

Introduction to SPSS 12.0 for Windows



for
Kutztown University
Center for the Enhancement of Teaching

Workshop 1: October 25, 2005
Workshop 2: October 27, 2005

Revised and expanded from a previous SPSS manual produced for the CTE in 2002.
Incorporates tutorial help screens from SPSS 10.0 and 12.0.

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Document available as an Adobe Acrobat pdf file at
http://faculty.kutztown.edu/meehan/psy_270.htm

SPSS 12.0 SUMMARY CHEAT SHEET FOR BASIC SPSS FUNCTIONS

STEP 1 Get Data into the Data Editor.

- Start SPSS.
- Select the **Variable View Tab** and define your data structure. Provide variable names, descriptions, codes, changes to default settings, etc. (*Alternatively, you can use **File|Open|Data** to import an existing Excel *.xls data file*).
- Switch to **Data View** and enter the data. Each row represents a case; each column represents a single variable.
- If necessary choose **Transform|Compute** or **Transform|Recode** to create new variables from existing variables in the data set.
- Use **Data|Sort Cases** to rearrange the data if desired.
- Proofread the data using **Analyze|Reports|Case Summaries** if desired.
- Save to a *.sav file.

STEP 2 Select a Procedure to Run.

- Procedures are under the **Analyze** or **Graphs** menu, depending on your purpose.
- Help, including a **Statistics Coach**, can be found under the **Help Menu**.
- Use **Data|Select Cases** to run analyses on subsamples.

STEP 3 Select Target Variables and any Optional Subprocedures.

- Highlight desired variables for the analysis.
- Move highlighted variable names in or out of the procedure window by clicking on the arrow inside the SPSS procedure box.
- Click **OK** when finished with all your selections.

STEP 4 Examine the Results that Appear in the Output Viewer Window.

- SPSS creates a **Viewer Window** to display the output.
- You can “right-click” inside the output to open the **Results Coach** to help you interpret the analysis that was generated.
- Save output to a *.spo file.
- SPSS output is CUMULATIVE. All consecutive SPSS results will accumulate within the same output window until you exit or select **File|New|Output**.

A. STARTING SPSS

- Select Start>Programs>SPSS for Windows>SPSS 12.0 for Windows

EXERCISE #1

Start SPSS.

B. BACKGROUND AND BASIC VOCABULARY

SPSS is a professional application that can handle large data sets, missing data, and perform just about any analysis you might need. It can be used to produce charts and reports, and files can be exchanged with Excel.

Names of SPSS Windows and Files

Data Editor Window: the opening screen; where you enter new data or open existing datafiles. You can tab between Data View and Variable View sheets.

Variable View: part of the Data Editor where you tell SPSS about the structure of your dataset (e.g., variable names, types of variables, how to handle missing data, etc.)

Viewer (Output) Window: where SPSS displays the results of procedures you requested

***.sav file:** an SPSS file containing your data and variable definitions

***.spo file:** an SPSS output file; where the results of a procedure are stored

Note: Very old versions of SPSS used different filename extensions.

EXERCISE #2

*Make sure you are in the **Data Editor Window**. Click the **Data View tab** followed by the **Variable View tab** to examine the difference in their column headings.*

C. OVERVIEW OF DATA ENTRY AND DATA STRUCTURE

Tutorials Basic Data File Structure Previous Contents Next

The Data Editor reflects the basic data file structure..

Each row is a single case (observation).

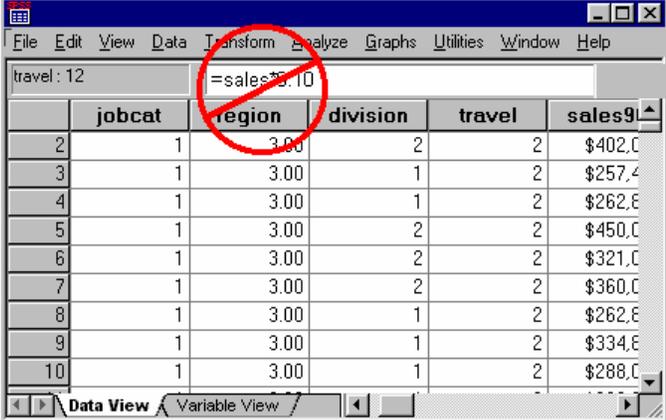
For example, each employee in a company is a case.

Each column is a single variable.

For example, the division each employee works in is a variable.

You can enter and edit data in the Data Editor...

But you can't perform calculations or enter formulas in the Data Editor.



	jobcat	region	division	travel	sales9
2	1	3.00	2	2	\$402,000
3	1	3.00	1	2	\$257,400
4	1	3.00	1	2	\$262,800
5	1	3.00	2	2	\$450,000
6	1	3.00	2	2	\$321,000
7	1	3.00	2	2	\$360,000
8	1	3.00	1	2	\$262,800
9	1	3.00	1	2	\$334,800
10	1	3.00	1	2	\$288,000

Tutorials Basic Data File Structure Previous Contents Next

You can use many different data types, including...

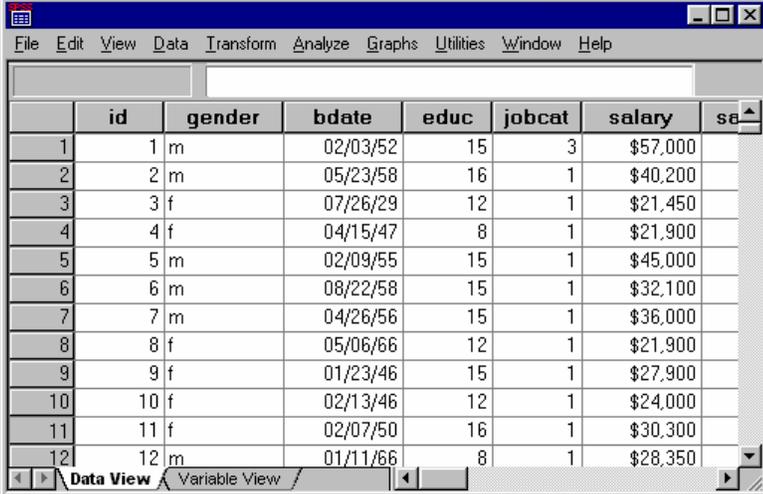
Numeric

Date

String (alphanumeric)

Dollar (currency)

And many others.



	id	gender	bdate	educ	jobcat	salary	se
1	1	m	02/03/52	15	3	\$57,000	
2	2	m	05/23/58	16	1	\$40,200	
3	3	f	07/26/29	12	1	\$21,450	
4	4	f	04/15/47	8	1	\$21,900	
5	5	m	02/09/55	15	1	\$45,000	
6	6	m	08/22/58	15	1	\$32,100	
7	7	m	04/26/56	15	1	\$36,000	
8	8	f	05/06/66	12	1	\$21,900	
9	9	f	01/23/46	15	1	\$27,900	
10	10	f	02/13/46	12	1	\$24,000	
11	11	f	02/07/50	16	1	\$30,300	
12	12	m	01/11/66	8	1	\$28,350	

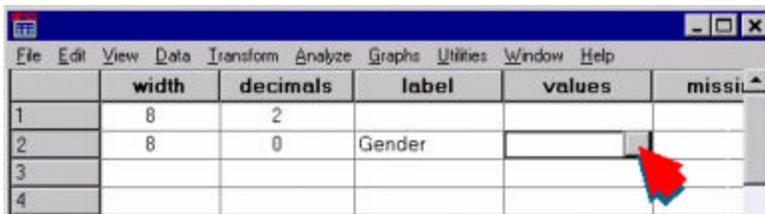
D. DEFINING YOUR DATA STRUCTURE FOR SPSS

Like Excel or any spreadsheet application, you enter data by typing it in a cell and pressing <ENTER>. SPSS is NOT a spreadsheet program, however. You cannot enter formulas in the cells and then expect SPSS to perform calculations. Furthermore, unlike Excel, there is much more to defining your variables than supplying a column heading.

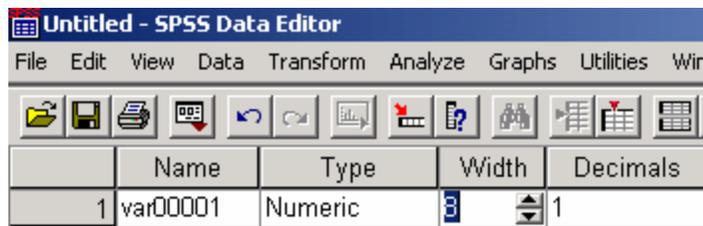
Numeric data, displayed to two places after the decimal, is the default variable type and default column names are VAR00001, VAR00002, etc. Change the defaults to give your variables meaningful names and values.

Changing SPSS Variable and Data Definition Default Settings

- Select the **Variable View** tab at the bottom of the **Data Editor Window** to switch to the **Variable View sheet**. Each row represents a different variable and contains all the structural information pertinent to that specific variable.
- Click inside the cell of the column setting you want to change. For Variable Names and Labels, type in your desired text.
- For other settings, a small gray box will appear when you click inside the cell and then you click on the box and complete the related box that pops up.



- For Width and Decimal settings, instead of a gray box, you will see an up/down arrow as shown below.



Tip:

The most common settings you'll need to change are: Variable Name, Type (numeric, string, etc.), Width, Decimals, Label, Values, and Missing Data. Variable names in SPSS cannot exceed 64 characters. Use "Label" to give your variable a longer name up to 40 characters. SPSS will use the longer name on its output and the long name will display as you pass the cursor over the variable name in the **Data Editor**.

What is the “Values” Setting for?

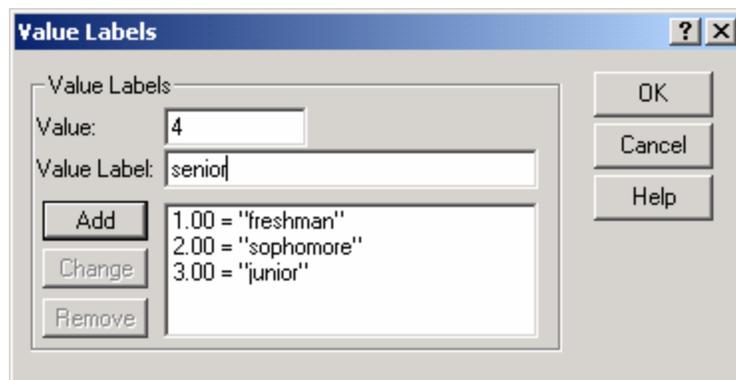
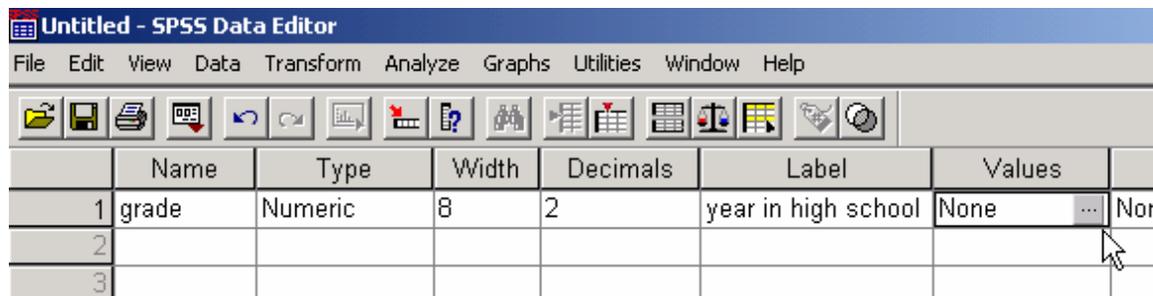
This enables you to provide labels for numerical codes you used. For example, information about year in high school or “Grade” might have been coded as 1, 2, 3, or 4 in the data set. Using value labels you could tell SPSS that “1” means “freshman,” “2” means “sophomore,” “3” means “junior,” and “4” means “senior.” Data are easier and faster to enter using codes; however, labels make output easier to read and interpret.

Adding Value Labels to Variable Descriptions

- Switch from the **Data Editor** to **Variable View**.
- Enter a variable name (maximum of 64 characters) and a longer label.
- Click the cell under the **Values** heading in the row where your variable is located.
- Click on the gray button that appears.
- In the dialog box that appears (see Figure 2 below), enter the data value and the descriptive value label.
- Click on **Add** to record the value label.
- Repeat the last two steps for as many value labels as you are entering.
- Click on **OK** when finished.

Tip:

The codes you use must always match your variable type. For example, if your variable type is numeric, SPSS expects numeric codes. If your variable type is String, SPSS expects alphanumeric characters.



Value labels pop-up dialog box.

EXERCISE #3

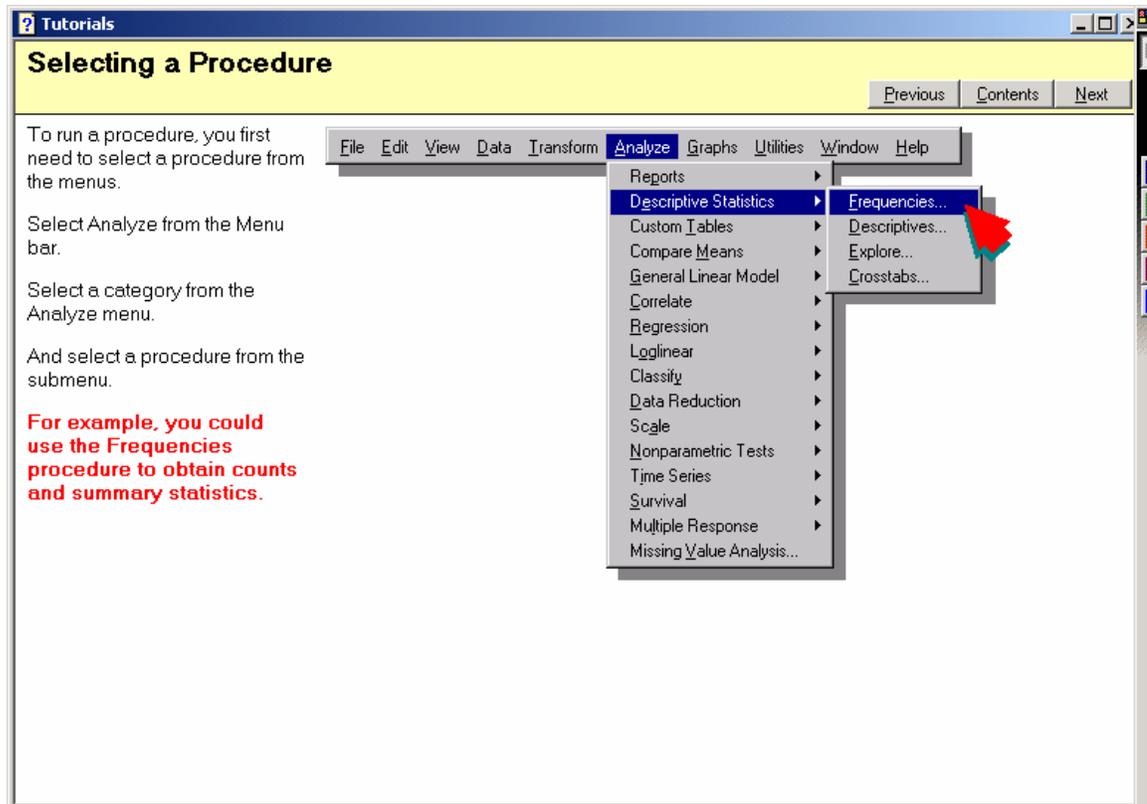
SPSS has a number of sample data files (*.sav), mostly from real studies such as the General Social Survey. These files can be used for practice. They should have been installed automatically along with the application and can be found under C:\Program Files\SPSS.

- Open the SPSS sample data file named, “Employee Data.sav”
- Tab between **Data View** and **Variable View** to see the structure of the data file.
- In **Variable View**, click on the values column for the variable named Minority. When the gray button appears, click on it. It should show you that the Minority variable is coded as 0=Yes, 1=No.
- Repeat the last steps for the Job Category (Jobcat) variable.
- Leave the file open for use in a later exercise.

E. RUNNING A PROCEDURE

You run a procedure from the **Data Editor Window** (the **Viewer Window** is to see the results). You have to (1) select a procedure, (2) choose which variables to use for the analysis, and (3) indicate any optional related subprocedures.

Step 1: Selecting a Procedure



To run a procedure, you first need to select a procedure from the menus.

Select Analyze from the Menu bar.

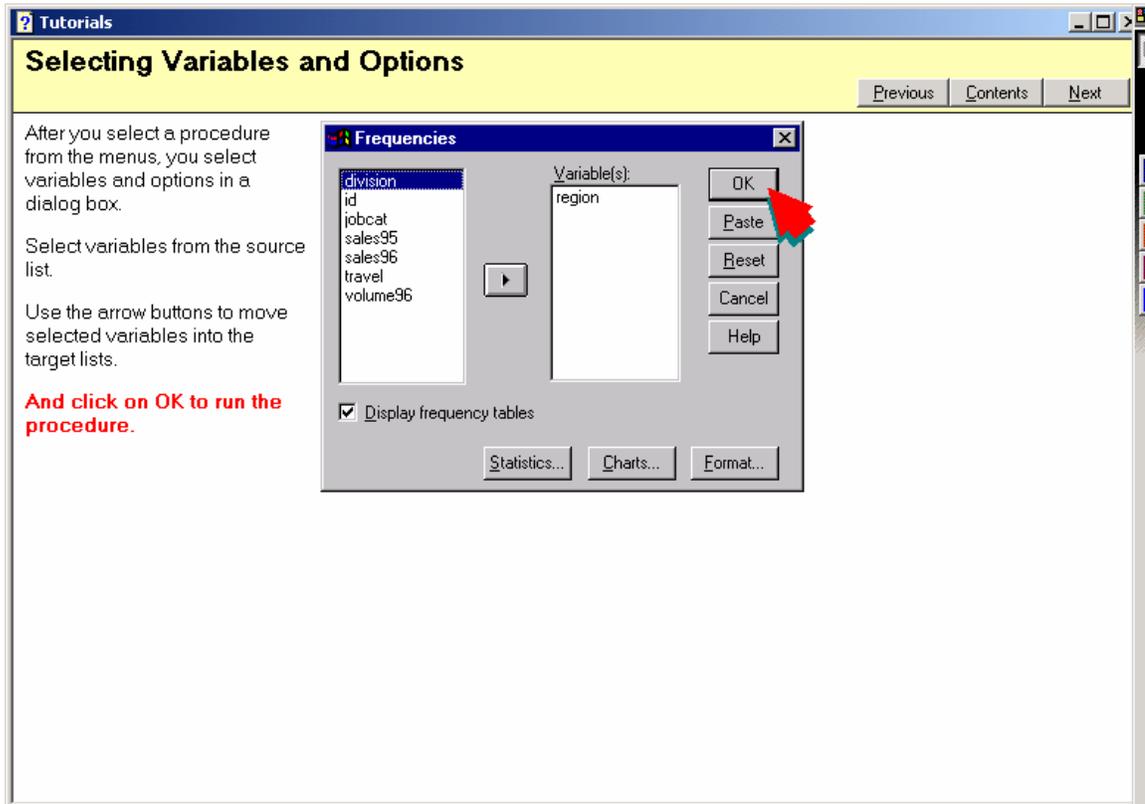
Select a category from the Analyze menu.

And select a procedure from the submenu.

For example, you could use the Frequencies procedure to obtain counts and summary statistics.

Tip:
SPSS Tutorials and a Statistics Coach are available from the **Help Menu** of the **Data Editor Window**.

Step 2: Selecting Variables for the Procedure



The screenshot shows a 'Tutorials' window titled 'Selecting Variables and Options'. It contains instructions on how to select variables and options in a dialog box. A 'Frequencies' dialog box is overlaid, showing a list of variables on the left and a 'Variable(s):' list on the right. The variable 'region' is selected in the 'Variable(s):' list. The 'OK' button is highlighted with a red arrow. The 'Display frequency tables' checkbox is checked. The 'Statistics...', 'Charts...', and 'Format...' buttons are also visible.

After you select a procedure from the menus, you select variables and options in a dialog box.

Select variables from the source list.

Use the arrow buttons to move selected variables into the target lists.

And click on OK to run the procedure.

Frequencies

division
id
jobcat
sales95
sales96
travel
volume96

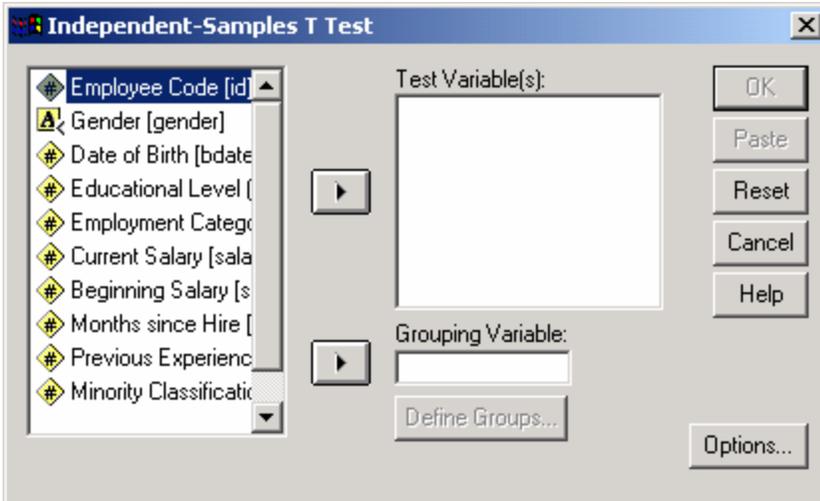
Variable(s):
region

Display frequency tables

Statistics... Charts... Format...

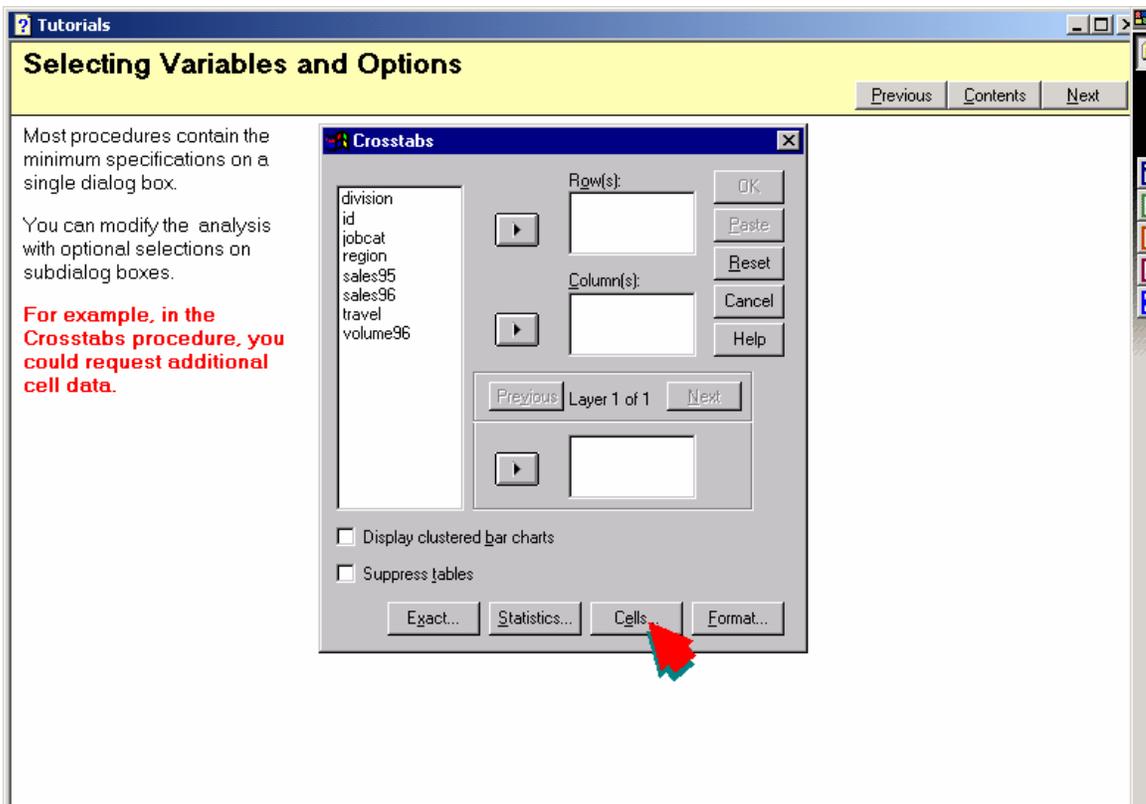
OK
Paste
Reset
Cancel
Help

SPSS screens vary from procedure to procedure. For certain procedures, such as the independent samples t-test shown below, you need to tell SPSS which variable is your “test variable” (i.e., dependent/outcome variable) and which variable is your “grouping variable” (i.e., independent/treatment variable).



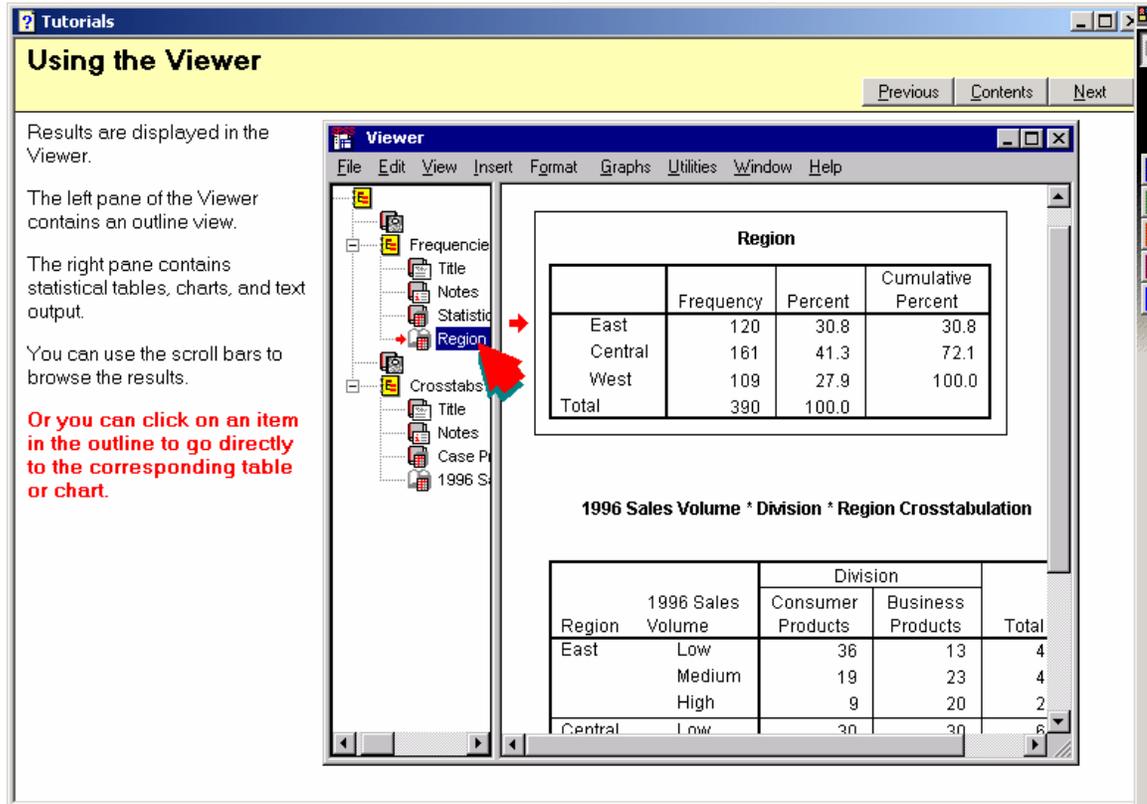
Step 3: Selecting Options for the Procedure

You can choose to run optional subprocedures that are not part of the default statistical output (see figure below). Remember, however, that SPSS is a comprehensive professional package. If you need help on what an option does, open the SPSS **Help Menu** or the **Statistics Coach**.



F. VIEWING RESULTS (OUTPUT)

As soon as you run a procedure, SPSS displays the results in a new window called the **Viewer**. You can switch back and forth between the **Data Editor Window** and the **Output Viewer Window**. Each window has its own set of menus.



Results are displayed in the Viewer.

The left pane of the Viewer contains an outline view.

The right pane contains statistical tables, charts, and text output.

You can use the scroll bars to browse the results.

Or you can click on an item in the outline to go directly to the corresponding table or chart.

Viewer

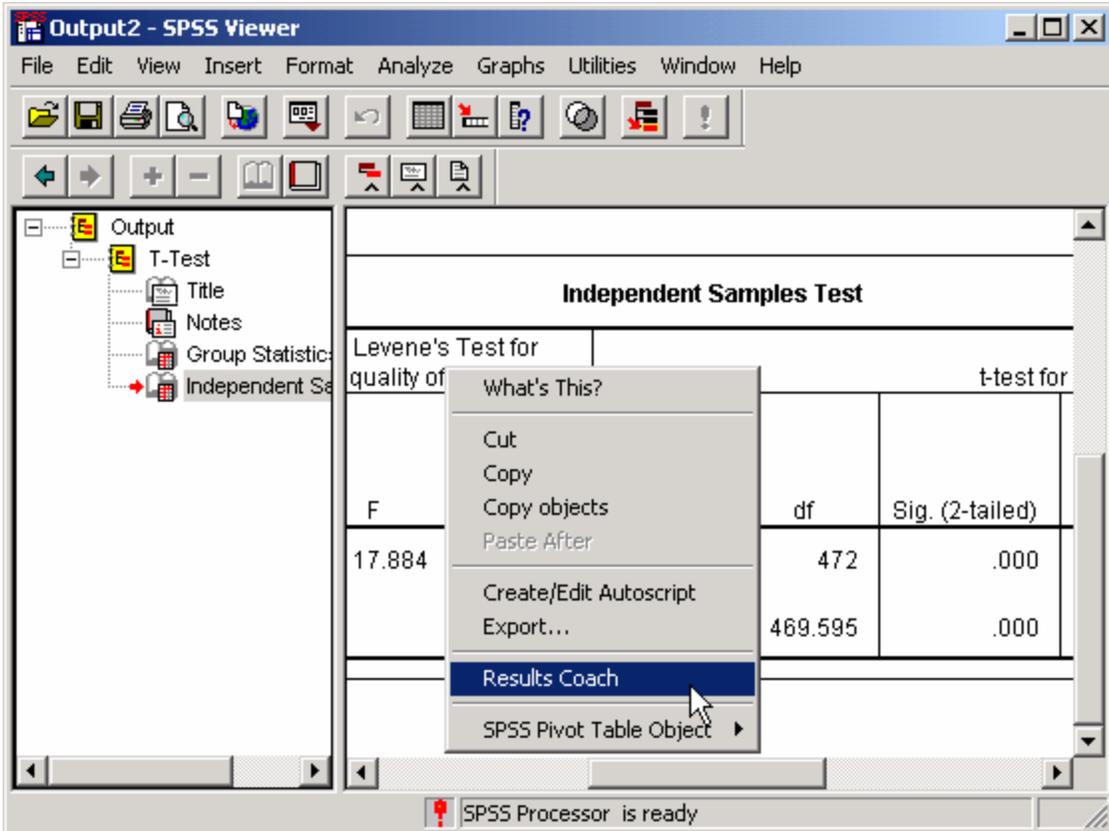
Region			
	Frequency	Percent	Cumulative Percent
East	120	30.8	30.8
Central	161	41.3	72.1
West	109	27.9	100.0
Total	390	100.0	

1996 Sales Volume * Division * Region Crosstabulation

Region	1996 Sales Volume	Division		Total
		Consumer Products	Business Products	
East	Low	36	13	4
	Medium	19	23	4
	High	9	20	2
Central	Low	30	30	6

Tip:

Be careful! The default behavior for SPSS is to compile the output from all procedures run during a session into a single output file. For example, if you run an analysis, find you have errors, and then re-run the procedure, displays of both analyses will be present in the same output file and may confuse you. You can avoid this several ways. (1) Save the output from an initial procedure under one filename before running another procedure. (2) Close the output window without saving. SPSS will automatically start a new output window when you run another procedure. (3) Cut and paste the output you want to keep into a new output file and delete the unwanted output. (4) Highlight the procedure's name in the outline view of results (see above figure) and press <Delete>.



To help you understand the SPSS output, you can right-click in the output table to bring up a context menu containing the **Results Coach**.

EXERCISE #4

- Using the employee data file left open in Exercise #3, find the frequency counts for the variable named Employment Category (Jobcat). From the menu select **Analyze|Descriptives|Frequencies**. Highlight the Jobcat variable and click on the arrow key to move Jobcat into the box on the right.
- Examine the output in the **Viewer Window**.
- Run the **Frequencies** procedure again, but select Educational Level and Minority Classification as your target variables. (Move the employment category variable back to the variable list on the left or you will get a second copy of the Jobcat frequency results in your SPSS output).