# Contents

About This Book ........................................................................................................... v
Acknowledgments ......................................................................................................... vii

Chapter 1: Introduction to SAS Visual Analytics ......................................................... 1
  1.1 Introduction .......................................................................................................... 1
  1.2 SAS Visual Analytics Process ........................................................................... 4
  1.3 Viewing SAS Visual Analytics Reports ............................................................. 11

Chapter 2: Accessing and Investigating Data .............................................................. 23
  2.1 Introduction .......................................................................................................... 23
  2.2 Accessing the Data ............................................................................................ 23
  2.3 Investigating the Data ....................................................................................... 25
  2.4 Objects ............................................................................................................... 28
  2.5 Transforming Data Using SAS Data Studio ..................................................... 38

Chapter 3: Analyzing Data Using SAS Visual Analytics ........................................... 47
  3.1 Introduction .......................................................................................................... 47
  3.2 Exploring Data with Charts and Graphs ............................................................ 52
  3.3 Creating Data Items and Applying Filters ......................................................... 67
  3.4 Performing Data Analysis ................................................................................. 97

Chapter 4: Creating a Simple Report ......................................................................... 113
  4.1 Introduction ......................................................................................................... 113
  4.2 Graphs ............................................................................................................... 114
  4.3 Creating Interactive Reports ............................................................................. 123
  4.4 Working with Display Rules ............................................................................. 147

Chapter 5: Advanced Topics – Automated Explanations ......................................... 163
  5.1 Introduction ......................................................................................................... 163
  5.2 Automated Explanation .................................................................................... 163

Chapter 6: Advanced Topics – Restructuring Data for Geographic Mapping .......... 175
  6.1 Introduction ......................................................................................................... 175
  6.2 SAS Data Studio ............................................................................................... 175
  6.3 Restructuring Data ............................................................................................ 177
  6.4 Analyzing Geographic Information ................................................................... 190

Chapter 7: Advanced Topics – Restructuring Data for Forecasting ......................... 199
  7.1 Introduction ......................................................................................................... 199
  7.2 Restructuring Data ............................................................................................ 199
  7.3 Forecasting ......................................................................................................... 206

Chapter 8: Advanced Topics – Performing Network Analysis .................................... 215
  8.1 Introduction ......................................................................................................... 215
  8.2 Analytics Network ............................................................................................ 215
  8.3 Data Network Shape ......................................................................................... 217
  8.4 Restructuring Data for Network Analysis ....................................................... 218
  8.5 Creating a Network Analysis Object ................................................................. 226
<table>
<thead>
<tr>
<th>Chapter 9: Advanced Topics – Performing Path Analysis</th>
<th>231</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1 Introduction ...............................................</td>
<td>231</td>
</tr>
<tr>
<td>9.2 Path Analysis Object ......................................</td>
<td>231</td>
</tr>
<tr>
<td>9.3 Path: Data Shape ...........................................</td>
<td>233</td>
</tr>
<tr>
<td>Chapter 10: Advanced Topics – Performing Text Analytics</td>
<td>245</td>
</tr>
<tr>
<td>10.1 Introduction ................................................</td>
<td>245</td>
</tr>
<tr>
<td>10.2 Text Topics Object ........................................</td>
<td>245</td>
</tr>
<tr>
<td>10.3 Data Shape ..................................................</td>
<td>247</td>
</tr>
<tr>
<td>10.4 Text Analytics: How It Works .........................</td>
<td>248</td>
</tr>
<tr>
<td>10.5 Derive Topics ..............................................</td>
<td>249</td>
</tr>
<tr>
<td>Chapter 11: Advanced Topics – Creating Advanced Data Items</td>
<td>259</td>
</tr>
<tr>
<td>11.1 Introduction ................................................</td>
<td>259</td>
</tr>
<tr>
<td>11.2 Creating Calculated Items ..............................</td>
<td>263</td>
</tr>
<tr>
<td>11.3 Creating Aggregated Measures .......................</td>
<td>276</td>
</tr>
<tr>
<td>Chapter 12: Advanced Topics – Creating Advanced Filters</td>
<td>295</td>
</tr>
<tr>
<td>12.1 Introduction ................................................</td>
<td>295</td>
</tr>
<tr>
<td>12.2 Post-Aggregate Report Filters ........................</td>
<td>296</td>
</tr>
<tr>
<td>12.3 Creating Advanced Interactive Filters .............</td>
<td>302</td>
</tr>
<tr>
<td>Chapter 13: Advanced Topics – Using Parameters to Create Advanced Reports</td>
<td>313</td>
</tr>
<tr>
<td>13.1 Introduction ................................................</td>
<td>313</td>
</tr>
<tr>
<td>13.2 Numeric Parameters ......................................</td>
<td>315</td>
</tr>
<tr>
<td>13.3 Character Parameters ..................................</td>
<td>319</td>
</tr>
<tr>
<td>13.3 Using Date Parameters ..................................</td>
<td>326</td>
</tr>
<tr>
<td>Appendix: Solutions ............................................</td>
<td>333</td>
</tr>
<tr>
<td>Chapter 1 ..........................................................</td>
<td>334</td>
</tr>
<tr>
<td>Chapter 2 ..........................................................</td>
<td>337</td>
</tr>
<tr>
<td>Chapter 3 ..........................................................</td>
<td>342</td>
</tr>
<tr>
<td>Chapter 4 ..........................................................</td>
<td>348</td>
</tr>
<tr>
<td>Chapter 5 ..........................................................</td>
<td>352</td>
</tr>
<tr>
<td>Chapter 6 ..........................................................</td>
<td>354</td>
</tr>
<tr>
<td>Chapter 7 ..........................................................</td>
<td>357</td>
</tr>
<tr>
<td>Chapter 8 ..........................................................</td>
<td>358</td>
</tr>
<tr>
<td>Chapter 9 ..........................................................</td>
<td>359</td>
</tr>
<tr>
<td>Chapter 10 .........................................................</td>
<td>360</td>
</tr>
<tr>
<td>Chapter 11 .........................................................</td>
<td>362</td>
</tr>
<tr>
<td>Chapter 12 .........................................................</td>
<td>364</td>
</tr>
<tr>
<td>Chapter 13 .........................................................</td>
<td>367</td>
</tr>
</tbody>
</table>
About This Book

What Is This Book About?
SAS Visual Analytics is a web-based product that leverages SAS High-Performance Analytics technologies to empower organizations to explore huge volumes of data very quickly to identify patterns, trends, and opportunities for further analysis. SAS Viya modernizes the SAS Platform with features like high availability for always-on answers, faster in-memory processing, and native cloud support. Resilient and scalable, SAS Visual Analytics on SAS Viya can handle more users, more data, and a wide range of BI and analytical workloads in a consistent and governed manner.

The book covers the material included in the SAS® Certified Specialist: Visual Business Analytics 7.5/8.3 exam, which is designed for analysts who are using SAS Visual Analytics to analyze data and design reports. It covers the following three main areas:

- Adding and manipulating data items within SAS Visual Analytics
- Analyzing data with SAS Visual Analytics
- Designing and sharing reports using SAS Visual Analytics

Is This Book for You?
SAS Visual Analytics with SAS Viya is written for anyone in an organization who wants to create, share, and collaborate on insights from data with SAS Visual Analytics, including decision makers, business analysts, report creators, and citizen data scientists. No SAS programming skills are necessary.

The first part of the book introduces the basics needed to prepare and explore your data, make discoveries, and create a report in SAS Visual Analytics. The second section introduces more advanced topics, including using automated explanation and creating advanced interactive reports with parameters using SAS Visual Analytics.

What Should You Know about the Examples?
This book includes demonstrations and practices for you to follow to gain hands-on experience with SAS Visual Analytics.

Software Used to Develop the Book’s Content
SAS Visual Analytics on SAS Viya (Version 8.5 and 8.3).

Example Code and Data
The data sets used in the book’s demonstrations and practices are provided to download.

You can access the example code and data for this book by linking to its author page at support.sas.com/sasinstitute.
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Chapter 1: Introduction to SAS Visual Analytics

1.1 Introduction

This chapter gives you an overview of SAS Visual Analytics and explains the main difference in architecture between SAS Visual Analytics and SAS Visual Analytics in SAS Viya. We then describe the different roles or levels of permission available in Visual Analytics and introduce the business scenario and data that are used in the first part of the book.

Each chapter contains demos to reinforce the content and a quiz or exercises, and practices so you can test your new skills. The solutions of the quizzes, exercises, and practices can be found at the back of the book.

SAS Visual Analytics

SAS Visual Analytics enables you to explore and analyze massive amounts of data, easily create reports, and share insights.

In traditional reporting, the resulting output is well defined up front. That is, you know what you are looking at and what you need to convey. However, data discovery invites you to plumb the data, its characteristics, and its relationships. Reports can then be made available on a mobile device or on the web. In addition, users can create powerful statistical models (if SAS Visual Statistics is licensed) and work with factorization machines, forests, gradient boosting, neural networks, and support vector machines (if SAS Visual Data Mining and Machine Learning is licensed).
SAS Visual Analytics in SAS Viya

SAS Viya is an open, cloud-enabled, analytic run-time environment with a number of supporting services, including SAS Cloud Analytic Services (CAS). CAS is the in-memory engine on the SAS Platform.

With SAS Visual Analytics in SAS Viya, the compute engine of SAS Visual Analytics 7.x, SAS LASR Analytic Server, has been replaced by the CAS server. The main difference from the SAS LASR Analytic Server is that data preparation is no longer executed by a SAS program on the head node. The CAS server brings its own data preparation capabilities, spreading its workload to all workers across a distributed environment. This enables data management transformations to take place on larger data volumes with short execution times because the operations are done in parallel across the worker nodes.

SAS Viya Architecture

At the heart of SAS Viya, CAS provides the run-time environment for data management and analytics. It uses scalable, high-performance, multi-threaded algorithms to rapidly perform analytical processing on in-memory data of any size. CAS is designed to run in a single-machine symmetric multiprocessing (SMP) or a multi-machine massively parallel processing (MPP) configuration, supporting multiple platform and infrastructure configurations.
SAS Viya Applications

SAS Drive is a hub for the SAS Viya applications that enables you to easily view, organize, and share your content from one place.

The availability of the features in SAS Drive depends on the applications that have been installed, and the features and permissions that have been specified by your administrator. To access SAS Drive, enter the URL provided by your administrator (for example, https://prod.host.com/SASDrive). SAS Drive is always available from the Applications menu in the upper left. From SAS Drive, you can access your installed applications, including those in Table 1.1 below.

**Table 1.1: SAS Viya Applications**

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS Drive</td>
<td>Collaborative interface for accessing, organizing, and sharing content</td>
</tr>
<tr>
<td>SAS Visual Analytics</td>
<td>Visualize data interactively, create interactive reports, build statistical models, view reports in a browser</td>
</tr>
<tr>
<td>SAS Visual Analytics App</td>
<td>View reports on a mobile device or tablet</td>
</tr>
<tr>
<td>SAS Data Studio</td>
<td>Prepare data using data transforms</td>
</tr>
<tr>
<td>SAS Graph Builder</td>
<td>Create customized graph objects</td>
</tr>
<tr>
<td>SAS Environment Manager</td>
<td>Manage the environment</td>
</tr>
<tr>
<td>SAS Theme Designer</td>
<td>Create custom themes for the application or reports</td>
</tr>
</tbody>
</table>
### Application Description

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS Cloud Analytic Services (CAS)</td>
<td>Cloud-based, run-time environment server for data management and analytics</td>
</tr>
<tr>
<td>SAS Studio</td>
<td>Perform programming tasks</td>
</tr>
<tr>
<td>SAS Data Explorer</td>
<td>View, reload, and import data to CAS</td>
</tr>
<tr>
<td>SAS Lineage Viewer</td>
<td>View and understand relationships between objects (tables, plans, reports)</td>
</tr>
</tbody>
</table>

#### 1.2 SAS Visual Analytics Process

To help you make sense of the growing data within your organization, SAS Visual Analytics provides an interactive user experience that combines advanced data visualization, an easy-to-use interface, and powerful in-memory technology. This enables a wide variety of users to visually explore data, execute analytics, and understand what data means. Then they can create and deliver reports wherever needed via the web, mobile devices, or Microsoft Office applications.

**Figure 1.3: SAS Visual Analytics Methodology**

![SAS Visual Analytics Methodology Diagram](image)

**Table 1.2: SAS Visual Analytics Methodology Phases**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>In the Access phase, you identify analysis tables that will be used in Visual Analytics and load those tables into CAS.</td>
</tr>
<tr>
<td>Investigate</td>
<td>In the Investigate phase, you inspect the tables to determine whether any changes are needed for data items due to data inconsistencies or data quality issues, as well as identify any new data items that need to be calculated.</td>
</tr>
<tr>
<td>Prepare</td>
<td>In the Prepare phase, you correct any data quality issues and create any new calculated items needed for analysis.</td>
</tr>
</tbody>
</table>
### Phase Description

**Analyze**  
In the Analyze phase, you explore the data to identify any patterns, relationships, and trends.

**Report**  
In the Report phase, you develop interactive reports that can be shared via the web or a mobile device.

---

### Understanding Roles

Not all users have all permissions to carry out all parts of the process above. Your capabilities from SAS Drive are based on the role that your SAS Visual Analytics administrator assigned to you. The roles exist to define how users interact with the application. For example, a user assigned the consumer role reviews reports or analyses. In contrast, they don’t need to access the advanced functionality. SAS provides an initial set of rules to control your users’ access to functionality. By default, initial rules are created at installation for the following users:

- **All authenticated users** – Users can access selected functions within applications, such as the Dashboard, Data, Servers, and Content pages in SAS Environment Manager and functionality in SAS Visual Analytics. Users can also perform operations on folders and on the objects that the folders contain.

- **SAS administrators** – Users can access everything that is under the control of the general authorization system.

---

### Figure 1.4: SAS Visual Analytics Users

![Image of SAS Visual Analytics Users]

---

### Table 1.3: SAS Visual Analytics User Roles

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumer</strong></td>
<td>Views the reports, analytics, and dashboards for content. Can use a desktop or mobile device to consume the reports. Consumers might be internal or external to the organization based on how SAS Visual Analytics is configured.</td>
</tr>
<tr>
<td><strong>Content Builder</strong></td>
<td>Such as an analyst or data scientist. Creates content like reports, explorations, and dashboards for consumers. This role might produce the data sets or use those made available from the data administrator.</td>
</tr>
</tbody>
</table>
### Role Description

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Administrator</td>
<td>Schedules and loads data tables into SAS Visual Analytics. Makes data from multiple data sources available to the application.</td>
</tr>
<tr>
<td>Platform Administrator</td>
<td>Manages the SAS Visual Analytics environment and platform, which includes controlling the folder structure, user accounts, and access to the content.</td>
</tr>
</tbody>
</table>

Depending on an organization’s size, some users might fill more than one role. In a smaller organization, one person might be responsible for creating content and administering the system. In larger organizations, there might be entire departments devoted to each role.

For more information about managing roles and their capabilities, refer to the SAS Visual Analytics Administration Guide for your release.

### Introducing the Data

The data used in the first part of this book is taken from a sports store called Orion Star Sports & Outdoors. The business scenario we use is that you have been hired as an analyst and report designer at the store, and you will be asked to explore and build certain reports from the data. We explore and report on the variables such as products, suppliers, customers, orders, and employees.

**Figure 1.5: Orion Star Sports & Outdoors**

You have been hired as an analyst and report designer at Orion Star Sports & Outdoors.

- 3,151 products
- 64 suppliers
- 68,300 customers
- 747,953 orders
- 648 employees

Sales
Marketing
Human Resources

Before getting into the data, let’s start by signing in and exploring the components of SAS Drive with a short demo.
Chapter 1: Introduction to SAS Visual Analytics

Demo 1.1: Exploring SAS Drive

This demonstration illustrates signing in and exploring the components of SAS Drive.

1. From the browser window, sign in to SAS Viya. SAS Drive is displayed by default.

2. In the upper right corner, click \( 	ext{Menu} \) and select Manage tabs.

3. In the Displayed tabs list, select Projects.

4. Click \( \text{Remove all} \) to hide all the displayed tabs.
   
   **Note:** All tabs are moved except the All tab and the Recent tab.

5. In the Hidden tabs pane, double-click Reports and Build Custom Graphs to add them to the Displayed tabs pane.

6. Click OK.

SAS Drive displays the tabs that you specified.
7. View the Quick Access area.

The Quick Access area is a location in SAS Drive where you can add content that you frequently access. Included in the Quick Access area is **Add recommendations**. This automatically adds recently viewed or accessed reports to the Quick Access area.

8. In the upper right corner, click the double arrow  to hide the Quick Access area.

SAS Drive should resemble the following:

9. In the upper left corner, click  (Show list of applications) to view the available applications.

10. Click  (Hide applications menu) to close the applications menu.

11. On the All tab, in the right corner, click  (Tile view).

12. On the All tab, expand **SAS Content** ➤ **Courses** ➤ **YVA185**.
13. Select the Basics folder.

The Basics folder contains two folders and four reports.

14. In the navigation pane, right-click the Basics folder and select **Make this a tab**. A new tab is added to the canvas.

15. Right-click **Product Report** and select **Add to Favorites**. A message appears.

A favorites indicator (⭐) is added to the Product Report tile.
16. Click the All tab and select the My Favorites folder. 
   Product Report is added to the My Favorites folder.

17. View settings.
18. In the upper right corner, select <user name> → Settings.
19. If necessary, in the Global section, select General.

   Global settings apply to all the SAS Viya applications.
20. In the SAS Drive section, select Initial Screen.

   You can set the screen that appears when you sign in to SAS Viya.
21. Select **Tabs**.

The Displayed tabs list reflects the changes that you made earlier using **Manage tabs** and includes the new tab created from the Basics folder.

22. Click **Close**.

**End of Demonstration**

### 1.3 Viewing SAS Visual Analytics Reports

SAS Report Viewer (the report viewer) enables users who are not report designers or consumers to view a report using a web browser. To open a report in the report viewer from SAS Drive, double-click the report. Because the report viewer is not supported on mobile devices, mobile users are redirected to SAS Visual Analytics Apps when opening a report. SAS Visual Analytics Apps (formerly called SAS Mobile BI) are free mobile apps. You can download the apps from the following locations:

- Apple App Store (supported on iPhones and iPads)
- Google Play (supported on Android devices)
- Microsoft Store (supported on PCs and tablets running Windows 10)

Using these apps, you can view and interact with SAS Visual Analytics reports, as well as share comments and observations with others. The apps support all charts and graphs that are available in SAS Visual Analytics.

You can customize the apps by using the SAS SDK.

In our example, the Product Report contains three visible pages: Report Overview, Supplier Analysis, and Product Analysis.

- **The Report Overview** page gives an overview of the report and describes the other pages of the report.
- **The Supplier Analysis** page gives details about the suppliers for Orion Star, including information about locations, the products manufactured, the quantity sold, and profit generated by each supplier.
- **The Product Analysis** page gives details about the products sold by Orion Star, including information about product categories and groups, the top 10 cities by orders and profits, and historical details.
**Figure 1.6: Product Report**

*Note:* Only users who have the appropriate capabilities can edit the report.

You can print or generate a link to a report or object from SAS Visual Analytics. In addition, an application administrator can distribute a report from SAS Visual Analytics.

**Demo 1.2: Viewing Reports**

This demonstration illustrates how to view a report in Visual Analytics.

1. From the browser window, sign in to SAS Viya. SAS Drive is displayed by default.
2. View and interact with the Product Report.
   a. In the Quick Access area, double-click **Product Report** to open the report.


The initial section of the report is an overview section that describes the report and the pages within the report.
b. Click the image next to the Supplier Analysis information or click the **Supplier Analysis** tab at the top of the report to view the page.

**Note:** A page link action is established between the images on the Report Overview page and the Supplier Analysis and Product Analysis pages, respectively. The Supplier Analysis page should resemble the following:

![Supplier Analysis Page](image)

This page uses a button bar as a page prompt to filter data by continent.

![Button Bar](image)

The Supplier Analysis page contains several report objects and filters.

- A geo map shows countries where suppliers for Orion Star are located. The locations are colored by the average number of products produced by suppliers in that country. Darker colors indicate a higher average number of products. Placing your cursor over a country in the geo map displays a data tip with the number of suppliers in that country and the average products produced by supplier.

- A list table displays the names of suppliers, the number of products produced, and the total profit generated by each supplier. A gauge display rule indicates whether the profit values are below average (red), average (yellow), or above average (green).

- A dual axis bar-line chart shows the total quantity sold and the total profit generated by month.

- A waterfall chart displays the change in profit from the previous parallel period. This chart uses a hierarchy, so you can view information by year and by month.

c. In the upper right corner of the page, click (Click here for more information about this page).

**Note:** The icon is an image object with a link to a hidden page. This icon is used throughout the course to link to information about the page.
A hidden page is displayed as a pop-up window. This hidden page includes information about the page, including details about the report objects, actions, and links.

The Supplier Analysis section provides a summary of the suppliers for Orion Star. A geo map displays the countries where suppliers are located; the coordinates are colored by the average number of products produced by suppliers in those locations and a data tip value shows the number of suppliers. A table displays the list of suppliers along with the number of products produced and the total profit generated from each supplier. A dual axis bar-line chart shows the total quantity sold and the total profit generated by month. A waterfall chart displays the change in profit from the previous parallel period; this chart uses a hierarchy so you can view information by year and by month.

**Actions:**
The button bar in the page prompt area enables you to focus on a specific location. Select a continent to filter the geo map, the table, the dual axis bar-line chart, and the waterfall chart.

Select a country in the geo map to filter the list table to display information about the suppliers located in that country. To filter the dual axis bar-line chart to display information about quantity and profit for that country, and to filter the waterfall chart to display information about the change in profit from the previous parallel period for that country.

**Links:**
Double-click a country in the geo map to view the Wikipedia page for that country.

**Note:** You can resize this window by clicking and dragging in the lower right corner.

d. Click **Close** to close the hidden window.

3. View information about objects, and work with interactions and links.

a. Move the cursor to the upper right corner of the geo map and click **Maximize**.

<table>
<thead>
<tr>
<th>Supplier Country</th>
<th>Average Products per Supplier</th>
<th>Number of Suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>3.67</td>
<td>3</td>
</tr>
<tr>
<td>Australia</td>
<td>11.67</td>
<td>3</td>
</tr>
<tr>
<td>Norway</td>
<td>13.00</td>
<td>2</td>
</tr>
<tr>
<td>France</td>
<td>14.20</td>
<td>5</td>
</tr>
</tbody>
</table>

A table of detail data appears below the geo map, showing the average products produced per supplier and the number of suppliers in each country.
b. Scroll through the list and select the row for **France**. The country is highlighted in the geo map.

On average, each supplier in France produces about 14 products. When compared to other countries in Europe, we can see that although France has a larger number of suppliers, its production is not as diverse.

c. In the upper right corner of the geo map, click ** Restoration**.

With **France** selected, the other objects in the section are updated to show information about suppliers in France.

d. In the upper right corner, click ** Show side pane**.

The side pane appears on the right.
e. In the side pane, click **Data**.
   
The Data Settings pane displays the data items associated with each role for the geo map.

   ![Data Settings](image)

   Due to the Viewer Customization level set for the Product Report (**Comprehensive edits**), viewers can view, but not modify, data assignments.

f. In the side pane, click **(Collapse)**.

g. In the list table, resize the **Supplier Name** column.

   ![List Table](image)

h. Select the **Profit** column and drag it to the left of **Number of Products**.

   ![List Table](image)
i. In the side pane, click **Rules**.

![Display Rules pane](image)

The Display Rules pane provides details about the display rules used in the list table and enables viewers to subscribe to alerts based on those rules, if any.

j. In the side pane, click **Collapse**.

k. In the list table, double-click **Bon Garments**.

A hidden window displays information about products produced by that supplier.

Because the list table and the objects in the hidden window are based on the same data source, an automatic filter is applied.

**Bon Garments produces seven products in two product lines: Clothes & Shoes and Sports.** The list table displays details about each product along with total quantity sold, total profit generated, and total number of orders for each product.
1. Click the row for the **Holmes Super Break Bag**.
A linked selection action is established between the treemap and the list table. Selecting a row in the list table highlights the associated tile in the treemap, and selecting a tile in the treemap highlights the associated rows in the list table.

   ![List Table and Treemap](image)

m. In the list table, scroll to the right to view details about the product.

   ![List Table](image)

   A majority of products produced by this supplier are profitable, except for the Holmes Super Break Bag, which generates large losses. Because this is the only product in the Assorted Sports Articles product line produced by this supplier, this might indicate high costs to break into this segment. It might be a good business decision for this supplier to specialize in the Stockings & Socks group, where they make average profits.

n. Click **Close** to close the hidden window.
o. In the list table, double-click Massif S.A. A hidden window displays information about products produced by that supplier.

```
<table>
<thead>
<tr>
<th>Supplier Name</th>
<th>Product Group</th>
<th>Product Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massif S.A.</td>
<td>Winter Sports</td>
<td>Alpine Ski Bag 2-pair Black/Yellow</td>
<td>315</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Winter Sports</td>
<td>Alpine Ski Bag Black/Yellow</td>
<td>126</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Winter Sports</td>
<td>Massif Bandit Ski Axial</td>
<td>1,472</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Winter Sports</td>
<td>Massif Bandit Ski Parasol Axial</td>
<td>1,054</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Winter Sports</td>
<td>Massif Cut X Super 9.9 Ski Pantal</td>
<td>1,736</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Winter Sports</td>
<td>Massif Cut Z 9.6 Ski Pantal Fdy95</td>
<td>268</td>
</tr>
</tbody>
</table>
```

p. In the **Enter a string to search by product name** field, enter Jacket and press the Enter key. The list table is updated to show information about products that contain the string **Jacket**.

```
<table>
<thead>
<tr>
<th>Supplier Name</th>
<th>Product Group</th>
<th>Product Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massif S.A.</td>
<td>Ski Dress</td>
<td>Massif Men's Monitor Bomber Jacket</td>
<td>304</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Knitwear</td>
<td>Massif Men's Polar Fleece Jacket</td>
<td>533</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Ski Dress</td>
<td>Massif Men's Pro Jacket</td>
<td>207</td>
</tr>
<tr>
<td>Massif S.A.</td>
<td>Ski Dress</td>
<td>Massif Men's Shell Jacket</td>
<td>195</td>
</tr>
</tbody>
</table>
```

**Note:** Parameters are used to search the list table. The parameter is updated with the input value, and the list table is filtered for product names that contain that value. The search is case sensitive.

q. Click **Close** to close the hidden window.

r. On the waterfall chart, double-click the bar for **2013**. The waterfall chart displays information about changes in profit from the same month in 2012.
5. Right-click the waterfall chart and select **Change Waterfall chart to Crosstab**.

<table>
<thead>
<tr>
<th>Order Year</th>
<th>Profit (Difference from previous parallel period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>$6,881.95</td>
</tr>
<tr>
<td>2014</td>
<td>$18,361.09</td>
</tr>
<tr>
<td>2015</td>
<td>$(16,255.64)</td>
</tr>
<tr>
<td>2016</td>
<td>$11,684.14</td>
</tr>
</tbody>
</table>

Due to the Viewer Customization level set for the Product Report (**Comprehensive edits**), viewers can change chart types.

4. Investigate printing options.

   a. In the upper right corner of the report, click **Menu** and select **Print**. The Print to PDF window appears.

   ![Print to PDF window](image)

   You can specify options for the PDF document, including whether a table of contents and page numbers are displayed. You also have the option of choosing which objects appear in the PDF.
b. In the PAGE SETUP area, select **Use page size**.
   **Note:** The **Use page size** option lets you print a report based on the current size of your browser window.

c. In the OPTIONS area, turn off the following options:
   - **Show page numbers**
   - **Include cover page**

d. Click **Print**.
   A message appears.

   ![Generating report PDF. It will download when ready.]

    Generating report PDF. It will download when ready.

e. At the bottom of the window, click **Product Report on mm-dd-yyyy** to open the PDF.
   The report opens in a new tab in the browser.

f. Close the tab and return to Visual Analytics.

5. In the upper right corner of the report, click **Menu** and select **Restore default report state**.

6. Click **Menu** and select **Close**.
   **Note:** It is a best practice to close a report when you are finished viewing it to conserve resources.
   The home pane appears, and the Product Report is listed under **Recent**.

![Explore and Visualize](image)

   Explore data, apply predictive analytics, and build interactive reports with SAS Visual Analytics.

7. Double-click **Product Report** to reopen the report.
   When you close a report that you were viewing, the viewer state is remembered. This includes the current page, any hierarchy drill-downs, selected filters, and so on. This means that the next time that you open the same report, you return to the same part of the report with all previous selections and actions in place. To prevent this, click **Menu** and select **Restore default report state** before closing the report.

End of Demonstration
Practice 1.1

1. **Viewing a Report in Visual Analytics**
   a. Open the browser and sign in to SAS Viya.
   c. View the Product Analysis page.
      i. View information about the page and answer the following question:
         What links are available for the Product Analysis page?
         **Answer:**
      ii. View report objects and use actions between the graphs to answer the following questions:
         Which product category has the fewest number of orders? The lowest total profit?
         **Answer:**
         Which product groups are included in the Indoor Sports category?
         **Answer:**
         How many products are in the Fitness product group?
         **Answer:**
         Do any fitness products generate a loss?
         **Answer:**
         What are the top two cities by orders for fitness products? By profit?
         **Answer:**
      iii. Export the data for the dual axis time series plot filtered by *Indoor Sports* and *Fitness*.
   d. Close the report.

**End of Practices**

**Quiz 1.1**

Which of the following statements is true?

a. All users have the ability to create reports.
b. Administrators control access to reports.
c. Only administrators can create reports.
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