# Chapter 6 Creating Reports

# Chapter Table of Contents

<b>Introduction</b>
<b>Listing Data</b>
List Data Options
List Data Titles
List Data Variables
Example: Create a Listing Report
<b>Creating a Table</b>
First Report Style
Second Report Style
Third Report Style
Fourth Report Style
Fifth Report Style
Example: Create a Tabular Report

### 114 • Chapter 6. Creating Reports

# Chapter 6 Creating Reports

# Introduction

You can create a detailed report that lists portions of your data, or you can create a tabular report that summarizes your data.

# **Listing Data**

Resove

	-		
List Data: Fitness			×
runtime rstpulse runpulse oxygen group	Print age maxpulse weight	<u>{</u> c <u>f</u>	OK Cancel Reset Save Options Help

To create a detailed listing report, select **Reports**  $\rightarrow$  **List Data** ...

#### Figure 6.1. List Data Dialog

You can use the List Data dialog to print your data in a listing report. You can specify the variables to be included in the report and some details about the report format.

Options

Titles

Variables

Select variables from the candidate list and click on the **Print** button to include the variables in the listing.

Select variables from the candidate list and click on the **Id** button to designate the variables as Id variables in the listing. These Id variables are used instead of observation numbers to identify the observations in the listing.

# List Data Options

Click on the **Options** button in the List Data dialog to specify options that control aspects of the report format and whether or not to print a sum for numeric columns.

#### General

The **General** tab enables you to choose to use column names or column labels as column headings.

List Data: Options	×
List Data: Options          General Sum         Use as column headings         Column names         Column labels         Print	OK Cancel Reset Help
♥ Observation number ■ Number of observations	
Character to split column headings:	

#### Figure 6.2. General Tab

Spacing between lines of the report can be single or double.

By default, you can print the number of each observation at the left as an identifier. If you have selected an Id variable, you cannot print the observation number.

You can also select to print the total number of observations in the data table at the end of the report.

To precisely control column headings in the report, you can specify a special character for variable labels that determines where the label is split as it forms a column heading. You can alter variable labels by selecting **Column Properties** . . . from the **Data** menu.

#### Sum

The **Sum** tab enables you to generate a total for each selected numeric column.

List Data: Options	×
General Sum	OK Cancel Reset Help
Remove	



The numeric columns that are selected to be printed are listed in the candidate list. Select a column and click on the **Sum** button, or double-click on the column name to add it to the list of columns to be totalled.

## **List Data Titles**

Click on the Titles button to display the Titles dialog.

Titles	×
Global List Data Settings	OK
	Lancel
	Reset
	Help
☐Override global titles	

Figure 6.4. Titles Dialog, List Data Tab

In the **Global** tab, you can specify titles that are displayed on all output. These titles are saved across all Analyst sessions.

In the **List Data** tab, you can specify titles for the report. Select the box next to **Override global titles** to exclude the global titles from the report results.

In the **Settings** tab, you can specify whether or not to include the date, the page numbers, and a filter description.

## **List Data Variables**

Click on the **Variables** button to display the List Data: Variables dialog.

List Data: Variables		×
runtime rstpulse runpulse oxygen	BY Group group	OK Cancel Reset Help
Remove		

Figure 6.5. List Data: Variables Dialog

BY group variables separate the data set into groups of observations. Separate reports are produced for each group. For example, you could use a BY group variable to produce separate reports for females and males. Specify BY group variables by selecting them in the candidate list and clicking on the **BY Group** button.

### **Example: Create a Listing Report**

#### **Open the Fitness Data Set**

In this example, you use the Fitness data set as the basis of your listing report. To open the Fitness data set, follow these steps:

- 1. Select **Tools**  $\rightarrow$  **Sample Data** ...
- 2. Select Fitness.
- 3. Click **OK** to create the sample data set in your **Sasuser** directory.
- 4. Select File  $\rightarrow$  Open By SAS Name ...
- 5. Select Sasuser from the list of Libraries.
- 6. Select Fitness from the list of members.
- 7. Click **OK** to bring the **Fitness** data set into the data table.

### Specify Report Columns

To list maximum pulse, resting pulse, and average running pulse for each age, follow these steps:

- 1. Select **Reports**  $\rightarrow$  **List Data** ...
- 2. Select maxpulse, rstpulse, and runpulse and click on the **Print** button to include these variables in the report.
- 3. Select age and click on the **Id** button to make age the Id variable.

List Data: Fitness				×
weight runtime oxygen group Remove	Print maxpulse rstpulse runpulse	age		OK Cancel Reset Save Options Help
		Options	Titles	Variables

Figure 6.6. Columns in Report

#### Specify Report Options

To designate options such as column headings, follow these steps:

- 1. Click on the **Options** button in the List Data dialog.
- 2. In the **General** tab, select **Column labels** under **Use as column headings**.

List Data: Options	×
General Sum Use as column headings Column names Column labels Print Observation number Number of observations Character to split column headings:	OK Cance 1 Reset He 1 p

Figure 6.7. Use Column Labels as Column Headings

3. Click **OK** to save your changes.

### Specify Report Titles

To specify the titles to be displayed in your report, follow these steps:

- 1. In the List Data dialog, click on the **Titles** button to specify your report titles.
- 2. In the **List Data** tab, type **Heart Rates According to Age** in the first field.

Titles	×
Global List Data Settings	ок
Heart Rates According to Age	Cancel Reset
	Не1р
🗍 Override global titles	

Figure 6.8. List Data Title

SAS OnlineDoc™: Ve
--------------------

- 3. If you have not already done so, type **Fitness Report** in the first field in the **Global** tab.
- 4. Click on the **Settings** tab. Deselect **Include date** and **Include page numbers** so that the current date and page number are not printed on your report.

Titles	×
Global List Data Settings	OK
☐ Include date	Cancel
☐ Include page numbers	Reset
☑ Include filter description	Help

Figure 6.9. Exclude Date and Page Number

5. Click **OK** to save your title changes.

#### Generate a Data Listing

To generate a data listing of the columns that you have chosen, click **OK** in the List Data dialog.

👪 Listing					_ 🗆 ×
		Fitn Heart Rates	ess Report According to	Age	
	Ace in	Maximum beart	Heart rate	- Heart rate while	
	years	rate	resting	running	
	57 54	176 165	58 62	174 156	
	52 50	166 155	48 48	164 146	
	51 54	172	48 44 50	172 168	
	57 49	155	59 49 56	186	
	48 52	176 172	52 53	170 170	
	44 45	168 192	45 56	168 186	
	45 47 54	164	51 47 50	162	_
	49 51	185 172	44 57	180 168	
	51 48	168 164	48 48	162 162	
	49 44 40	182	62 62	168 178 185	
	44 42	168 172	45 40	156 166	
	38 47	180 176	55 58 70	178 176	
	40 43 44	170	64 63	162 174	
	38	186	48	170	-1
•					<u> </u>

Figure 6.10. Data Listing

# **Creating a Table**

A summary table can often help you spot important features of the data that are not apparent from a simple data listing.

To create a summary table, select  $\textbf{Reports} \rightarrow \textbf{Tables} \dots$ 

T	ables: Fitr	iess				×
Sel	ect the	e type of tabl	e you want	to cre	ate.	
		Statistics			Analysis Variables Statistics	
	Analysis Variables			Row Classes		
		Statistics Analysis Variables			Column Classes	
	Row Classes			Row Classes		
		Column Classes Analysis Variables Statistics				
	Row Classes				Car	ncel

Figure 6.11. Reports Menu

Select a report style to specify the format and variables to be displayed.

# **First Report Style**

The first report style displays analysis variables as rows and statistics as columns.

	Statistics
Analysis Variables	

Figure 6.12. First Report Style

#### **Statistics**

In the **Statistics** tab, select one or more statistics from the candidate list and click on the **Statistics** button to apply the statistics to the data in your report.





#### Analysis Variables

An analysis variable is a variable for which statistics are computed. In the **Analysis Variables** tab, select one or more analysis variables from the candidate list and click on the **Analysis Variables** button to use these as analysis variables in your report.



Figure 6.14. Analysis Variables Tab

#### Summary

The **Summary** tab displays all of your selections. You can change the order of statistics and analysis variables by selecting the items in their lists and clicking the up and down arrows to change their position. Columns and rows in the resulting table are displayed in the tree view on the right.



Figure 6.15. Summary Tab

## Second Report Style

The second report style displays levels of class variables as rows and statistics for analysis variables as columns.

	Analysis Variables
	Statistics
Row Classes	

Figure 6.16. Second Report Style

As with the first report style, the second report style also has **Statistics**, **Analysis Variables**, and **Summary** tabs. In addition, it also has a **Row Classes** tab.

#### **Row Classes**

In the **Row Classes** tab, select one or more class variables from the candidate list and click on the **Row Classes** button to display rows in your report according to their levels.



Figure 6.17. Row Classes Tab

## **Third Report Style**

The third report style displays levels of class variables as rows and statistics for analysis variables as columns.

	Statistics Analysis Variables
Row Classes	

Figure 6.18. Third Report Style

The third report style contains the same tabs as the second report style; it differs from the second report style in the hierarchy of column headings.

## Fourth Report Style

The fourth report style displays levels of class variables as both rows and columns, with cells of the table containing the frequency of that combination of levels.

	Column Classes
Row Classes	

Figure 6.19. Fourth Report Style

As with the other report styles, the fourth report style has a **Summary** tab. As with the second and third report styles, the fourth report style has a **Row Classes** tab. In addition, this report style has a **Column Classes** tab.

#### Column Classes

In the **Column Classes** tab, select one or more class variables from the candidate list and click on the **Column Classes** button to display columns in your report according to their levels.



Figure 6.20. Column Classes Tab

## Fifth Report Style

The fifth report style displays levels of class variables as rows and statistics for analysis variables at levels of other class variables as columns.

	Column Classes
	Analysis Variables
	Statistics
Row Classes	

Figure 6.21. Fifth Report Style

As with other report styles, the fifth report style has a **Column Classes**, an **Analysis Variables**, a **Statistics**, a **Row Classes**, and a **Summary** tab.

## **Example: Create a Tabular Report**

#### Open the Class Data Set

In this example, you use the **Class** data set as the basis of your report. To open the **Class** data set, follow these steps:

- 1. Select **Tools**  $\rightarrow$  **Sample Data** ...
- 2. Select Class.
- 3. Click **OK** to create the sample data set in your **Sasuser** directory.
- 4. Select File  $\rightarrow$  Open By SAS Name ...
- 5. Select Sasuser from the list of Libraries.
- 6. Select Class from the list of members.
- 7. Click **OK** to bring the **Class** data set into the data table.

#### Choose a Report Style

Use the fifth report style to display the average weights by age and sex in the **Class** data set. To choose a report style, follow these steps:

- 1. Select **Reports**  $\rightarrow$  **Tables** . . .
- 2. Select the fifth report style.

T	ables: Cla	\$\$				×
Sel	ect the	e type of tabl	e you want	to cre	eate.	
		Statistics			Analysis Variables Statistics	
	Analysis Variables			Row Classes		
		Statistics Analysis Variables			Column Classes	
	Row Classes			Row Classes		
		Column Classes Analysis Variables Statistics				
	Row Classes	k			Car	ncel

Figure 6.22. Select the Fifth Report Style

### Specify Rows and Columns

To specify the rows and columns for your report, follow these steps:

1. In the **Column Classes** tab, select **Sex** from the candidate list and click on the **Column Classes** button to display the values of **Sex** as columns in your report.



Figure 6.23. Select a Column Class

2. Click on the **Analysis Vars** tab. Select weight from the list and click on the **Analysis Variables** button to make weight the analysis variable in your report.

Fifth Report Style:	Class		×
Column Classes Ana C name age height	Column Classes Analysis Vars Stats Row Classes Summary		
Been	Row Classes	olumn Classes alysis Variables Statistics	Help Options Titles Variables

Figure 6.24. Select an Analysis Variable

3. Click on the **Stats** tab. Select **MEAN** from the list and click on the **Statistics** button to display the average weight.



Figure 6.25. Select a Statistic

4. Click on the **Row Classes** tab. Select **age** from the list and click on the **Row Classes** button to display the values of **age** as the rows in your report.



Figure 6.26. Select a Row Class

5. Click on the **Summary** tab to see the results of your selections.



Figure 6.27. Report Layout

#### Specify Report Options

To specify the options for your report, follow these steps:

- 1. Click on the **Options** button in the Fifth Report Style dialog.
- 2. In the **General** tab, select **Include summary row**. Click **Bot**tom to display a summary row at the bottom of each column.

Fifth Report Style: Options	×
General Missing Values Labels Formats	1
✓ Include summary row Label:     C Top	ОК
Cleft ©Right	Reset
Number of spaces used for row titles: 24	Не1р
Default cell format: BEST12.2	
Class value order:	
© By unformatted value © By formatted value © Descending frequency count © Order in which encountered	

Figure 6.28. Include Summary Row

3. Click on the **Missing Values** tab. Type **No Students** in the **Missing value text:** field.

Fifth Report Style: Options	×
General Missing Values Labels Formats	-1
<b>Treat missing values as valid class levels</b>	ОК
Include headings for empty combinations	Cance 1
Missing value text: No Students	Reset
	Help
	_

Figure 6.29. Type Missing Value Text

4. Click **OK** to save your changes and return to the Fifth Report Style dialog.

#### Specify Report Titles

To create a title and suppress the date and page numbers in your report, follow these steps:

- 1. Select the **Titles** button in the Fifth Report Style dialog.
- 2. In the **Table** tab, type **Average Weights by Age and Sex** in the first field.
- 3. Select **Override global titles** to suppress the title from the previous example.

Titles	×
Global Table Settings	ОК
Annual line in the Annual Dev	Cance 1
Average Weights by Age and Sex	Reset
	Help
V Override global titles	

#### Figure 6.30. Add a Title

4. Click on the **Settings** tab. Deselect **Include date** and **Include page numbers** so that the date and page numbers are not displayed in your report.

Titles A second s	۲,
Global Table Settings       OK         □ Include date       Cancel         □ Include page numbers       Reset         ☑ Include filter description       Help	

Figure 6.31. Suppress Date and Page Numbers

5. Click **OK** to save your changes and to return to the Fifth Report Style dialog.

### **Display Your Report**

To display your report in the fifth report style, click **OK** in the Fifth Report Style dialog.

Report on Class				
Average Weights by Age and Sex				<u> </u>
		Gender		
		F	M	
		Weight in pounds	Weight in pounds	
		Average value	Average value	
	Age in years			
	11	50.50	85.00	
	12	80.75	103.50	
	13	91.00	84.00	
	14	96.25	107.50	
	15	112.25	122.50	
	16	No Students	150.00	
	A11	90.11	108.95	
ļ	•			

Figure 6.32. Display Report in Fifth Report Style

The correct bibliographic citation for this manual is as follows: SAS Institute Inc., *The Analyst Application, First Edition*, Cary, NC: SAS Institute Inc., 1999. 476 pp.

#### The Analyst Application, First Edition

Copyright © 1999 SAS Institute Inc., Cary, NC, USA.

ISBN 1-58025-446-2

All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, by any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher, SAS Institute, Inc.

**U.S. Government Restricted Rights Notice.** Use, duplication, or disclosure of the software by the government is subject to restrictions as set forth in FAR 52.227–19 Commercial Computer Software-Restricted Rights (June 1987).

SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

1st printing, October 1999

 $SAS^{\circledast}$  and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries.  $^{\circledast}$  indicates USA registration.

 $IBM^{\circledast}, ACF/VTAM^{\circledast}, AIX^{\circledast}, APPN^{\circledast}, MVS/ESA^{\circledast}, OS/2^{\circledast}, OS/390^{\circledast}, VM/ESA^{\circledast}, and VTAM^{\circledast} are registered trademarks or trademarks of International Business Machines Corporation.$  $<math display="inline">^{\circledast}$  indicates USA registration.

Other brand and product names are registered trademarks or trademarks of their respective companies.

The Institute is a private company devoted to the support and further development of its software and related services.