data Windows

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Chapter 31
Data Windows

A *data window* displays a SAS data set as a table, with columns of the table containing variables and rows containing observations.

In a data window, you can sort, search, edit, and extract subsets of your data. You can also assign measurement levels and default roles that determine how your variables are used in graphs and analyses.

	NAME	TEAM	NO_ATBAT	NO_HITS	NO_HOME
1	Aldrete, Mike	SanFrancisco	216	54	2
2	Allanson, Andy	Cleveland	293	66	1
3	Almon, Bill	Pittsburgh	196	43	7
4	Anderson, Dave	LosAngeles	216	53	1
5	Armas, Tony	Boston	425	112	11
6	Ashby, Alan	Houston	315	81	7
7	Backman, Wally	NewYork	387	124	1
8	Baines, Harold	Chicago	570	169	21
9	Baker, Dusty	Oakland	242	58	4
10	Balboni, Steve	KansasCity	512	117	29
11	Bando, Chris	Cleveland	254	68	2
12	Barfield, Jesse	Toronto	589	170	40
13	Barrett, Marty	Boston	625	179	4
14	Bass, Kevin	Houston	591	184	20
15	Baylor, Don	Boston	585	139	31
16	Beane, Billy	Minneapolis	183	39	3
17	Bell, Buddy	Cincinnati	568	158	20
18	Bell, George	Toronto	641	198	31
19	Belliard, Rafael	Pittsburgh	309	72	0
20	Beniquez, Juan	Baltimore	343	103	6
21	Bernazard, Tony	Cleveland	562	169	17
22	Biancalana, Buddy	KansasCity	190	46	2
23	Bilardello, Dann	Montreal	191	37	4
24	Bochte, Bruce	Oakland	407	104	6
25	Bochy, Bruce	SanDiego	127	32	8

Figure 31.1. Data Window

Opening a Data Window

You can open data windows in several ways. One way is to specify a data set with the DATA= option when you invoke SAS/INSIGHT software. If you do not specify a data set, a data set dialog appears.

Figure 31.2. Data Set Dialog

This dialog displays two lists: **Library** and **Data Set**. A *library* is a location where data sets are stored. The **Library** list always contains the standard libraries **WORK**, **MAPS**, **SASHELP**, and **SASUSER**. You can define other libraries using the LIB-NAME statement. For more information on the LIBNAME statement, refer to *SAS Language Reference: Dictionary*.

By default, **SASUSER** is selected in the **Library** list. To see the data sets in any other library, click on the library's name. This causes the **Data Set** list to display all data sets in that library. For information on how to create SAS data sets, see Chapter 2, "Entering Data."

By default, the first data set in the **Data Set** list is selected. To select another data set, click on its name. Then click on **OK** to display the data window. On many hosts, instead of clicking on the data set name, then on **OK**, you can *double-click* on the data set name to open the data set and close the dialog.

The **Options** button on the dialog enables you to enter WHERE clauses and other SAS data set options. For information on data set options, refer to *SAS Language Reference: Dictionary*.

You can also open a data window with the **File:Open** menu.

File Edit Analyze Tables Graphs Curves Vars Help

New
Open...
Save ➤
Print...
Print setup...
Print preview
End
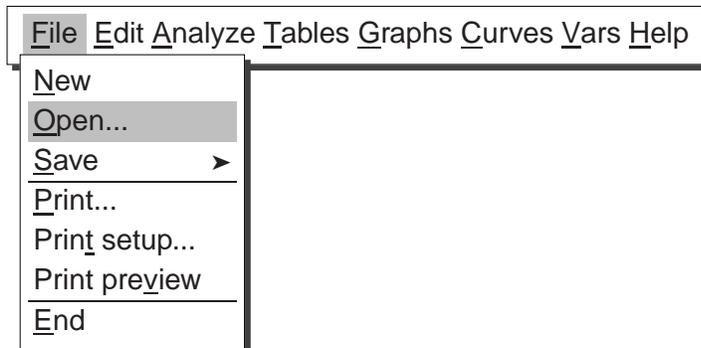
Figure 31.3. File Menu

This displays the data set dialog as described previously.

You can open any number of data windows on different data sets, but you can open only one data window on each data set.

Variables

The column headings in a data window give information on each variable, including the name, label, default roles, and measurement level. The number of variables appears in the upper left corner of the data window.

▶	22	Label		Nom	Group		Nom	Int	Int	Int
322		NAME			TEAM			NO_ATBAT	NO_HITS	NO_HOME
■	1	Aldrete, Mike			SanFrancisco			216	54	2
■	2	Allanson, Andy			Cleveland			293	66	1
■	3	Almon, Bill			Pittsburgh			196	43	7
■	4	Anderson, Dave			LosAngeles			216	53	1
■	5	Armas, Tony			Boston			425	112	11
■	6	Ashby, Alan			Houston			315	81	7
■	7	Backman, Wally			NewYork			387	124	1
■	8	Baines, Harold			Chicago			570	169	21

SAS: SASUSER.BASEBALL — File Edit Analyze Tables Graphs Curves Vars Help

Figure 31.4. Variables

A variable's *default role* assigns the role a variable plays by default in graphs and analyses. Click in the upper left portion of the variable header to display a pop-up menu of variable roles.

Group
✔ Label
Freq
Weight

Figure 31.5. Variable Roles Pop-up Menu

You can assign four default roles:

Group   enables you to process your data by groups. You can use multiple group variables to process your data by groups for each unique combination of values of the group variables.

Label   labels observations in scatter plots, rotating plots, and box plots.

Frequency   represents the frequency of occurrence for other values in each observation.

Weight   supplies weights for each observation.

You can assign **Freq**, **Weight**, and **Label** roles to only one variable at a time. You can assign the **Group** role to more than one variable. The order in which you assign the group role determines the order in which the variables are used to define groups.

A variable's *measurement level* determines the way it is treated in graphs and analyses.

```
✔ Interval
  Nominal
```
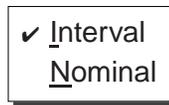
Figure 31.6.   Measurement Levels Pop-up Menu

You can assign two measurement levels:

Interval   contains values that vary across a continuous range. For example, a variable measuring temperature would likely be an interval variable. Numeric variables default to the interval measurement level but can be changed to nominal.

Nominal   contains a discrete set of values. For example, a variable indicating gender would be a nominal variable. Character variables can use only the nominal measurement level.

Up to 250 variable measurement levels can be stored with a data set.

Default roles and measurement levels are displayed in the column headings above the variable names. The default role appears at the upper left of the column heading and the measurement level appears at the upper right. If a variable has more than one default role, then only the first character of each role appears.

In Figure 31.4, **NAME** has a label default role, and **TEAM** has a group default role. **NAME** and **TEAM** both have a nominal measurement level, while the remaining variables have an interval measurement level.

† **Note:** Up to 250 measurement levels can be stored in the SAS data set. You can use the data pop-up menu to create new variables or to change the default role or measurement level of existing variables.   For more information, see the section "Data Menu" later in this chapter.

You can use the **Edit:Variables** menu to create new variables that are transformations of existing variables. See Chapter 20, "Transforming Variables," for more information.

Observations

The row headings in a data window give information on each observation, including the observation states and observation number. The total number of observations appears in the upper left corner of the data window.

Figure 31.7. Observations

SAS/INSIGHT software supports the following observation states:

Marker   shows the shape of the marker used in scatter plots, rotating plots, and box plots.

Color   shows the color of the observation.

Label/UnLabel   tells whether a label is displayed by default.

Show/Hide   tells whether an observation is displayed in graphs.

Include/Exclude   tells whether an observation is included in calculations for curves and analysis tables.

Select   tells whether an observation is selected.

An observation's marker and color appear at the left side of the row heading, as shown in Figure 31.7.

An observation's Label/UnLabel state is shown by a picture of a label around the observation number if the observation's label is displayed by default. In Figure 31.7, observations **2**, **4**, and **8** are labeled.

An observation's Show/Hide state is shown by whether or not a marker is displayed in the row heading. In Figure 31.7, observations **2**, **3**, and **6** are hidden.

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An observation's Include/Exclude state is shown by the way the observation number is displayed. The observation number is grayed-out for observations that are excluded from calculations. In Figure 31.7, observations **5** and **6** are excluded.

An observation's select state is shown by whether the row heading is highlighted or not. In Figure 31.7, observations **1**, **2**, **6**, and **8** are selected.

You can use the **Edit:Observations** menu to set all of these observation states. This menu also enables you to find observations meeting a specific search criterion or to examine observations in detail.

File Edit Analyze Tables Graphs Curves Vars Help

- Windows ➤
- Variables ➤
- Observations ➤
  - Find...
  - Examine...
  - Label in Plots
  - Unlabel in Plots
  - Show in Graphs
  - Hide in Graphs
  - Include in Calculations
  - Exclude in Calculations
  - Invert Selection
- Formats ➤
- Copy
- Delete
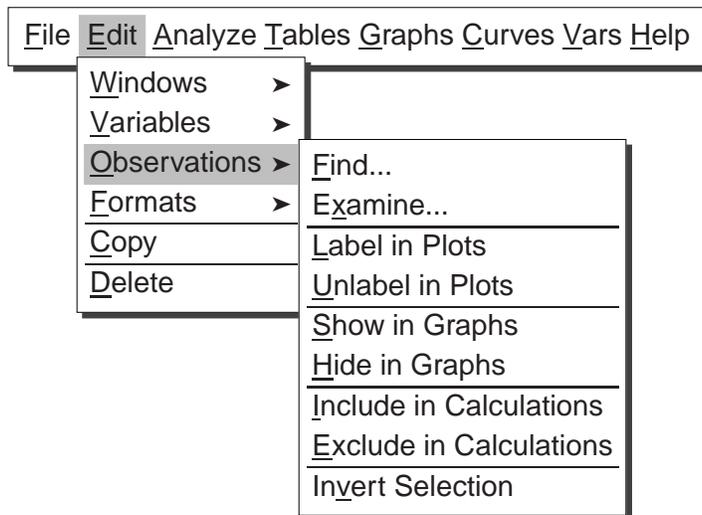
Figure 31.8. Edit Observations Menu

You can also use the observation pop-up menu to set observation states. To see this menu for a particular observation, click on the observation's marker.

- Label in Plots
- ✔ Show in Graphs
- ✔ Include in Calculations
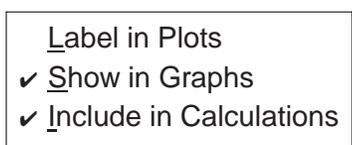
Figure 31.9. Observation Pop-up Menu

† **Note:** SAS/INSIGHT software saves observation states when you save a data set and restores them when you read a data set.

⊕ **Related Reading:** Label/Unlabel, Chapter 8.

⊕ **Related Reading:** Show/Hide, Chapter 9.

⊕ **Related Reading:** Include/Exclude, Chapter 21.

⊕ **Related Reading:** Saving Observation States, Chapter 30.

The Data Menu

The data pop-up menu provides a variety of ways to manipulate your data. Display the data pop-up menu by clicking on the button in the upper left corner of the data window.

Figure 31.10. Displaying the Data Pop-up Menu
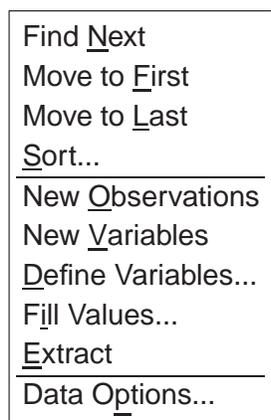
Figure 31.11. Data Pop-up Menu

Choose **Find Next** to scroll the data window to the next selected observation. If no observations are selected, it scrolls the data window one observation.

Choose **Move to First** to move selected observations to the top of the data window and to move selected variables to the left side of the data window.

Choose **Move to Last** to move selected observations to the bottom of the data window and to move selected variables to the right side of the data window.

† **Note:** In addition to **Move to First** and **Move to Last**, you can use the hand tool to move variables and observations. Drag on the column or row heading, then release the mouse at the new location.

Choose **Sort** to sort observations on one or more variables. If any variables are selected, your data are sorted in ascending order on the unformatted values of those variables. If no variables are selected, you are prompted with a dialog to select some.
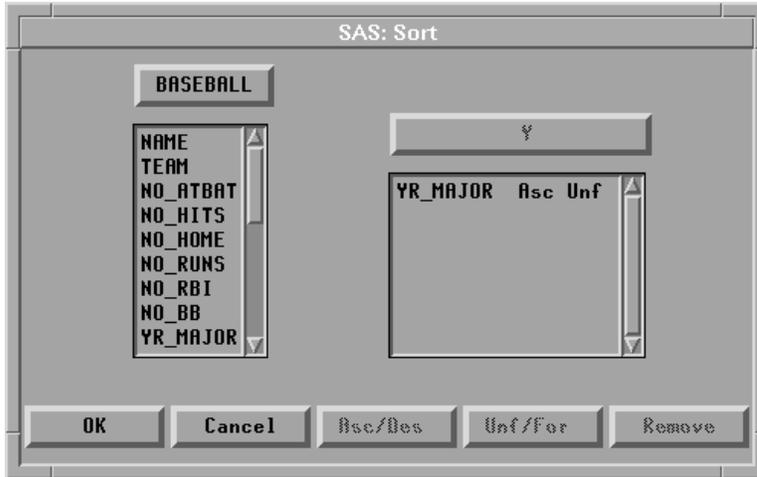
Figure 31.12. Sort Dialog

In the dialog, select variables and click the **Y** button to assign variables to the sort list. You can select variables in the sort list and click the **Asc/Des** and **Unf/For** buttons to toggle the sort order and formatting. If you select multiple variables for the sort, they are used in the order in which you select them.

Choose **New Observations** to add space to enter values for new observations.

Choose **New Variables** to add space To enter values for new variables.

Choose **Define Variables** to display the dialog in Figure 31.13. Use this dialog to set variable type, default roles, measurement level, name, and label.
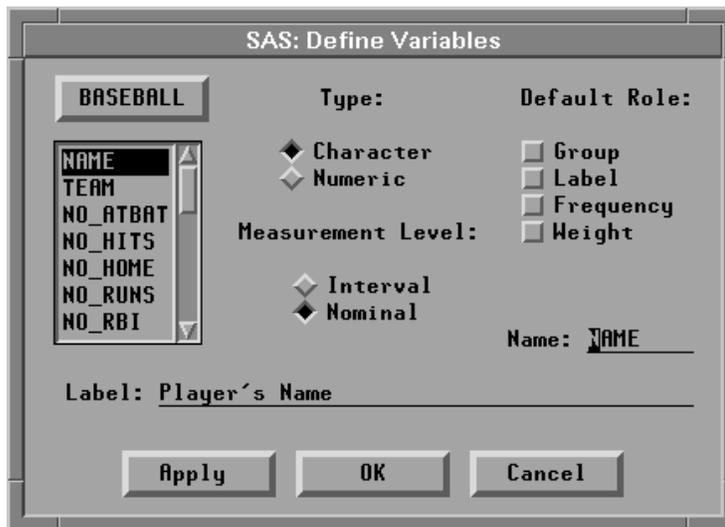
Figure 31.13. Define Variables Dialog

Choose **Fill Values** to modify data values in the data window.

Choose **Extract** to create a new data window from an existing data window. You can **Extract** any subset of your data. If you have variables, observations, or values selected, your selections are extracted to fill the new data window. If you have no selections, you are prompted to select variables.

Choose **Data Options** to set options that control the appearance and operation of the data window.

⊕ **Related Reading:** Fill Values, Data Options, Chapter 2.

⊕ **Related Reading:** Find, Move to First, Sort, Chapter 3.

⊕ **Related Reading:** Define Variables, Chapter 8, Chapter 15, Chapter 22.

⊕ **Related Reading:** Extract, Chapter 21.