

CHAPTER

4

Doing More with Report Writing

<i>Introduction</i>	43
<i>Limiting the Number of Rows for a Report</i>	43
<i>Additional Information</i>	44
<i>Instructions</i>	44
<i>Adding More than Four Titles to a Report</i>	47
<i>Additional Information</i>	47
<i>Instructions</i>	47
<i>Doing More with Tabular Reports</i>	49
<i>Additional Information</i>	49
<i>Defining Terms</i>	50
<i>Statistics Style</i>	50
<i>Simple Group 1 Style</i>	50
<i>Simple Group 2 Style</i>	51
<i>2-D Group Style</i>	52
<i>Multiple Group Style</i>	53
<i>Advanced Style</i>	54
<i>Summarize Option</i>	55
<i>Additional Options</i>	58

Introduction

This chapter shows you how to limit the number of rows for a report, add more than four titles to a report, and create tables using the TABULATE procedure.

Limiting the Number of Rows for a Report

When you create a report, you can use **Subset data** in the report windows to limit the number of rows that are processed to create the report. This feature is especially useful when your final report is very long, and you want to use a limited number of rows for testing before producing the final report.

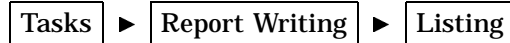
In this section, you limit the number of rows to five for a listing report of the CLASS table.

Additional Information

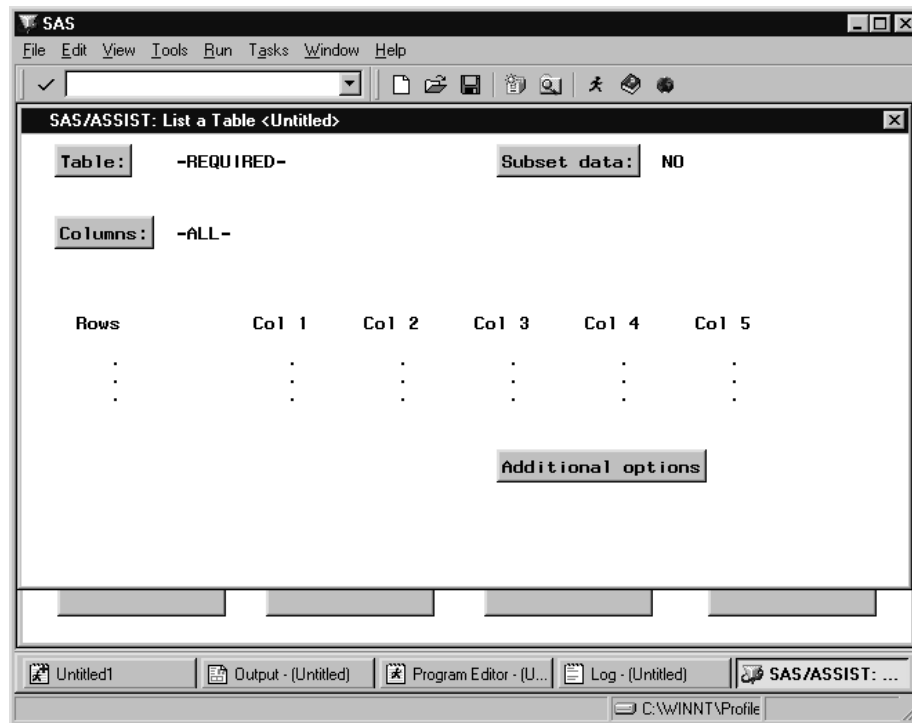
For additional information on writing reports, refer to the “Report Writing” and “Using the Report Engine” chapters in *Getting Started with the SAS System Using SAS/ASSIST Software*, and Chapter 5, “Doing More with the Report Engine,” on page 61.

Instructions

- 1 To display the List a Table window, follow this selection path:

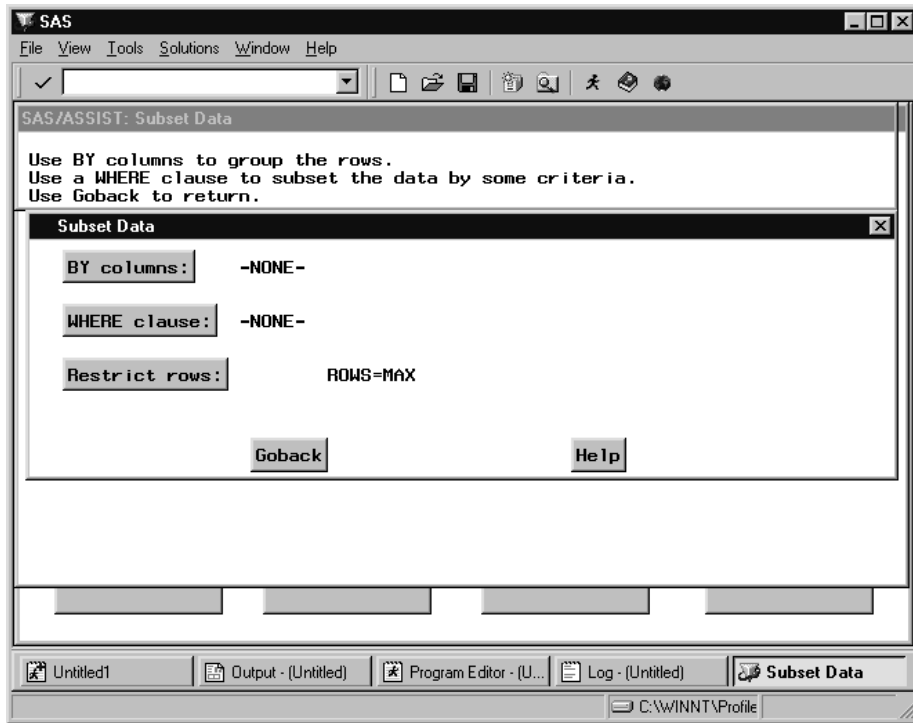


Display 4.1 List a Table Window



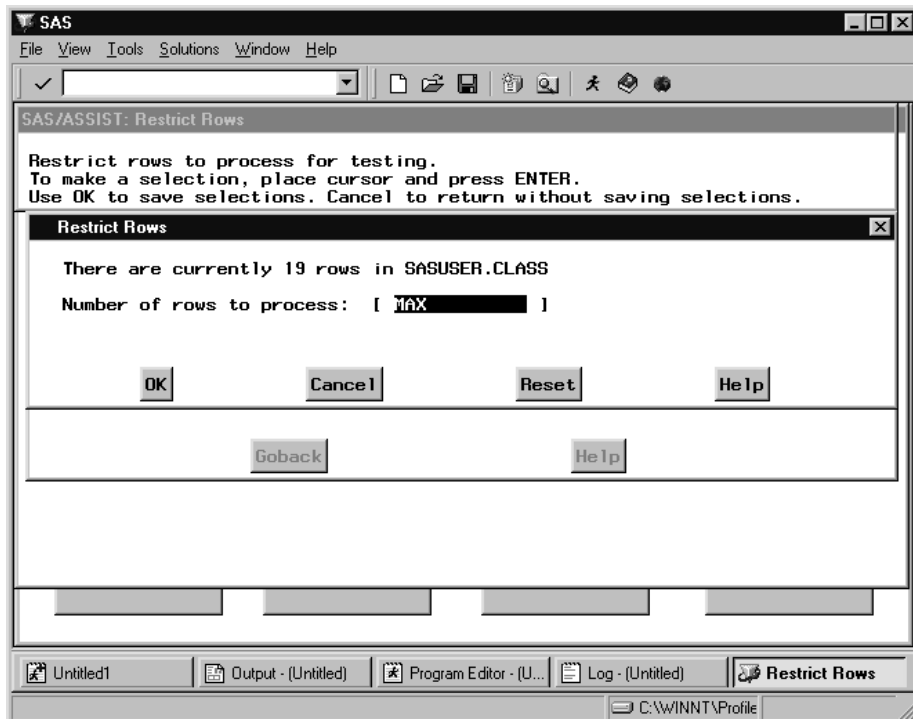
- 2 Use the **Table** button to select the SASUSER.CLASS table.
- 3 Select **subset data**. The Subset Data window appears.

Display 4.2 Subset Data Window



- 4 Select Restrict Rows. The Restrict Rows window appears.

Display 4.3 Restrict Rows Window



- 5 In the **Number of rows to process** field, type **5** as the number of rows you want to use for the listing report.

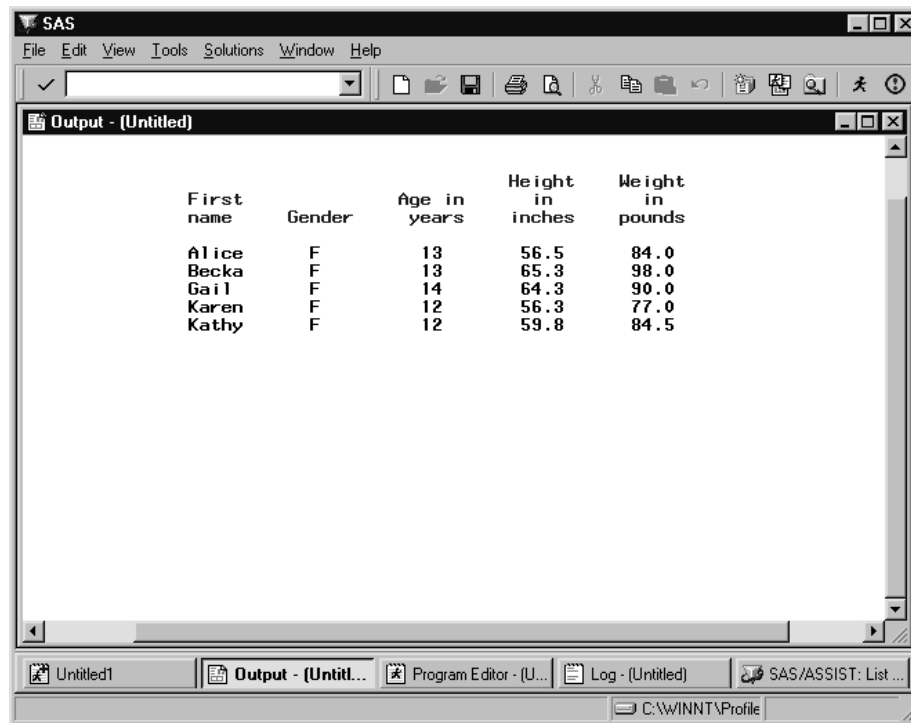
The default for the **Number of rows to process** field is **MAX**, which includes all the rows in the table. To reset the field to its default value, select **Reset**.

- 6 Select **OK**, then **Goback** to return to the List a Table window.
- 7 To run the report, follow this selection path:

Run ► **Submit**

The listing report appears with only five rows.

Display 4.4 CLASS Listing Report with Restricted Rows



The screenshot shows the SAS Output window titled "Output - (Untitled)". It displays a table with the following data:

First name	Gender	Age in years	Height in inches	Weight in pounds
Alice	F	13	56.5	84.0
Becka	F	13	65.3	98.0
Gail	F	14	64.3	90.0
Karen	F	12	56.3	77.0
Kathy	F	12	59.8	84.5

- 8 Return to SAS/ASSIST software from the OUTPUT window. See “Returning to SAS/ASSIST Windows from the Output Window” on page 9 for more information.
- 9 Follow this selection path from the List a Table window to save the source code for the report. You use the saved source code in the next section.

File ► **Save as source**

The Save As window appears.

- 10 In the **Name** field, type **CLASSRST** and press **TAB**.
- 11 In the **Description** field, type **CLASS report - restricted rows** and select **OK**. A message appears to inform you that the source code was successfully saved.

For more information on saving and editing source code, refer to the “Saving Source Code for Editing and Re-execution” chapter in *Getting Started with the SAS System Using SAS/ASSIST Software*.

Adding More than Four Titles to a Report

When you create a report and select **Edit** in a report window to add titles to your report, you can add only four titles to your report. However, if you save the report source code, you can edit the report program using the Result Manager to add additional titles.

In this section, you access the source code you saved in the previous section, edit the program, add five titles to the report, and re-execute the program.

Additional Information

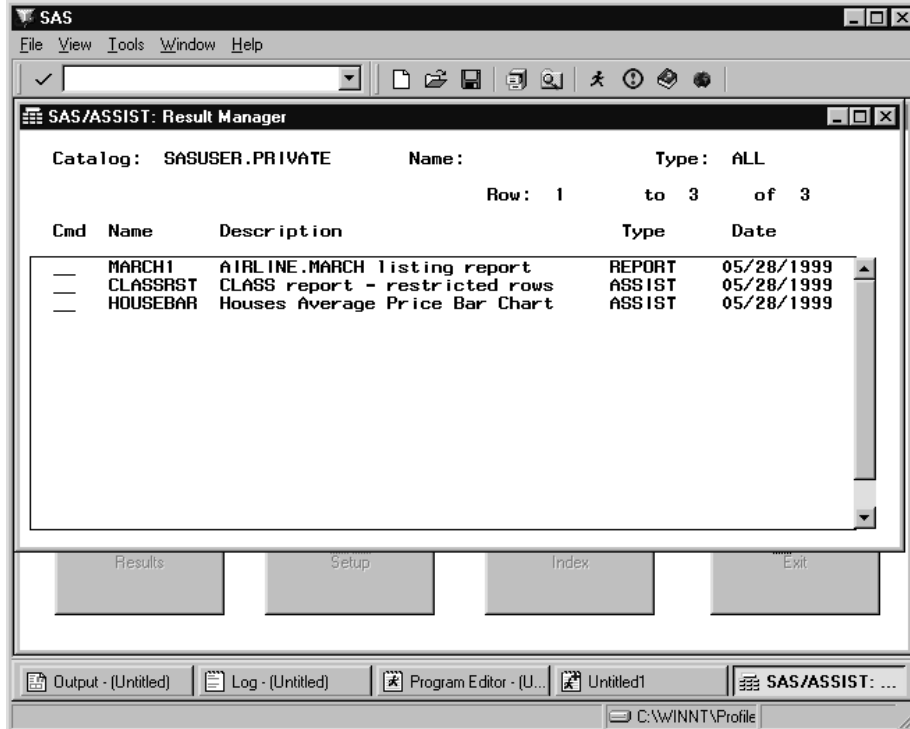
For additional information on writing reports, refer to the “Report Writing” and “Using the Report Engine” chapters in *Getting Started with the SAS System Using SAS/ASSIST Software*. For more information on the Result Manager, see the “Using the Result Manager” chapter in *Getting Started with the SAS System Using SAS/ASSIST Software* and Chapter 9, “Doing More with Results,” on page 145.

Instructions

- 1 Follow this selection path to display the Result Manager window:

Tools ► Result Manager

Display 4.5 Result Manager Window



- 2 In the **Cmd** field for the **CLASSRST** source entry, type **E** (for Edit) and press **ENTER**. The Edit window appears with the source code for the listing report.

- 3 Place the cursor in the line number for the `title` statement. Type `I 5` and press ENTER. Five blank rows are inserted between the `title` statement and the `footnote` statement.
- 4 Type the following code in the five blank lines you created in the previous step:

```

title1 "SASUSER.CLASS Listing Report";
title2 "For Mr. Smith's class";
title3 "Including age, height, weight,";
title4 "and gender data";
title5 "(first five rows only)";

```

Your program should now resemble the following display.

Display 4.6 Edited Listing Report Program

```

SAS
File Edit View Tools Solutions Window Help
Edit: CLASSRST.SOURCE
00001 /*-----*
00002 | Summary:
00003 | This program creates a listing of columns using the
00004 | table SASUSER.CLASS.
00005 | Generated: 28MAY1999 14:05:06
00006 |-----*
00007 | The OPTIONS statement specifies the dimensions of the printed
00008 | output in characters per line and lines per page and whether or
00009 | not the current date and page number are printed.
00010 | The TITLE and FOOTNOTE statements clear any previously defined
00011 | titles or footnotes.
00012 |-----*
00013 options linesize=97 pagesize=54 nodate number pageno=1;
00014 title;
00015 title1 "SASUSER.CLASS Listing Report";
00016 title2 "For Mr. Smith's class";
00017 title3 "Including age, height, weight,";
00018 title4 "and gender data";
00019 title5 "(first five rows only)";
00020 footnote;
00021 options obs= 5;
00022 proc print data=SASUSER.CLASS
00023     noobs label
00024     ;
00025 run;
00026
00027

```

- 5 Follow this selection path to save your modified program:

File ► Save

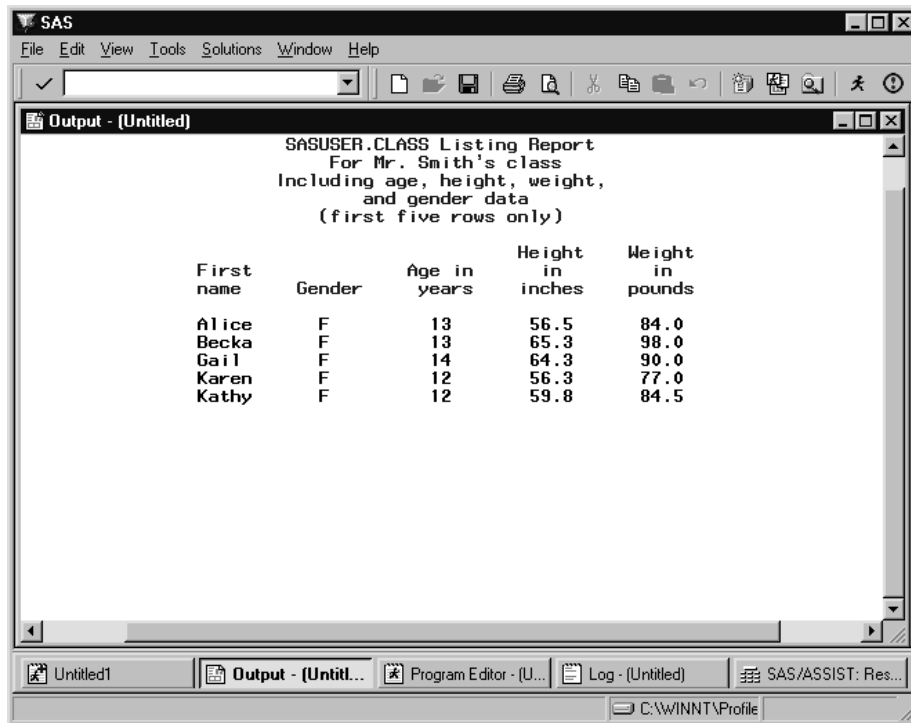
A message appears, warning you that the program already exists. Select **R**, then **OK** to overwrite the program. A message appears, indicating the number of lines in the program that were saved to a catalog entry.

- 6 Follow this selection path to return to the Result Manager window:

File ► Close

- 7 Type `X` in the `Cmd` field for the `CLASSRST` program and press ENTER to execute the program. The report with five titles appears in the OUTPUT window.

Display 4.7 CLASS Listing Report with Five Titles



SASUSER.CLASS Listing Report
For Mr. Smith's class
Including age, height, weight,
and gender data
(first five rows only)

First name	Gender	Age in years	Height in inches	Weight in pounds
Alice	F	13	56.5	84.0
Becka	F	13	65.3	98.0
Gail	F	14	64.3	90.0
Karen	F	12	56.3	77.0
Kathy	F	12	59.8	84.5

- 8 Return to SAS/ASSIST software from the Output window. See “Returning to SAS/ASSIST Windows from the Output Window” on page 9 for more information.
- 9 To exit the Result Manager window, follow this selection path:

File ► Close

Doing More with Tabular Reports

The **Tabular Report** item on the Report Writing menu enables you to create tables in one of six styles. A tabular report presents descriptive statistics in tabular format. The value in each table cell is calculated from the columns and statistics that define the pages, rows, and columns of the table. The statistic associated with each cell is calculated on values from all rows in that category.

In the “Report Writing” chapter in *Getting Started with the SAS System Using SAS/ASSIST Software*, you learned to create a tabular report using the Simple Group 1 style. This chapter describes the different tabular report styles and shows sample output for each style. The techniques for selecting columns and statistics and for generating output are the same for all styles. Additionally, this chapter provides information on the Summarize option and Additional Options.

Additional Information

For additional information on creating tabular reports, refer to the “Report Writing” chapter in *Getting Started with the SAS System Using SAS/ASSIST Software* and to the *SAS Guide to TABULATE Processing*.

Defining Terms

Before creating a tabular report, there is some terminology you should understand.

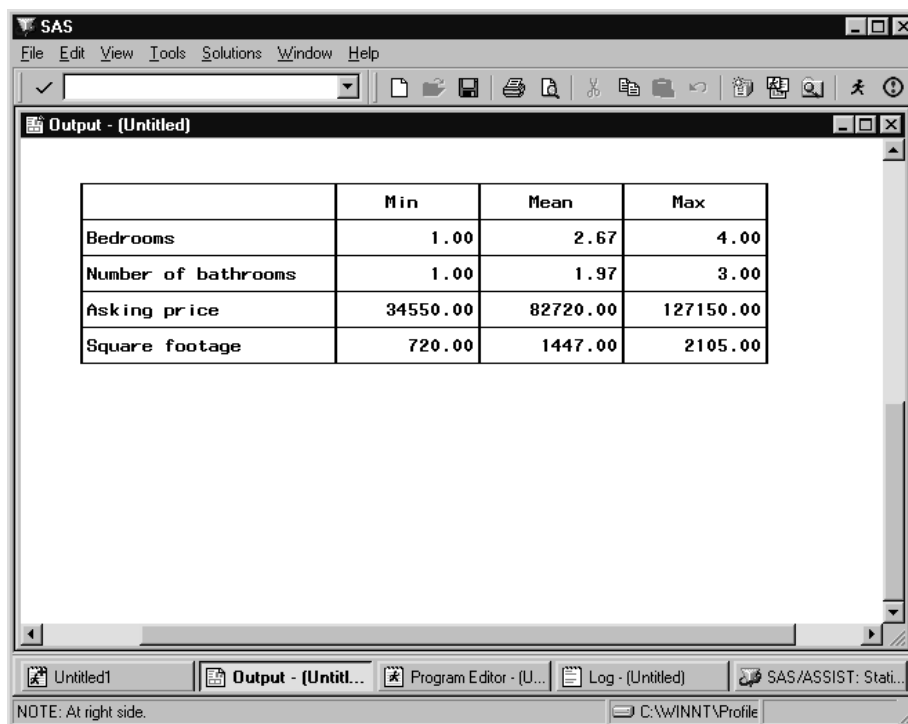
An *analysis column* is a numeric column whose values are used to calculate statistics.

A *classification column* is any column, numeric or character, that you want to use to classify your data into groups or categories of information. Classification columns can have character, integer, or even decimal values, but the number of unique values should be limited. Frequently, columns in a table have discrete values, but there are so many different values that any breakdown by these values is meaningless. You can reduce the number of classes by formatting ranges of values. See “Creating a Format” on page 28 for information on formatting ranges of values.

Statistics Style

The Statistics style of tabular report is the simplest. This style allows you to display statistics of your choice on any or all of the numeric columns in your table. The following display shows a table containing the MEAN, MIN, and MAX statistics for all the numeric variables in the HOUSES table.

Display 4.8 Statistics Report Output



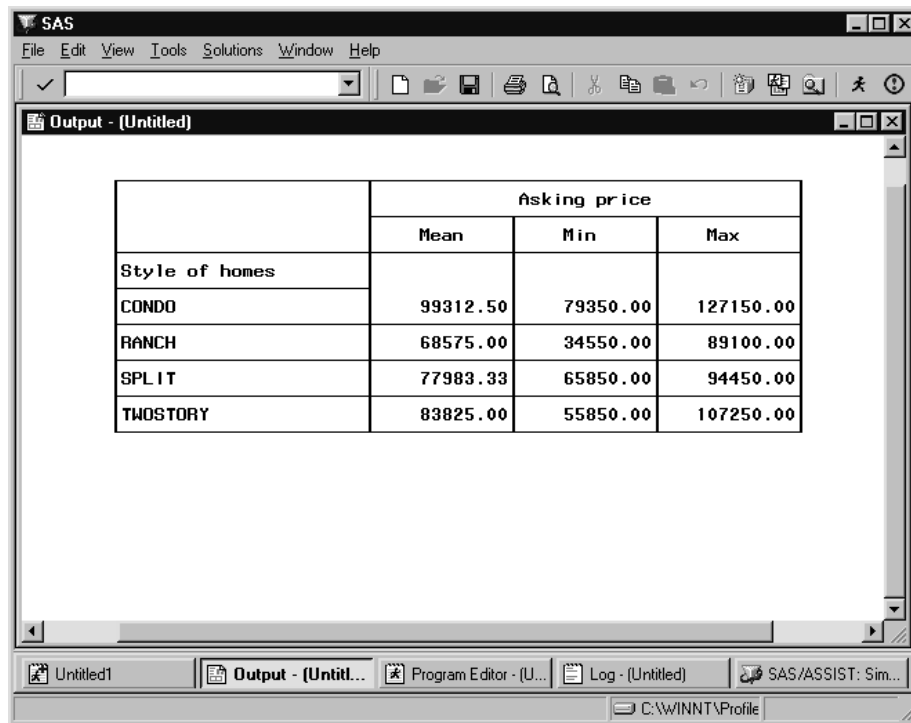
	Min	Mean	Max
Bedrooms	1.00	2.67	4.00
Number of bathrooms	1.00	1.97	3.00
Asking price	34550.00	82720.00	127150.00
Square footage	720.00	1447.00	2105.00

Simple Group 1 Style

The Simple Group 1 style of tabular report is similar to the Statistics style, except that the calculated statistics are broken down by one or more classification variables. The analysis variables are arranged across the tabular report; each one is subdivided into the selected statistics. The classification variables are arranged down the tabular report, with one row of the tabular report for each value of the classification variable.

The following display shows a Simple Group 1 style of tabular report on the HOUSES table:

Display 4.9 Simple Group 1 Report Output



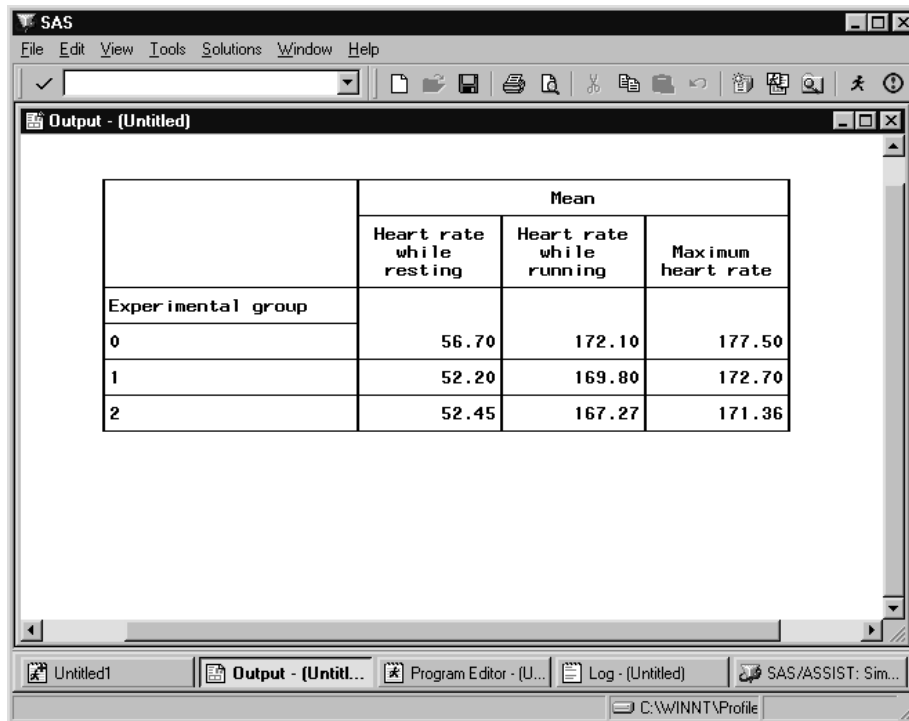
The screenshot shows the SAS Output window with a report titled 'Style of homes'. The report is a tabular report in Simple Group 1 style, showing the distribution of asking prices for different home styles. The table has four columns: 'Style of homes', 'Mean', 'Min', and 'Max'. The data rows are: CONDO (Mean: 99312.50, Min: 79350.00, Max: 127150.00), RANCH (Mean: 68575.00, Min: 34550.00, Max: 89100.00), SPLIT (Mean: 77983.33, Min: 65850.00, Max: 94450.00), and TWOSTORY (Mean: 83825.00, Min: 55850.00, Max: 107250.00).

Style of homes	Asking price		
	Mean	Min	Max
CONDO	99312.50	79350.00	127150.00
RANCH	68575.00	34550.00	89100.00
SPLIT	77983.33	65850.00	94450.00
TWOSTORY	83825.00	55850.00	107250.00

Simple Group 2 Style

The Simple Group 2 style of tabular report is similar to the Simple Group 1 style, except that you select statistics that go across the tabular report and are subdivided by the analysis columns. With this style of report, it is easier to compare the same statistic for different analysis columns.

Display 4.10 Simple Group 2 Report Output

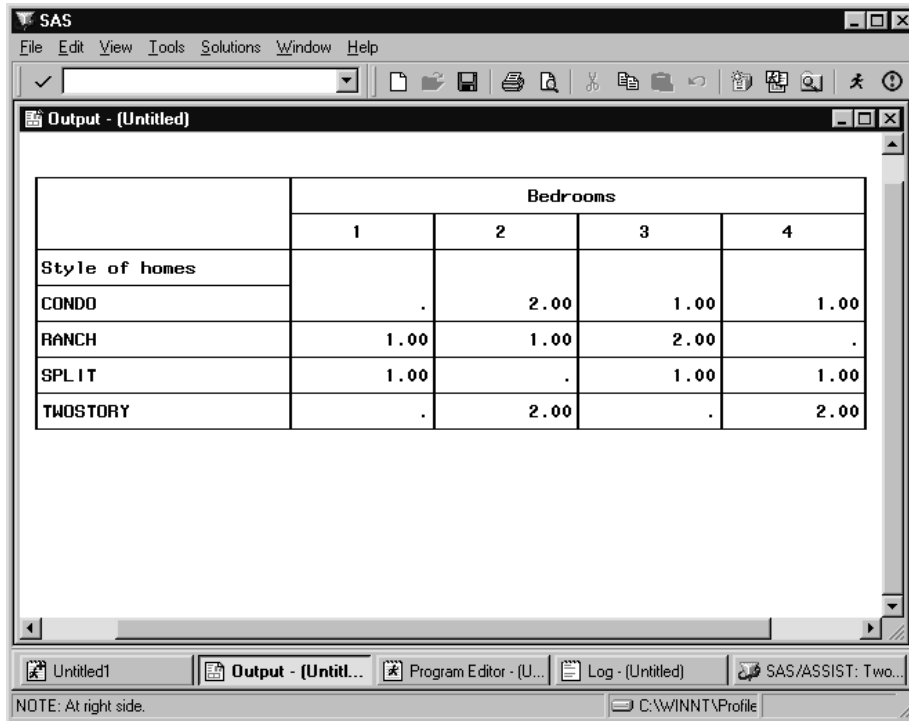


The screenshot shows the SAS Output window with a table in 2-D Group Style. The table has a header row with a blank cell for the group name and a sub-header 'Mean' spanning three columns. The sub-headers are 'Heart rate while resting', 'Heart rate while running', and 'Maximum heart rate'. The data rows are for experimental groups 0, 1, and 2.

	Mean		
Experimental group	Heart rate while resting	Heart rate while running	Maximum heart rate
0	56.70	172.10	177.50
1	52.20	169.80	172.70
2	52.45	167.27	171.36

2-D Group Style

The 2-D Group style of tabular report enables you to create frequency tables, such as the one shown in the following display:

Display 4.11 2-D Group Report Output

The screenshot shows the SAS Output window displaying a 2-D Group Report. The report is titled "Bedrooms" and is classified by "Style of homes". The data is presented in a table with 5 columns: "Style of homes", "1", "2", "3", and "4". The rows are "CONDO", "RANCH", "SPLIT", and "TWOSTORY".

	Bedrooms			
	1	2	3	4
Style of homes				
CONDO	.	2.00	1.00	1.00
RANCH	1.00	1.00	2.00	.
SPLIT	1.00	.	1.00	1.00
TWOSTORY	.	2.00	.	2.00

Multiple Group Style

The Multiple Group style of tabular report is similar to the Simple Group 1 style, except that you specify an additional classification column to be arranged across the tabular report:

Display 4.12 Multiple Group Report Output

The screenshot shows the SAS Output window with a tabular report. The report is titled 'Output - (Untitled)' and displays the following data:

	Age in years			
	51	52	54	57
	Heart rate while running	Heart rate while running	Heart rate while running	Heart rate while running
	Mean	Mean	Mean	Mean
Experimental group				
0
1	165.00	.	166.00	.
2	179.00	167.00	162.00	161.00

Advanced Style

The Advanced style of tabular report is the most flexible. You can create any of the other report styles with the Advanced style. You build your tabular report with up to five across levels and five down levels; each level can contain one or more classification columns, analysis columns, or statistics.

Display 4.13 Advanced Report Output

			1		2		
			Number of bathrooms		Number of bathrooms		
			1	1	1.5	2	
Style of homes	CONDO	Square footage	Mean	.	.	1400.00	1860
			Max	.	.	1400.00	1860
RANCH	Square footage	Mean	720.00	1250.00	.	.	
		Max	720.00	1250.00	.	.	
SPLIT	Square footage	Mean	1190.00	.	.	.	
		Max	1190.00	.	.	.	
TWO-STORY	Square footage	Mean	.	1140.00	.	.	

When you select **Across items** or **Down items** in the Advanced window, the Across Items or Down Items window opens, enabling you to select items for the different levels. Selecting a **Level1** button opens the Define Level window, which allows you to choose the type of item (classification column, analysis column, or statistic). The types available for a given level depend on how other levels have been defined:

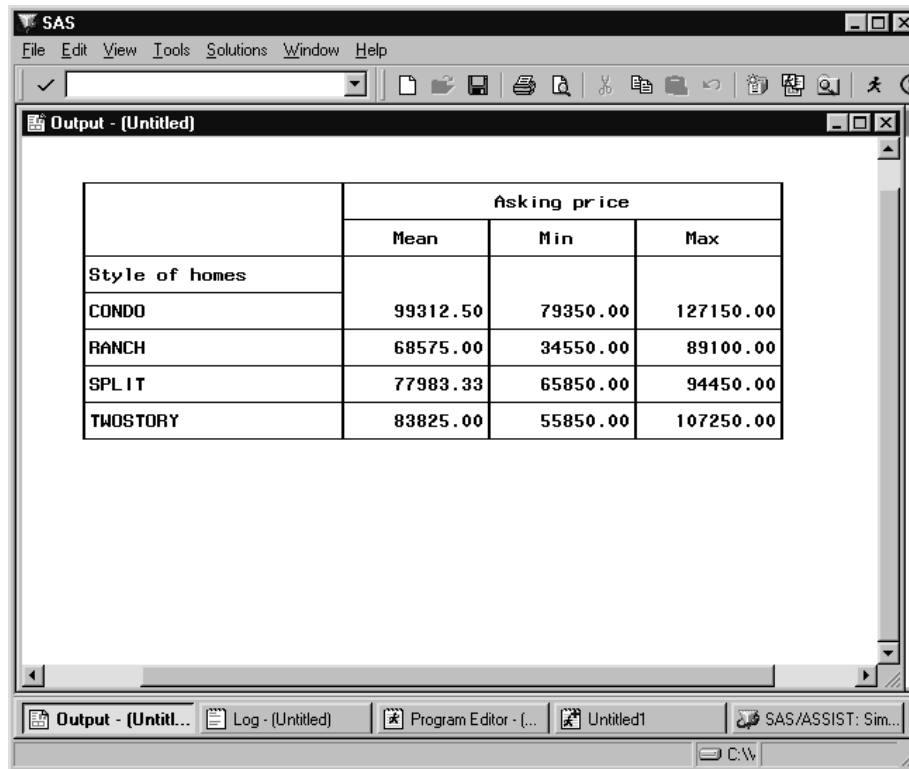
- You cannot have two levels of analysis columns, one under the other.
- You cannot have two levels of statistics, one under the other.

If you select **Drop level1** in the Define Level window for a previously defined level, the definition for that level is deleted, and lower levels are moved up.

Summarize Option

For all report styles except the Statistics style, you can add a summary to the report. A summary provides statistics calculated for all members of each classification column, as well as statistics for the table as a whole, as in the following display:

Display 4.14 Summarized Report Output



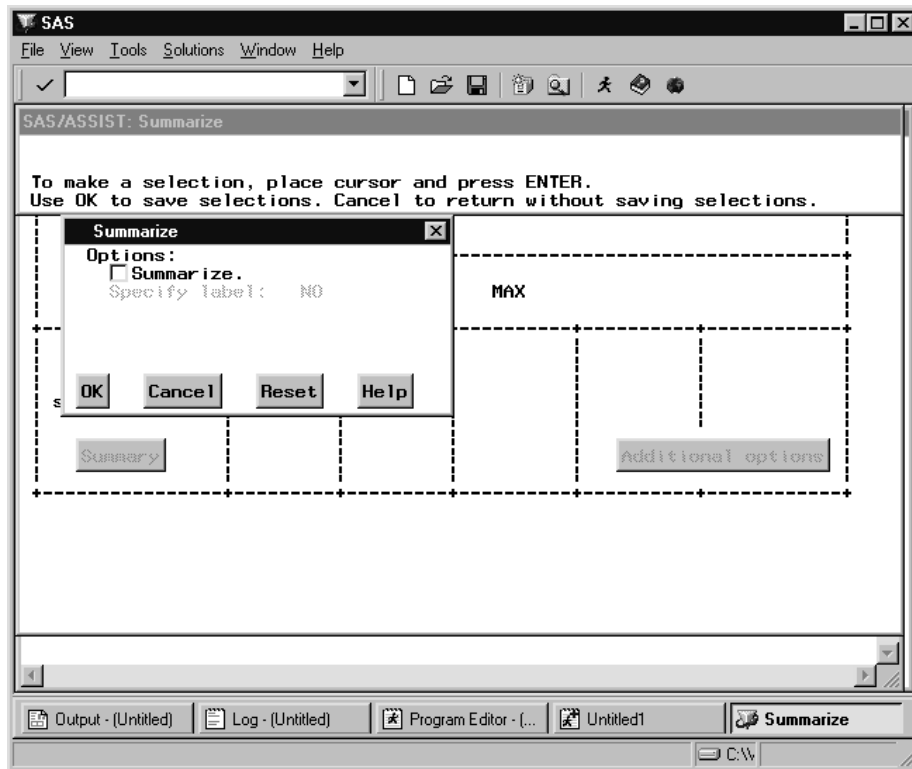
The screenshot shows the SAS Output window with a summarized report. The report is a table with the following data:

Style of homes	Asking price		
	Mean	Min	Max
CONDO	99312.50	79350.00	127150.00
RANCH	68575.00	34550.00	89100.00
SPLIT	77983.33	65850.00	94450.00
TWOSTORY	83825.00	55850.00	107250.00

To add a summary to a report:

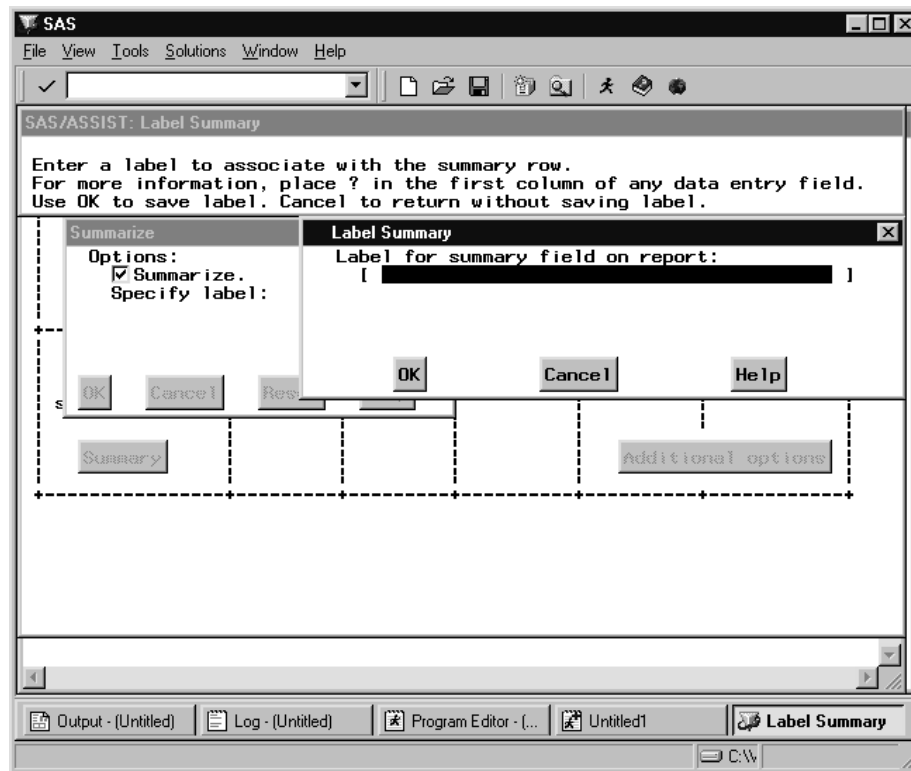
- 1 Select **Summary**. The Summarize window opens.

Display 4.15 Summarize Window



- 2 Select **Summarize**.
- 3 If desired, select **Specify label** to label the row with the summarized statistics. The Label Summary window appears.

Display 4.16 Label Summary Window



- 4 Type a label and select **OK**. If you do not specify a label, the default label “Total” is used.
- 5 Select **OK** to exit the Summarize window.

Additional Options

Each report style has an **Additional Options** button, enabling you to further customize your report. The number of options that are available vary from style to style. The following is a description of all the possible options:

- Format columns:** Use this option to assign formats to the tabular report columns.
- Data order:** Use this option to specify the order in which the classification column values are displayed.
- Row title space:** Use this option to specify the width of the column containing the row titles. This number includes the vertical lines on the left and right.
- Label statistics:** Use this option to specify an alternative label for each statistic.
- Include missing values:** Use this option to include missing values as a member of the classification column(s). If this option is set to **NO**, only nonmissing values are used as classification members.
- Missing value text:** If **Include missing values** is set to **YES**, use this option to specify text to use to identify the missing-value classification member.
- Label columns:** Use this option to assign alternative labels to the classification and analysis columns.

- **Default format:** Use this option to specify a default format for all values in the table. This format is overridden on a per-column basis by any formats specified in **Format columns**.
- **Form characters:** Use this option to specify alternative symbols to use as vertical and horizontal lines, corners, etc.
- **Use separator lines:** Use this option to specify whether to display lines between the rows of the tabular report.
- **Maximum depth:** Use this option to specify the maximum number of levels for across or down items.

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