

# Chapter 4: Designing Reports with SAS® Visual Analytics

4.1 Creating a Simple Report

4.2 Creating Interactive Reports

4.3 Working with Display Rules

# Objectives

- Discuss the Report phase of the SAS Visual Analytics methodology.
- Discuss useful tips for designing reports.
- Describe when to use reporting graphs in Visual Analytics.
- Describe when to use dual axis graphs in Visual Analytics.

# Visual Analytics Methodology: Report

In the ***Report*** phase, you need to develop reports using one (or more) of the following features:

- Multiple pages
- Animation
- Ranks
- Prompts, actions, and links
- Display rules





# Tips

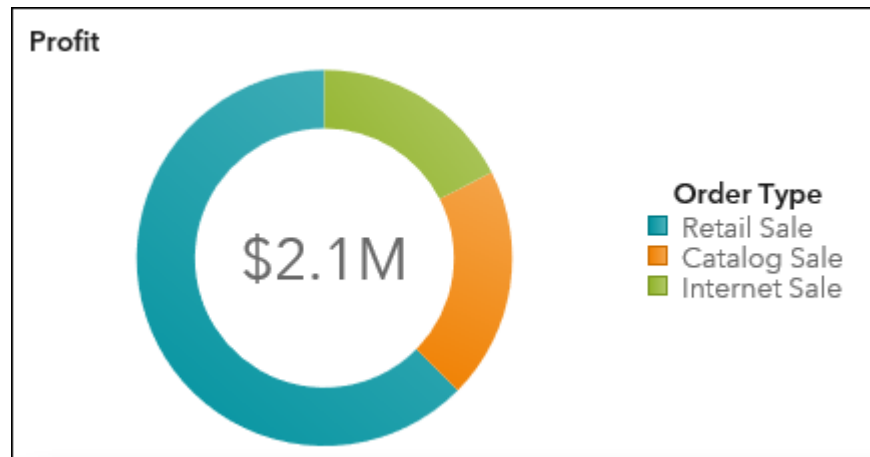
for Designing Reports

- Understand the audience.
- Make accessible to all.
- Tell a single data story.
- Use visually appealing, easy to understand objects.
- Use the simplest graph.
- Use consistent fonts.
- Limit the number of objects.
- Limit the number of pages.

# Objects: Graphs (Reporting)



Use a *word cloud* to show summary information in an appealing fashion.

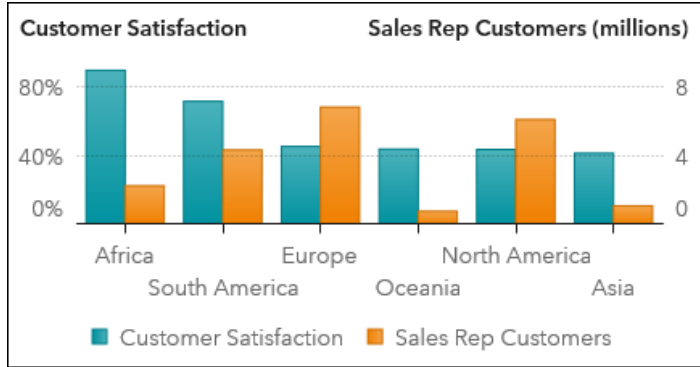


Use a *donut chart (pie chart)* to compare a few groups whose values vary greatly.

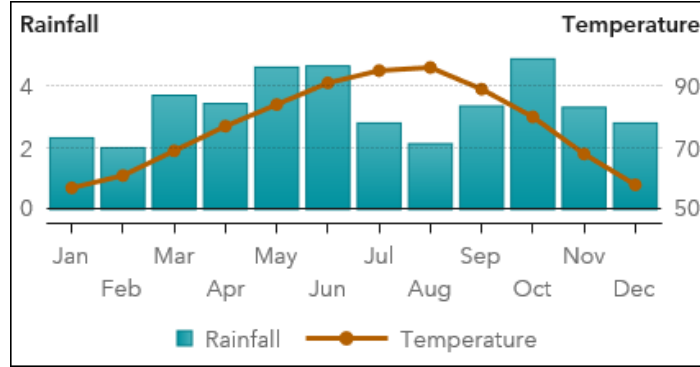
# Objects: Graphs (Dual Axis)

Use *dual axis* charts and plots to compare two series with different ranges.

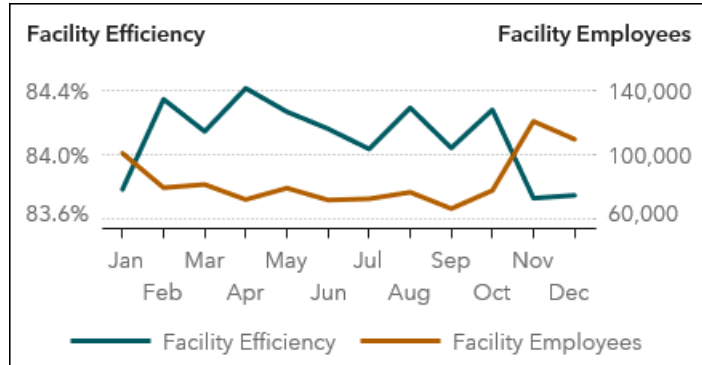
**Dual axis bar chart**



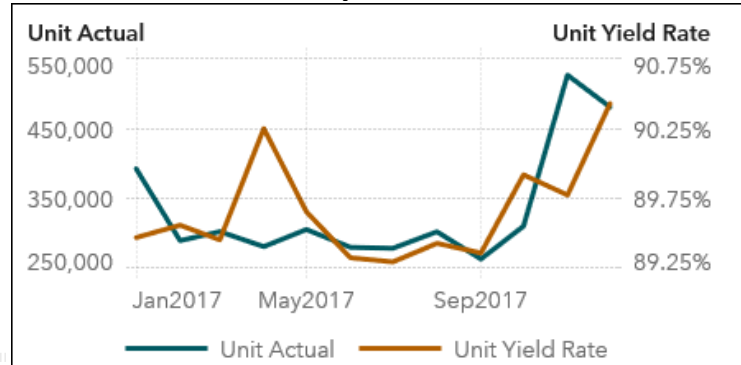
**Dual axis bar-line chart**



**Dual axis line chart**



**Dual axis time series plot**



# Chapter 4: Designing Reports with SAS® Visual Analytics

4.1 Creating a Simple Report

4.2 Creating Interactive Reports

4.3 Working with Display Rules

# Objectives

- Describe how to tell a data story using multiple pages.
- Discuss the various ways that data can be filtered in Visual Analytics.
- Describe how to use report and page prompts.
- Discuss when to use controls in Visual Analytics.
- Discuss the types of actions that are available in a report.
- Discuss the types of links that are available in a report.



# Creating Reports with Multiple Pages

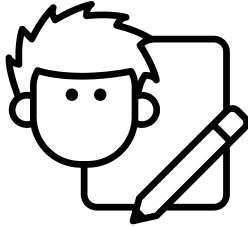
Reports can contain multiple pages to help you successfully tell your data story. When creating a multi-page report, each page should

- contain a limited number of objects
- focus on a single idea
- stand on its own
- communicate one point that advances the data story.

Hidden pages are pages that are not displayed to report viewers. However, linking from an object in a regular page can enable viewers to see additional details.

# Filtering Data

Many different types of filters can be created to subset data in Visual Analytics:

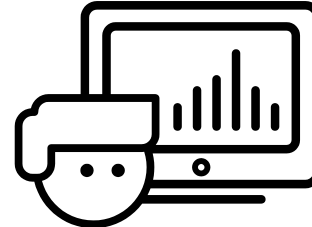


Report Designer

## Detail report filters

- Data source
- Basic
- Advanced

## Post-aggregate report filters



Report Viewer

## Prompts

- Report
- Page

## Actions

- Filter
- Links

# Report and Page Prompts

Drop-down list

2014

Africa

Asia

Europe

North America

Oceania

Report

Button bar

Page

Slider

Text input

04Jan2014 to 28Dec2014

01Jan2014

31Dec2014

Profit

\$50,000

000

\$40,000

\$35,000

\$30,000

\$25,000

\$20,000

Jan2014

May2014

Sep2014

Quantity Ordered

Profit

Top 10 Cities by Orders

Paris

Frankfurt  
am Main

Amsterdam

Berlin

Hamburg

Barcelona

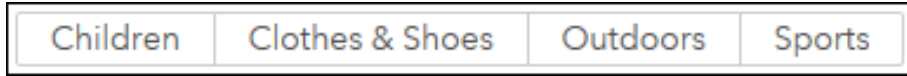
London

Madrid

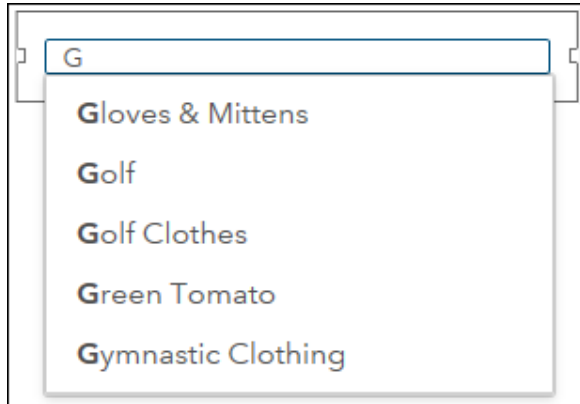
Milano

Roma

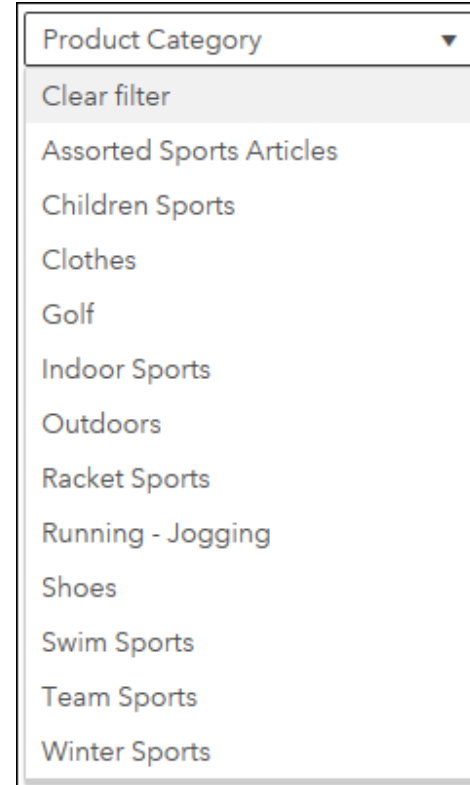
# Objects: Controls



On a *button bar*, use a category with few distinct values.



In a *text input*, use a category with a lot of distinct values.



In a *drop-down list*, use a category with a moderate number of distinct values.

# Objects: Controls

- ☐ Assorted Sports Articles
- ☐ Children Sports
- ☐ Clothes
- ☐ Golf
- ☐ Indoor Sports
- ☐ Outdoors
- ☐ Racket Sports
- ☐ Running - Jogging
- ☐ Shoes
- ☐ Swim Sports
- ☐ Team Sports
- ☐ Winter Sports

Use a *list control* to enable viewers to select multiple values.



A horizontal slider control with a light gray background. At the top, the text "01Jan2012 to 30Dec2016" is displayed. Below this, a dark gray horizontal line represents the range. At the left end of the line is a circular handle with a dot in the center, and at the right end is another similar handle. Below the left handle is the text "01Jan2012", and below the right handle is the text "30Dec2016".

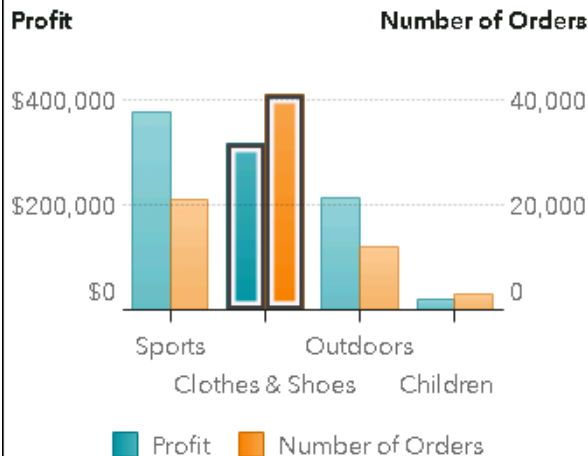
Use a *slider control* to enable viewers to select a range of values.

The list control can be used only as a report or page prompt inside a prompt container.

# Adding Actions to a Page

Select a continent:

- ☐ Africa (\$127.68)
- ☐ Asia \$15,503.70
- ☒ Europe \$5,659,450.59
- ☐ North America \$2,121,645.56
- ☐ Oceania \$462,934.64

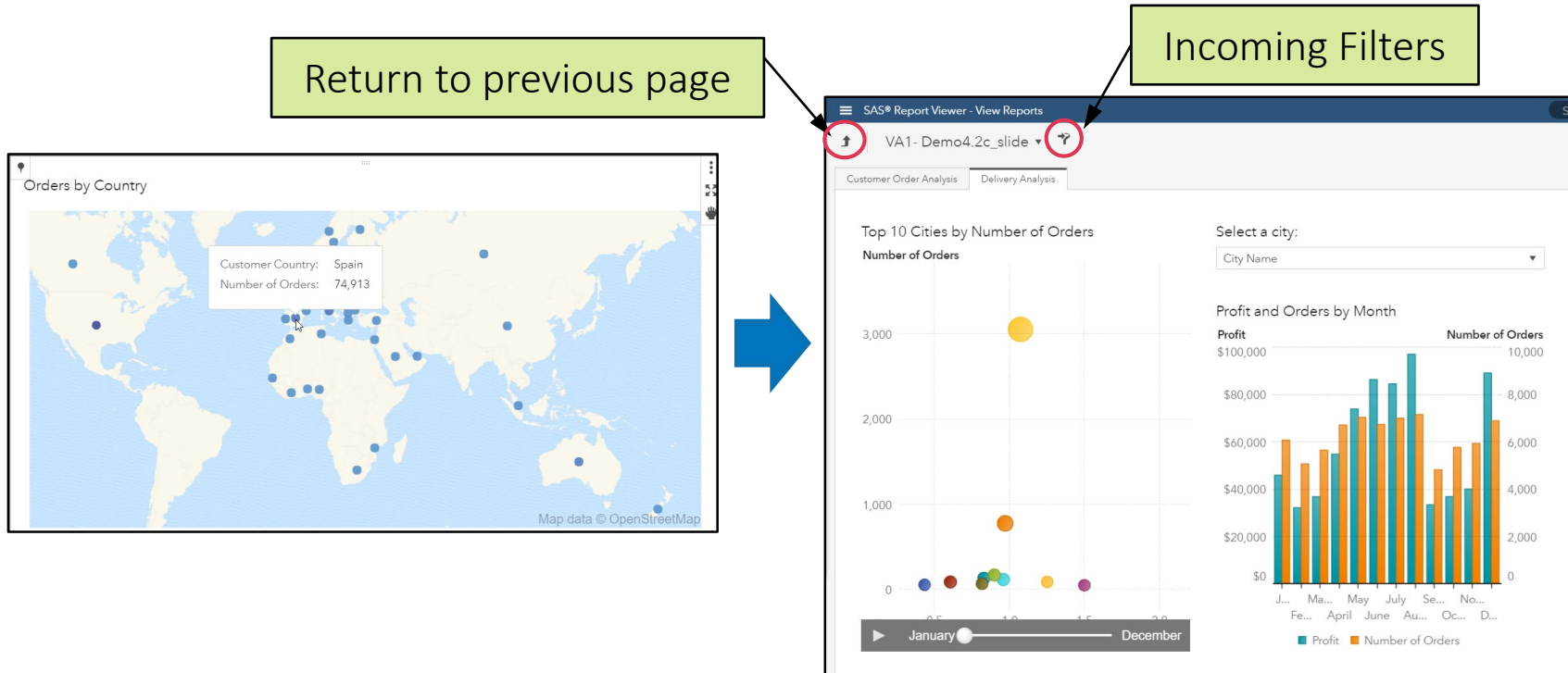


Country	Product Line	Profit	Number of Orders
Italy	Children	\$20,920.85	3,326
Italy	Clothes & Shoes	\$317,677.91	41,018
Italy	Outdoors	\$215,364.86	12,310
Italy	Sports	\$377,051.40	21,088

- The list control filters the geo map.
- The geo map filters the bar chart and list table.
- A linked selection is established between the bar chart and the list table.

# Adding Page Links

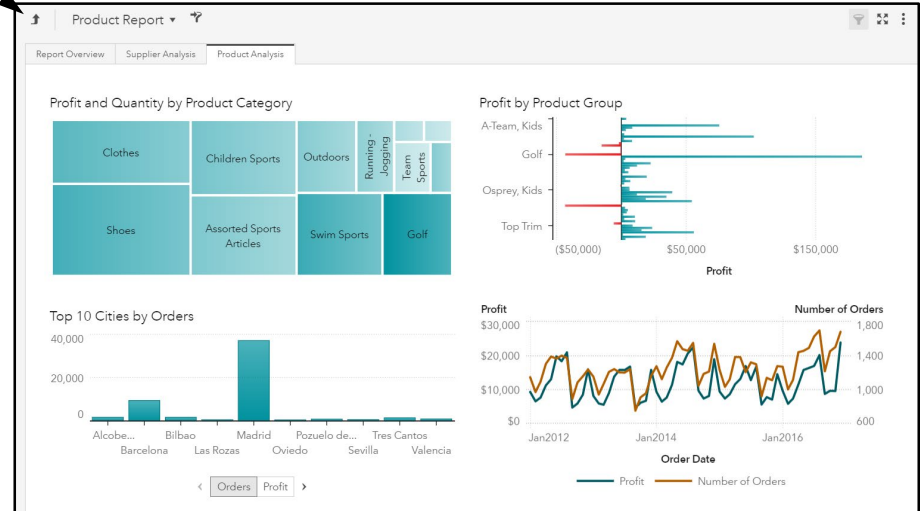
Double-clicking a country in the geo map opens the Delivery Analysis page.



# Adding Report Links

Double-clicking a country in the geo map opens the Product Report.

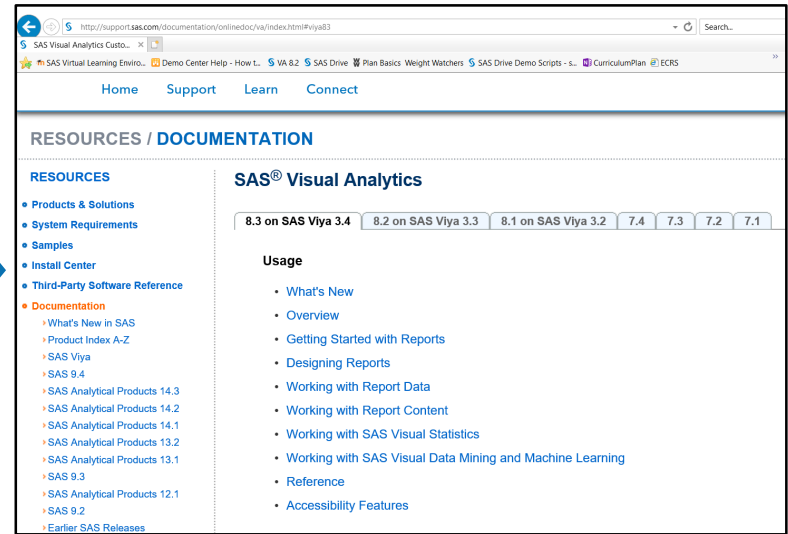
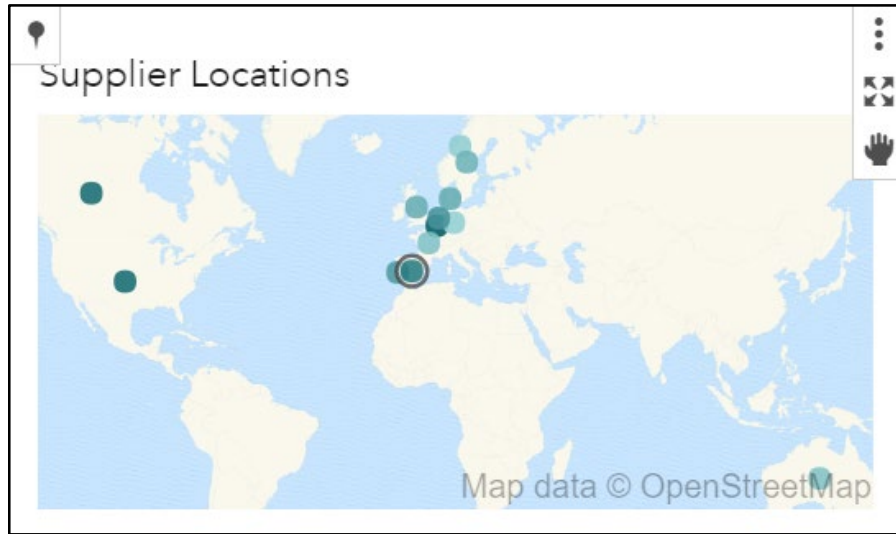
Return to previous report





# Adding URL Links

Double-clicking a country in the geo map opens the SAS Visual Analytics product page.



# Chapter 4: Designing Reports with SAS® Visual Analytics

4.1 Creating a Simple Report

4.2 Creating Interactive Reports

4.3 Working with Display Rules

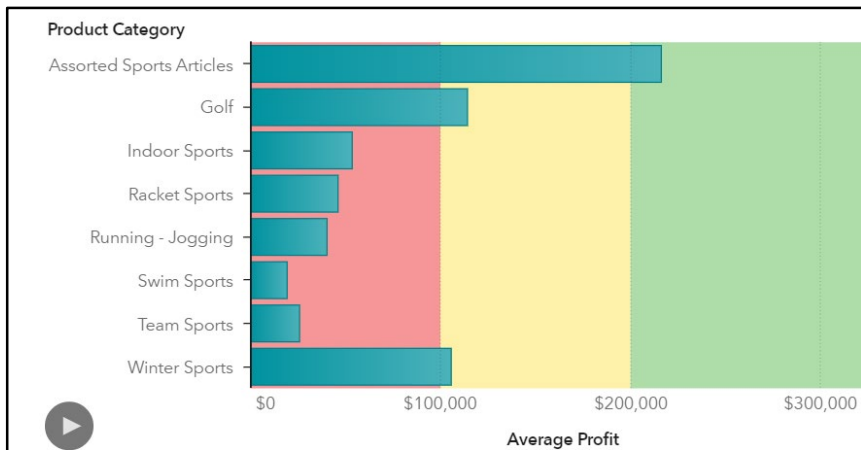
# Objectives

- Describe graph-level display rules.
- Describe table-level display rules.
- Describe report-level display rules.

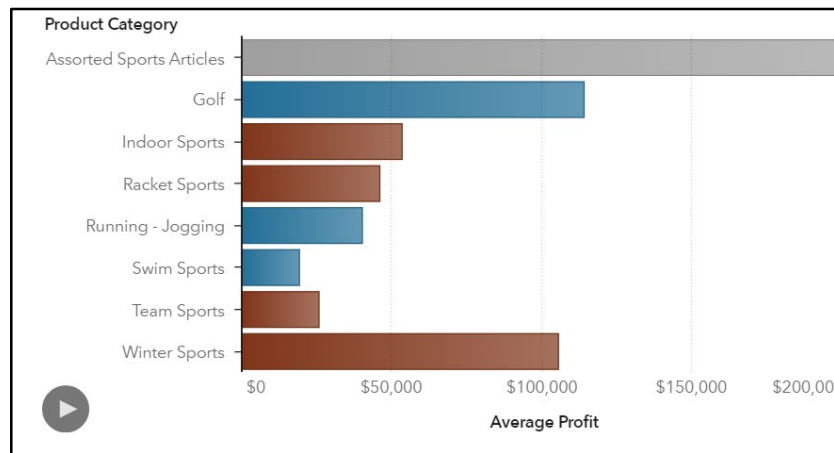
# Graph-Level Display Rules

Display rules enable you to highlight specific values in a graph using colors.

## Expression







## Color-mapped values



# Table-Level Display Rules

Display rules enable you to highlight specific values in a list table using colors.

Use the Ctrl key to sort by multiple columns.

Product Line ▲	Order Type ▲	Profit	Number of Orders
Outdoors	Catalog Sale	\$6,324.44	380 
Outdoors	Internet Sale	\$10,980.77	533 
Outdoors	Retail Sale	\$83,808.41	5,276 
Sports	Catalog Sale	\$50,931.45	3,324 
Sports	Internet Sale	\$71,842.97	4,803 
Sports	Retail Sale	\$114,969.76	9,324 

Product Line ▲	Order Type ▲	Profit	Number of Orders
Outdoors	Catalog Sale	\$6,324.44	380
Outdoors	Internet Sale	\$10,980.77	533
Outdoors	Retail Sale	\$83,808.41	5,276
Sports	Catalog Sale	\$50,931.45	3,324
Sports	Internet Sale	\$71,842.97	4,803
Sports	Retail Sale	\$114,969.76	9,324

# Table-Level Display Rules

In the crosstab object, you can define an expression to highlight values.

OrderType	Catalog Sale	Internet Sale	Retail Sale
OrderYear	Profit	Profit	Profit
2012	\$140,363.91	<b>\$88,294.94</b>	\$520,769.33
2013	\$137,699.33	<b>\$80,387.69</b>	\$552,563.33
2014	\$134,667.86	\$122,209.10	\$682,896.88
2015	\$113,563.29	<b>\$98,423.76</b>	\$589,974.29
2016	<b>\$96,793.67</b>	\$128,960.72	\$703,063.45

# Report-Level Display Rules

Report-level display rules enable you to define color-mapped values to easily identify the same value in multiple report objects.

