The Art of Enterprise Information Architecture
A Systems-Based Approach for Unlocking Business Insight
By Mario Godinez, Eberhard Hechler, Klaus Koenig, Steve Lockwood, Martin Oberhofer, and Michael Schroock
Architecture for the Intelligent Enterprise: Powerful New Ways to Maximize the Real-Time Value of Information

In this book, a team of IBM’s leading information management experts guide you on a journey that will take you from where you are today toward becoming an “Intelligent Enterprise.”

Drawing on their extensive experience working with enterprise clients, the authors present a new, information-centric approach to architecture and powerful new models that will benefit any organization. Using these strategies and models, companies can systematically unlock the business value of information by delivering actionable, real-time information in context to enable better decision-making throughout the enterprise—from the “shop floor” to the “top floor.”

Enterprise Master Data Management
An SOA Approach to Managing Core Information
By Allen Dreibelbis, Eberhard Hechler, Ivan Milman, Martin Oberhofer, Paul Van Run, and Dan Wolfson
ISBN: 0-13-236625-8
The Only Complete Technical Primer for MDM Planners, Architects, and Implementers

Enterprise Master Data Management provides an authoritative, vendor-independent MDM technical reference for practitioners: architects, technical analysts, consultants, solution designers, and senior IT decision makers. Written by the IBM® data management innovators who are pioneering MDM, this book systematically introduces MDM’s key concepts and technical themes, explains its business case, and illuminates how it interrelates with and enables SOA.

Drawing on their experience with cutting-edge projects, the authors introduce MDM patterns, blueprints, solutions, and best practices published nowhere else—everything you need to establish a consistent, manageable set of master data, and use it for competitive advantage.

Listen to the author’s podcast at: ibmpressbooks.com/podcasts

Sign up for the monthly IBM Press newsletter at ibmpressbooks/newsletters
Data Integration Blueprint and Modeling
Techniques for a Scalable and Sustainable Architecture
By Anthony David Giordano
A complete best-practice data integration blueprint for reducing data warehouse costs and improving results.

Data integration now accounts for a major part of the expense and risk of typical data warehousing and business intelligence projects—and, as businesses increasingly rely on analytics, the need for a blueprint for data integration is increasing now more than ever. Data Integration Blueprint and Modeling presents the solution: a clear, consistent approach to defining, designing, and building data integration components to reduce cost, simplify management, enhance quality, and improve effectiveness. Leading IBM data management expert Anthony David Giordano brings together best practices for architecture, design, and methodology and shows how to do the disciplined work of getting data integration right.

The New Era of Enterprise Business Intelligence
Using Analytics to Achieve a Global Competitive Advantage
By Mike Biere
ISBN: 0-13-707542-1
A Complete Blueprint for Maximizing the Value of Business Intelligence in the Enterprise.

The typical enterprise recognizes the immense potential of business intelligence (BI) and its impact upon many facets within the organization—but it’s not easy to transform BI’s potential into real business value. In The New Era of Enterprise Business Intelligence, top BI expert Mike Biere presents a complete blueprint for creating winning BI strategies and infrastructure, and systematically maximizing the value of information throughout the enterprise.

This product-independent guide brings together start-to-finish guidance and practical checklists for every senior IT executive, planner, strategist, implementer, and the actual business users themselves.

Listen to the author’s podcast at: ibmPRESSBOOKS.com/podcasts
Related Books of Interest

**Mining the Talk**  
Unlocking the Business Value in Unstructured Information  
By Scott Spangler and Jeffrey Kreulen  
ISBN: 0-13-233953-6

Leverage Unstructured Data to Become More Competitive, Responsive, and Innovative

In *Mining the Talk*, two leading-edge IBM researchers introduce a revolutionary new approach to unlocking the business value hidden in virtually any form of unstructured data—from word processing documents to websites, emails to instant messages.

The authors review the business drivers that have made unstructured data so important—and explain why conventional methods for working with it are inadequate. Then, writing for business professionals—not just data mining specialists—they walk step-by-step through exploring your unstructured data, understanding it, and analyzing it effectively.

**Viral Data in SOA**  
An Enterprise Pandemic  
Fishman  
ISBN: 0-13-700180-0

**DB2 9 for Linux, UNIX, and Windows**  
Baklarz, Zikopoulos  

**DB2 pureXML Cookbook**  
Master the Power of the IBM Hybrid Data Server  
Nicola, Kumar-Chatterjee  
ISBN: 0-13-815047-8

**Dynamic SOA and BPM**  
Best Practices for Business Process Management and SOA Agility  
Fiammante  
ISBN: 0-13-701891-6

**Decision Management Systems**  
A Practical Guide to Using Business Rules and Predictive Analytics  
Taylor  
ISBN: 0-13-288438-0

Sign up for the monthly IBM Press newsletter at ibmpressbooks/newsletters
IBM® Cognos® 10
Report Studio

Practical Examples
This page intentionally left blank
I’d like to thank my wife, Danijela, for encouragement and support throughout the writing of this book and for letting me check one item off my bucket list. I also would like to thank my son Luka and daughter Mia for showing me what really is important in life and my parents for showing me that hard work and perseverance do pay off.

—Filip Draskovic

I’d like to thank my wife, Pearl, and daughters, Sylvie and Sapphire, for allowing me to make the work/life balance lean too heavily in one direction. The love you give means so much to me. I also want to thank my parents, Bill and Pat, for all of their love and support over the years.

—Roger Johnson
# Contents

About the Authors ................................................................. xvi
Foreword .................................................................................. xvii
Preface ...................................................................................... xviii

## Chapter 1  Creating Consumer-Friendly Reports  ........................................ 1
Highlight Selected Text ............................................................... 1
Design ...................................................................................... 2
Step-by-Step ............................................................................. 2
Avoiding Query Macros .............................................................. 10
Design ...................................................................................... 12
Step-by-Step ............................................................................. 13
Complex Crosstab Calculations .................................................. 20
Design ...................................................................................... 20
Step-by-Step ............................................................................. 21
Summary ................................................................................... 24

## Chapter 2  Matching the Report to the Analysis ...................................... 27
The Dashboard ........................................................................... 28
Design ...................................................................................... 28
Step-by-Step ............................................................................. 29
Prompting from an Entire Hierarchy ............................................. 45
Design ...................................................................................... 45
Step-by-Step ............................................................................. 45
Additional Dimensional Functions .............................................. 58
Design ...................................................................................... 58
Step-by-Step ............................................................................. 59
Master-Detail Report from Two Separate Lists ............................. 70
Design ...................................................................................... 70
Step-by-Step ............................................................................. 70
Chapter 3   Understanding the Report Hierarchy

Chapter 4   Overriding the Data Model

Chapter 5   Additional Examples
This page intentionally left blank
First, we would like to acknowledge all the Cognoids out there who have encouraged us to think beyond the course material and to look deeper into the functions of IBM Cognos Business Intelligence.

We would like to thank the crew at IBM Press for the opportunity to share this book with you. Our technical reviewers, Ronald Olenic and Sue Mitchell, provided some wonderful insights and even taught us a few more things that found their way into this book. Thanks go to Chris Cleveland for his help in bringing the best possible product to our readers.

Thank you to our Executive Editor, Mary Beth Ray, for allowing us the opportunity to create this book on a flexible schedule.

Being a part of a great team like the IBM North American Education Services Team, we would like to thank all of our peers on the team who shared tips with fellow educators and asked for new ways to answer student reporting questions.

We would also like to thank Jesus Salcedo for his assistance in reviewing the statistical analysis example. His understanding of statistics, matched with his passion, is an inspiration to us nonstatisticians.

Roger would like to thank Nathan Nyvall as the manager who interviewed him five years ago for the education specialist position and started him down the path of business analytics education. It has led to a continued effort toward “world domination.”

Also, he would like to thank Filip for teaming together on our international efforts in this book. I think we did a pretty good job.

Filip would like to thank Roger for talking him into doing this book and teaching him patience.
Filip Draskovic has spent his professional career, which covers the past 11 years, living and breathing IBM Cognos. For the first 8 years of his career, he had been an IBM Cognos consultant and developed his skills applying IBM Cognos Business Intelligence and Planning solutions in multiple industries. Wanting to do something different, he spent the next 3 years as a Cognos trainer teaching public and private IBM Cognos courses in IBM’s offices around North America. Following his desire to constantly gain new experiences and knowledge, he is currently filling the role of an IBM Cognos client technical professional. You can find him today in Toronto’s financial district. At home, with his wife, he is enjoying raising their son and daughter.

Roger Johnson is a learning consultant on IBM Cognos technologies delivering a wide variety of courses focusing on the needs of his learners. His education experience has been honed over years of work in training software professionals, college students, and many types of technology users. After he started his career as a computer programmer, a co-worker said, “Hey, you do community theater productions. You would make a good trainer.” With those words, his career took a different direction. Over the next 20 years, he never moved too far from either technology or education. As a learner, he has master’s degrees in Systems Management and Education. Currently, he is researching the end-user adoption of technology as his doctoral dissertation at Capella University. He calls Orlando home, but is regularly seen around North America delivering any number of IBM Cognos courses. When he is home, he enjoys the time he gets to spend with family, and his dogs keep him busy jogging around the lake.
When I was eight, I had a friend who could build absolutely anything out of those little bright-colored, plastic interlocking blocks. Spaceship with wings, solar-powered treehouse, prehistoric monster; you name it, he could build it. He had one giant pillowcase full of the blocks, and a stack of instructions by his bedside. I remember him looking at the step-by-step guides, picking and choosing among the patterns, and then combining them to provide me with the monster truck equipped with water skis that I had requested.

Mastering any creative process requires a thorough knowledge of available techniques and tools, as well as ongoing exposure to new ideas and ways to apply those techniques. I will not stretch my metaphor so much as to pretend that report authoring is as fun as building miniature skyscrapers. But if you are reading this book, you likely know that business analytics continue to be critical as available data increases in step with our need for information. Improving your skills in report authoring with IBM Cognos Report Studio allows you to deliver easily consumable information and business insights.

In the IBM Business Analytics curriculum development team, we develop courses that provide you with the skills you need to build effective reports. We write step-by-step instructions to help you practice report authoring techniques and build your competence with the variety of tools available to you. Self-paced courses offer flexible and quick ways to digest both the basics and the advanced techniques of IBM Cognos Report Studio. Online offerings enable you to attend class without incurring the added expense of travel. In-classroom courses deliver the skills practice combined with the expertise of experienced instructors.

This book does not replace training, nor does training replace the need for a book like this. They complement each other by giving you exposure to new techniques, new ideas. It is instructors like Roger and Filip who bring the classroom experience to life, who help you understand how report authoring techniques can be modified and adjusted to help you build the reports that impact your business. With this book, they are sharing with you the application of key concepts to a variety of problems. They have added a new stack of instructions to your bedside and some shiny new blocks for your pillowcase.

Erin Pyka
Business Analytics Curriculum Development
As instructors, we have seen many students who want to learn more about business analytics. They ask us questions about how to apply concepts in class to their reports back at the office. We are pushed to understand more about the product to be able to help them apply the technology. This book was inspired by the many questions that were asked and by our belief that IBM Cognos Report Studio’s uses are limited only by your imagination.

Readers of this book should already have a good understanding of creating reports in IBM Cognos Report Studio. This book should not be considered as a replacement for more formal training classes, but as a method to enhance the concepts developed in the classroom. If you have purchased this book and have not attended training yet, we would encourage you to attend a class. Okay, we are being a little selfish here in saying that you should come attend our classes, but we feel that the interaction of an instructor and a learner can spark many more ideas about how to enhance the experience of learning new technology.

The promise of business analytics can transform the way organizations process information. This technology can close the gap between information technology and the business users who consume the information presented. Instead of presenting 500-page reports that force analysts to sift through them, report writers can create a series of reports that follow how those analysts look at the data. Reports can be generated that use both textual and graphical formats to allow complex relationships to become quickly evident.

IBM Cognos Business Intelligence (BI) 10 is a huge step toward the delivery of that promise. IBM Cognos Report Studio allows information technology specialists to create powerful tools for business analysis. Our goal for this book is to help report writers to think about report development in new ways and to help them think of report creation from a different perspective.

Approach

As an extension to your expertise in IBM Cognos Report Studio, this book looks to enhance your ability to create complex reports. While these reports are complete in their design, you may find
that some of the examples could be further improved based on your skills. Our goal in this book is to introduce you to techniques that may not be evident. Hopefully you’ll find a few tips in each example that you did not know already. Also, we would challenge you to look for ways to further enhance the design and interactivity within these examples. This is the method we used to create this book, and this is how you can improve your ability to deliver the reports that the users need in order to improve their decision-making processes.

While the focus of this book in on using IBM Cognos 10 for report development, the first five chapters can be completed in a similar manner in IBM Cognos 8 BI. Chapter 6 focuses on the features that are available only in the latest version of the software. We tested this book using the 8.4 and 10.1 releases of IBM Cognos BI. Other releases may not perform identically to what you see in the book.

The examples are based on the sample data sources that are available to IBM Cognos administrators as a part of the installation process. If you are not an administrator, find out where the samples are installed and see whether you can access them.

Some of the reports may require capabilities that are beyond your permissions (creating custom SQL) or that require extra software installed on your IBM Cognos BI server (statistics data containers). Again, talk to your administrator to see whether these features are available to you.

To help you complete the various examples, we have created a couple of resources. The first is that each of the examples has been completed and added to a deployment package. Working with your administrator, these packages can be imported into your IBM Cognos BI environment for review. Additionally, we have created a number of files to help you with some of the typing tasks. You will be able to copy and paste sections of code.

All of the files needed for creating reports are available from the accompanying book website at www.ibmpressbooks.com/title/9780132656757. In the Downloads section under More Information, you will find a supplements.zip file. This compressed file contains a readme file, text files with all the code, and any other external files that will make the process of creating these reports easier. We are both report writers at heart and we want to make the process of creating these examples as easy as possible for you.

How This Book Is Organized

Each example follows a similar format. The first section provides a scenario in which a customer needs a report. Here we show you how the completed report should look. Since you usually know what you want to design before beginning a report, we felt this would be helpful for you. As you go through the process to create the report, you will see that it is separated into different steps. We advocate a building-block approach to development in which you create a part of a report, test the smaller piece, and then continue to the next step. At the end of each chapter, you can see a recap of some of the concepts that were introduced.

- **Chapter 1, “Creating Consumer-Friendly Reports”**: This chapter looks at creating reports that are designed to match how business users process information.
• **Chapter 2, “Matching the Report to the Analysis”:** This chapter takes the ideas of Chapter 1 further by creating a series of reports that follow how managers would want to first see a dashboard of high-level metrics and then drill to reports focused on specific details.

• **Chapter 3, “Understanding the Report Hierarchy”:** This chapter uses techniques to standardize report content and to manipulate the hierarchical relationships between objects in reports.

• **Chapter 4, “Overriding the Data Model”:** This chapter looks at ways a report author can create complex queries that override the package information provided by the data modeler.

• **Chapter 5, “Additional Examples”:** This chapter provides some “bonus content” that shows you how to create reports integrating HTML and to create a complex union.

• **Chapter 6, “New Techniques in Version 10”:** This chapter provides examples that use the new graphing engine, active reports, and statistical analysis, which are all new features available only in IBM Cognos BI 10.

**Report Snapshots**

As programmers who have used books like this one to improve our skills, we have had to page through an entire book to look for one feature or example that will help us complete a task. We wanted to provide another way for you to find what you need. This section provides screenshots of the final products of each example. Hopefully you will find it valuable to see report styles and functions that will help you.

**Chapter 1 Report Snapshots**

Chapter 1 presents several reports that are designed to leverage features to create reports that focus on a specific task. The report functions and associated screen results are as follows:

- Highlight selected text (see Figure I.1)

  ![Completed enhanced product catalog](image)

  **Figure I.1** Completed enhanced product catalog

  - Avoid query macros (see Figure I.2, Figure I.3, and Figure I.4)
  - Create complex crosstab calculations (see Figure I.5)
**Figure I.2** Main prompt page for conditional filters

**Figure I.3** Conditional prompt page

**Figure I.4** Completed order method report
Chapter 2 Report Snapshots

Chapter 2 focuses on the creation of a dashboard for a shipping department of a fictional company. The dashboard reviews high-level metrics, from which several reports can be created that provide additional details, focusing the results of specific areas. Additionally, each of the reports has drill-through functionality to allow for analysis by the report consumer. The dashboard/report functions and associated screen results are as follows:

- Shipping dashboard (see Figure I.6)
- Returned/shipped report (see Figure I.7)
- Returns by product and reason report (see Figure I.8)
- Shipping volume by month report (see Figure I.9)
2007 Shipping Dashboard

Figure I.6  Completed shipping dashboard

Volume Returned and Shipped for Americas

<table>
<thead>
<tr>
<th>Americas Breakdown</th>
<th>Reason description</th>
<th>Return quantity</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States — Return/Ship Ratio: 1.66%</td>
<td>Defective product</td>
<td>26,830</td>
<td>10,444,575</td>
</tr>
<tr>
<td>Returns by Reason for United States</td>
<td>Incomplete product</td>
<td>17,712</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong product ordered</td>
<td>36,987</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong product shipped</td>
<td>16,068</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unsatisfactory product</td>
<td>65,765</td>
<td></td>
</tr>
<tr>
<td>Canada — Return/Ship Ratio: 1.47%</td>
<td>Defective product</td>
<td>10,942</td>
<td>4,052,045</td>
</tr>
<tr>
<td>Returns by Reason for Canada</td>
<td>Incomplete product</td>
<td>8,913</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong product ordered</td>
<td>16,082</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong product shipped</td>
<td>7,210</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unsatisfactory product</td>
<td>18,683</td>
<td></td>
</tr>
<tr>
<td>Mexico — Return/Ship Ratio: 1.08%</td>
<td>Defective product</td>
<td>4,276</td>
<td>2,706,418</td>
</tr>
<tr>
<td>Returns by Reason for Mexico</td>
<td>Incomplete product</td>
<td>2,189</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong product ordered</td>
<td>5,188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong product shipped</td>
<td>6,357</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unsatisfactory product</td>
<td>11,457</td>
<td></td>
</tr>
<tr>
<td>Brazil — Return/Ship Ratio: 1.34%</td>
<td>Defective product</td>
<td>4,124</td>
<td>1,708,632</td>
</tr>
<tr>
<td>Returns by Reason for Brazil</td>
<td>Incomplete product</td>
<td>2,427</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong product ordered</td>
<td>10,201</td>
<td></td>
</tr>
</tbody>
</table>

Figure I.7  Completed returned/shipped report
Figure I.8  Completed returns by product and reason report

Expected Volume vs. Actual Quantity Shipped for Amsterdam For April 2005

Figure I.9  Completed shipping volume by month report
Chapter 3 Report Snapshots

Chapter 3 focuses on the hierarchical nature of formatting, querying, and delivering report information. The chapter concludes with the design of a briefing book that incorporates elements of all the other reports into a single report that can be delivered on a scheduled basis. The report functions and associated screen results are as follows:

- Layout library (see Figure I.10 and Figure I.11)
- Layout library use (see Figure I.12)
- Formatting inheritance (see Figure I.13)
- Structure inheritance (see Figure 1.14)
- Briefing book creation (see Figure 1.15)

Figure I.10  Completed human resources header and footer

Figure I.11  Completed human resources footer with report ID populated
### Recruitment by Organization

#### For Finance In 2007

**Finance**

<table>
<thead>
<tr>
<th>City</th>
<th>Date</th>
<th>Position name</th>
<th>Recruitment medium</th>
<th>Position filed date</th>
<th>Days to fill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amsterdam</td>
<td>Feb 1, 2007</td>
<td>Payroll Clerk</td>
<td>CV Central</td>
<td>Mar 6, 2007</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amsterdam - Summary</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilbao</td>
<td>Jan 6, 2007</td>
<td>Accounting Clerk</td>
<td>Pathfinder Personnel</td>
<td>Jan 29, 2007</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Apr 23, 2007</td>
<td>Accountant 1</td>
<td>Referral</td>
<td>Jun 8, 2007</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Jun 25, 2007</td>
<td>Payroll Clerk</td>
<td>Unspecified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilbao - Summary</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boston</td>
<td>Jan 6, 2007</td>
<td>Payroll Clerk</td>
<td>Referral</td>
<td>Feb 5, 2007</td>
<td>28</td>
</tr>
<tr>
<td>Boston - Summary</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District Federal</td>
<td>May 7, 2007</td>
<td>Payroll Clerk</td>
<td>Pathfinder Personnel</td>
<td>Jun 11, 2007</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Jul 9, 2007</td>
<td>Budget Analyst</td>
<td>AAA Internet Job Bank</td>
<td>Jul 31, 2007</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Jul 20, 2007</td>
<td>Financial Analyst</td>
<td>Unspecified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District Federal - Summary</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genève</td>
<td>Jan 15, 2007</td>
<td>Accountant 2</td>
<td>Local Newspaper</td>
<td>Feb 26, 2007</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Mar 9, 2007</td>
<td>Accountant 2</td>
<td>AAA Internet Job Bank</td>
<td>Apr 6, 2007</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Apr 5, 2007</td>
<td>Accountant 1</td>
<td>Professional Publication</td>
<td>May 6, 2007</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Jun 15, 2007</td>
<td>Financial Analyst</td>
<td>Unspecified</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Figure I.12  Completed recruitment by organization report

### Expenses by Manager

#### For all organizations in 2007

**Corporate**

#### Penelope Tamrino

<table>
<thead>
<tr>
<th>Date</th>
<th>Employee name</th>
<th>Account name</th>
<th>Expense unit quantity</th>
<th>Expense total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 31, 2007</td>
<td>Arjan Schuman</td>
<td>Benefits - health insurance</td>
<td>0.11</td>
<td>1,635.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits - miscellaneous</td>
<td>0.03</td>
<td>440.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits - pension plan</td>
<td>0.08</td>
<td>1,189.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salaries &amp; wages - type one</td>
<td>157.5</td>
<td>13,578.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salaries &amp; wages - type two</td>
<td>15</td>
<td>1,293.2</td>
</tr>
<tr>
<td></td>
<td>Kazuki Sasaki</td>
<td>Benefits - health insurance</td>
<td>0.11</td>
<td>1,490.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits - miscellaneous</td>
<td>0.03</td>
<td>403.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits - pension plan</td>
<td>0.08</td>
<td>1,279.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salaries &amp; wages - type one</td>
<td>172.5</td>
<td>13,461.54</td>
</tr>
<tr>
<td></td>
<td>Laura Bauer</td>
<td>Benefits - health insurance</td>
<td>0.11</td>
<td>1,759.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits - miscellaneous</td>
<td>0.03</td>
<td>479.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits - pension plan</td>
<td>0.08</td>
<td>1,279.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salaries &amp; wages - type one</td>
<td>165</td>
<td>15,296.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salaries &amp; wages - type two</td>
<td>7.6</td>
<td>698.37</td>
</tr>
<tr>
<td></td>
<td>Maximilian Saltzman</td>
<td>Benefits - health insurance</td>
<td>0.11</td>
<td>1,635.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefits - miscellaneous</td>
<td>0.03</td>
<td>440.15</td>
</tr>
</tbody>
</table>

#### Figure I.13  Completed employee expense report
Training by Manager
For Finance in April 2007

Finance

<table>
<thead>
<tr>
<th>Employee name</th>
<th>Date</th>
<th>Course name</th>
<th>Course cost</th>
<th>Course days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anling Zhang</td>
<td>Apr 2, 2007</td>
<td>GO Communication</td>
<td>500</td>
<td>1</td>
</tr>
<tr>
<td>Baija Chin</td>
<td>Apr 16, 2007</td>
<td>GO Communication</td>
<td>500</td>
<td>1</td>
</tr>
<tr>
<td>Emma Sommer</td>
<td>Apr 23, 2007</td>
<td>Economic and Tax Forecasting 1</td>
<td>2,500</td>
<td>2</td>
</tr>
<tr>
<td>Gregory Andrews</td>
<td>Apr 30, 2007</td>
<td>GO Finance 1</td>
<td>1,000</td>
<td>1</td>
</tr>
<tr>
<td>Helen Jones</td>
<td>Apr 9, 2007</td>
<td>GO Ethics</td>
<td>250</td>
<td>0.5</td>
</tr>
<tr>
<td>David Baxter</td>
<td>Apr 17, 2007</td>
<td>GO Finance 1</td>
<td>1,000</td>
<td>1</td>
</tr>
<tr>
<td>Emily Harris</td>
<td>Apr 23, 2007</td>
<td>Economic and Tax Forecasting 1</td>
<td>2,500</td>
<td>2</td>
</tr>
<tr>
<td>Katharina Lehrer</td>
<td>Apr 19, 2007</td>
<td>GO Orientation</td>
<td>250</td>
<td>1</td>
</tr>
<tr>
<td>Ian Roberts</td>
<td>Apr 5, 2007</td>
<td>GO Ethics</td>
<td>250</td>
<td>0.5</td>
</tr>
<tr>
<td>Jean-Pierre Louvet</td>
<td>Apr 16, 2007</td>
<td>GO Finance 1</td>
<td>1,000</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure I.14  Completed training by manager report

Table of Contents
For Finance in April 2007

Recruitment by Organization ............................................................... 2
Expenses by Manager ................................................................. 3
Alexander Schmuker ........................................................................... 3
Anling Zhang ...................................................................................... 3
Bertrand Michel ................................................................................ 4
Dirk Bakker ....................................................................................... 5
Emma Sommer ................................................................................. 6
Franca Moretti ................................................................................. 6
Helen Jones ..................................................................................... 7
Ian Roberts ...................................................................................... 9
Kaarlo Laine ..................................................................................... 10
Kerstin Lagerskiöld ......................................................................... 11
Lifang Tian ..................................................................................... 12
Meifeng Toh ................................................................................... 12

Figure I.15  Completed HR briefing book table of contents
Chapter 4 Report Snapshots

Chapter 4 focuses on creating a very functional, highly formatted, and easily maintained report. The report functions and associated screen results are as follows:

- Creating a union (see Figure I.16)

![Figure I.16 Completed inventory count report]

- Joining SQL and model queries (see Figure I.17 and Figure I.18)

![Figure I.17 Completed query audit cover page]
### Forecast Audit Report

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Country</th>
<th>Product</th>
<th>Expected volume</th>
<th>Forecast revenue</th>
<th>New expected volume</th>
<th>New forecast revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>April</td>
<td>Austria</td>
<td>Mountain Man Analog</td>
<td>120</td>
<td>$5,086.60</td>
<td>40</td>
<td>$1,695.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mountain Man Deluxe</td>
<td>80</td>
<td>$6,969.60</td>
<td>40</td>
<td>$3,484.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polar Ice</td>
<td>60</td>
<td>$5,805.00</td>
<td>30</td>
<td>$2,902.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polar Sports</td>
<td>210</td>
<td>$25,997.70</td>
<td>30</td>
<td>$3,701.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polar Sun</td>
<td>400</td>
<td>$23,104.00</td>
<td>50</td>
<td>$2,880.00</td>
</tr>
<tr>
<td>2004</td>
<td>April</td>
<td>Brazil</td>
<td>Mountain Man Analog</td>
<td>225</td>
<td>$9,537.75</td>
<td>75</td>
<td>$3,170.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mountain Man Deluxe</td>
<td>160</td>
<td>$13,939.20</td>
<td>80</td>
<td>$6,969.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polar Ice</td>
<td>100</td>
<td>$9,675.00</td>
<td>50</td>
<td>$4,837.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polar Sports</td>
<td>350</td>
<td>$43,179.50</td>
<td>50</td>
<td>$6,168.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polar Sun</td>
<td>380</td>
<td>$20,793.80</td>
<td>45</td>
<td>$2,599.20</td>
</tr>
<tr>
<td>2004</td>
<td>April</td>
<td>Canada</td>
<td>Mountain Man Analog</td>
<td>570</td>
<td>$24,162.30</td>
<td>180</td>
<td>$8,054.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mountain Man Deluxe</td>
<td>310</td>
<td>$27,007.20</td>
<td>165</td>
<td>$13,503.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polar Ice</td>
<td>150</td>
<td>$15,480.00</td>
<td>80</td>
<td>$7,740.00</td>
</tr>
</tbody>
</table>

**Figure I.18**  Completed query audit report
Chapter 5 Report Snapshots

Chapter 5 focuses on how to take advantage of HTML technology to enhance the presentation of your report in a web browser. Additionally, you will see how to perform a union of three queries at one time. The report functions and associated screen results are as follows:

- Using HTML to enhance functionality (see Figure I.19)
- Integrating multiple queries into a complex report (see Figure I.20)

![Completed tab example](image)

*Figure I.19 Completed tab example*
Figure I.20  Completed chart with a union of grouping
Chapter 6 Report Snapshots

Chapter 6 focuses on the key enhancements to IBM Cognos Report Studio in version 10. The report functions and associated screen results are as follows:

- Using active reports to replace HTML code (see Figure I.21)

![Completed alternative tab example](image)

Figure I.21  Completed alternative tab example

- Adding local data sources to reports (see Figure I.22)
- New charting options and active reports (see Figure I.23)
- Statistical analysis (see Figure I.24 through Figure I.28)
Figure I.22  Completed problem orders report

Figure I.23  Completed complex active report
Figure I.24  Completed prompt page for statistical analyses

Figure I.25  Completed descriptive statistics report
Analysis of Variance

Gross profit

ANOVA

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>434814561.952</td>
<td>4</td>
<td>10870365.488</td>
<td>15.625</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1247475837.164</td>
<td>178</td>
<td>7009312.063</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1682262443.116</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Post Hoc Tests

Gross profit

Multiple Comparisons

<table>
<thead>
<tr>
<th>(i) Campaigns Only</th>
<th>(j) Campaigns Only</th>
<th>Mean Difference (i-j)</th>
<th>Std. Error</th>
<th>Sig</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Bonferroni</td>
<td>TrailChef Campaign</td>
<td>EverGlow Campaign</td>
<td>-4,259.569</td>
<td>1,293.846</td>
<td>.034</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hibiscus Campaign</td>
<td>-4,070.676</td>
<td>1,768.355</td>
<td>.009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Canyon Mule Campaign</td>
<td>-3,004.457</td>
<td>2,109.800</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rising Star Campaign</td>
<td>-3,250.754</td>
<td>1,268.700</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TrailChef Campaign</td>
<td>-4,883.990</td>
<td>1,456.886</td>
<td>.034</td>
</tr>
</tbody>
</table>

Figure I.26  Completed analysis of variance report

Box Plot Chart

Figure I.27  Completed box plot report
% within Campaign

<table>
<thead>
<tr>
<th>Campaign</th>
<th>Order method type Crosstabulation</th>
<th>Order method type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Web</td>
<td>Special</td>
<td>Telephone</td>
</tr>
<tr>
<td>Regular sale</td>
<td>35.0%</td>
<td>2.1%</td>
<td>23.9%</td>
</tr>
<tr>
<td>TealChef Campaign</td>
<td>23.3%</td>
<td>6.7%</td>
<td>21.7%</td>
</tr>
<tr>
<td>EventBox Campaign</td>
<td>33.3%</td>
<td>26.7%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Hibernator Campaign</td>
<td>20.0%</td>
<td>30.0%</td>
<td>16.6%</td>
</tr>
<tr>
<td>Canyon Mule Campaign</td>
<td>53.3%</td>
<td>8.7%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Rising Star Campaign</td>
<td>28.9%</td>
<td>38.5%</td>
<td>23.1%</td>
</tr>
<tr>
<td>Total</td>
<td>34.7%</td>
<td>2.0%</td>
<td>24.5%</td>
</tr>
</tbody>
</table>

**Chi-Square Tests**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>62.511 (1)</td>
<td>30</td>
<td>.055</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>47.609</td>
<td>30</td>
<td>.021</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.175</td>
<td>1</td>
<td>.876</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>2512</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 18 cells (42.9%) have expected count less than 5. The minimum expected count is 33.

Figure I.28  Completed chi-square test page
Creating Consumer-Friendly Reports

One of the biggest advantages of creating reports in IBM® Cognos® Business Intelligence (BI) is that you can now create one (or more) reports that can be designed to match how business users process information. These consumers do not need to wade through waves of report pages. A series of small reports that independently focus on specific information can link to other reports. We will take a look at using drill-through in the next chapter, but you should look for ways to simplify the reports at every opportunity.

This means you, as the report author, should look for ways to present the data in a format that makes the exploration process easier for the consumers. This chapter provides examples of simple reports that present data.

In our training classes, we regularly hear from students who want to create very complex reports. We begin by asking what the users need to accomplish with the report and begin to build the report using an iterative building block process.

This chapter presents several reports that are designed to leverage features to create reports that focus on a specific task.

NOTE If you want some help with the files and typing involved in this chapter, go to www.ibmpressbooks.com/title/9780132656757 and download the supplements.zip file from the Downloads section under More Information.

Highlight Selected Text

You have been asked by the product marketing staff to create a product catalog. When you ask how it will be used, the market analyst wants to be able to find descriptions of products that use specific phrases to ensure that the proper messages are reaching the customer.
Search technology has become sophisticated enough that documents can be searched for text and the phrases can be highlighted to allow the searcher to focus on the text. The analyst would like to simulate that functionality in the report.

This report should be able to prompt the user for a search phrase and return a list of product descriptions that contain the phrase and highlight the selected text. The final result should look like Figure 1.1.

Design

The trick to solving this problem is to utilize several string functions that are available in IBM Cognos Report Studio in order to find the requested part of the text and then cut the preceding and succeeding text. Once the searched text field has been separated into three parts, we can use the logic within our query items to put the strings back together within a single column and highlight only the searched text.

The list report should filter on only those products that contain the search text.

Step-by-Step

The key steps involve the creation of a query that parses the product description and removes any products that do not have the matching phrase. With the query built and tested, the list report is designed.

Step 1: Start the Report

1. Launch Report Studio and select the GO Data Warehouse (query) package.
2. Click on the Create new option.

COGNOS 8 NOTE The option is Create a new report or template.
3. Select the List report template and click OK.
   We will be using the Sales (query) namespace inside the Sales and Marketing (query) folder.

Step 2: Begin the Report Query
The key component of this report is the capability to parse the text of the report description for selected text. This step defines the two fields.

1. In the Explorer Bar, mouse over the Query Explorer tab and select the Query1 object.
2. From the Source tab of the Insertable Objects pane, drag the Product description query item from the Products query subject into the Data Items pane of the query design window.
3. From the Toolbox tab of the Insertable Objects pane, drag a Data Item into the Data Items pane below Product Description.
   The Data Item Expression window opens.
4. Type the following code in the Expression definition window:
   ?SearchText?
   This creates a parameter called SearchText and assigns the value to the Data Item we just created. We will be searching for the text that will be typed into the server-generated prompt because we will not create a prompt page on our own in this example.
5. Validate the expression and click OK to close the dialog box.
6. In the Properties window for the Data Item, use the Name property to rename the DataItem1 data item to SearchText.

Step 3: Include the Search Functionality
In this section, we will add the key functionality to the query. First, we will add a function to search for the matching text. If a match is found, we will break up the description into three fields. If a match is not found, we will leave the description in the first field.

1. From the Toolbox tab of the Insertable Objects pane, drag another Data Item into the Data Items pane below the SearchText data item.
   The Data Item Expression window opens.
2. Create the following expression:
   position([SearchText], [Product description])

**HINT** Drag and drop the SearchText and Product description data items from the Data Items tab of the Available Components pane to avoid having to type in the whole expression. When referencing data item and query item names in IBM Cognos Report Studio, the names are case-sensitive.
The position function returns an integer value that represents where the first character of the searched text begins within the Product description string. If no match is found, the position function returns a zero.

3. Validate the expression and click OK to close the dialog box.

4. In the Properties window for the Data Item, use the Name property to rename the DataItem1 data item to Position.

5. From the Toolbox tab of the Insertable Objects pane, drag another Data Item into the Data Items pane below the Position data item.

   The Data Item Expression window opens.

6. Create the following expression:

   IF ([Position]=0) THEN
       ([Product description])
   ELSE
       (substring([Product description], 1, [Position]-1))

   If the searched text does not exist in the Product description field, then we will set this first field to the full product description.

   In case the string is found, we want to cut off the text that precedes the string we are looking for, including the space before the string. This is why we use [Position] - 1 as the third argument in the substring function.

7. Validate the expression and click OK.

8. In the Properties window for the Data Item, use the Name property to rename the DataItem1 data item to PartOne.

9. From the Toolbox tab of the Insertable Objects pane, drag another Data Item into the Data Items pane below the PartOne data item.

   The Data Item Expression window opens. This field contains the text to be highlighted only if the text is found.

10. Create the following expression:

    IF ([Position]=0) THEN
        ('')
    ELSE
        ([SearchText])

**NOTE** The expression has two single quotes without spaces. If the searched text does not exist in the Product description field, we will just default to an empty string (two single quotes indicate an empty string).
11. Validate the expression and click OK.

12. In the Properties window for the Data Item, use the Name property to rename the DataItem1 data item to PartTwo.

13. From the Toolbox tab of the Insertable Objects pane, drag another Data Item into the Data Items pane below the PartTwo data item.

The Data Item Expression window opens.

14. Create the following expression:

   IF ([Position] = 0) THEN
   ('')
   ELSE
   (substring ([Product description], [Position] +
   char_length([SearchText]), char_length([Product
description]) - char_length([SearchText]) -
   char_length([PartOne])))

**NOTE** The expression has two single quotes without spaces.

If the searched text does not exist in the Product description field, we will just default to an empty string.

If we do find the text, PartThree needs to contain text that is after the searched string, including the space after the searched string. This is why we need to use character length functions to figure out the positioning of the starting point for the substring function and the length of the remaining string.

15. Validate the expression and click OK.

16. In the Properties pane for the Data Item, change the Name property to PartThree.

This completes our report query build.

17. Click on the Run menu item and choose the View Tabular Data option to test the Report query before starting the report design. The warning message pop-up can be dismissed by clicking the OK button.

Sample text for a search that you could use is rope.

Your results will be similar to Figure 1.2.

18. Close the IBM Cognos Viewer window to return to IBM Cognos Report Studio.
Step 4: Create the Report Design

Now we will add the three parts to a list column named Product description.

1. Mouse over Page Explorer and click on Page1.
2. From the Data Items tab of the Insertable Objects pane, drag the following data items into the List object: PartOne, PartTwo, and PartThree.
3. Unlock the List object cells by clicking on the Unlock (currently locked) button on the toolbar.
4. Click on the PartTwo text item within the PartTwo list column body to select it. Drag it over into the list column body of the PartOne column to the right of the PartOne text item.
5. Click on the PartThree text item within the PartThree list column body to select it. Drag it over into the list column body of the PartOne column to the right of the PartTwo text item.
6. Click on the PartTwo text item and then click on the Foreground Color button on the toolbar and select the drop-down arrow. From the Named Colors menu, change the foreground color to Red. Click the Bold button on the toolbar to change the font effect to bold.

Your design should look similar to Figure 1.3.
7. Click on the **PartOne** text item within the **PartOne** list column title area.
8. In the **Properties** pane, change the **Source Type** property to **Text**.
9. Double-click the **Text** property and type **Product Description**.
10. Click **OK** to close the dialog box.
11. Lock the **List** object cells by clicking on the **Lock (currently unlocked)** button on the toolbar.
12. Ctrl-click the **PartTwo** and **PartThree** list column bodies and press **Delete** on the keyboard to remove them from the report design. Your design should now look similar to Figure 1.4.

13. From the **Run** menu, select **Run Report – HTML** to view the report. When prompted, click in the **Provide a value** prompt box and type **glasses**. Your results should look similar to Figure 1.5.
14. Close the **IBM Cognos Viewer** window to return to IBM Cognos Report Studio.
Step 5: Finalize the Report Design

The core development of this report is finished; what is left are the finishing touches. We will add additional data elements for the product catalog and filter the report to show only the products whose descriptions contain the keyword that was entered at runtime.

1. In the **Explorer Bar**, mouse over the **Query Explorer** tab and select the **Query1** object.
2. From the **Data Items** pane, drag the **Position** data item into the **Detail Filters** pane.

   The Detail Filter Expression dialog box opens and shows [Position] in the Expression Definition box.

3. Add the following code in the **Expression Definition** window after the [Position] expression:

   ```
   <> 0
   ```

   Your expression should now be this:

   ```
   [Position] <> 0.
   ```

4. Click **OK** to close the Detail Filter Expression dialog box.

   This ensures that only product records with descriptions containing the keyword get retrieved from the database.

5. Mouse over **Page Explorer** and click on **Page1**.
6. Click on the **Report Title** text to select it.
7. Change the **Source Type** property to **Report Expression**.
   The Report Expression dialog box window opens.

9. Create the following expression in the **Expression Definition** box:
   'Product Catalog records for keyword - ' +
   ParamDisplayValue('SearchText')

10. Validate the expression and click **OK** to close the Report Expression dialog box.

11. From the **Source** tab of the **Insertable Objects** pane, Ctrl-click and drag the **Product**
    query item from the **Products** query subject and the **Product Number** query item from the **Codes**
    folder as columns in front of the **Product Description** column in the report list.

COGNOS 8 NOTE   The **Product** query item is called **Product name**.

12. From the **Source** tab of the **Insertable Objects** pane, Ctrl-click and drag the **Product color**, 
    **Product size**, **Introduction date**, and **Discontinued date** query items from the **Products** 
    query subject as columns after the **Product Description** column in the report list.

    Your report design should now look similar to Figure 1.6.

![Figure 1.6](image)

**Figure 1.6**   Final report design

13. From the **Run** menu, select **Run Report – HTML** to view the report. When prompted,
    click in the **Provide a value** prompt box and type **rope**.

    Your results should look like Figure 1.7.

14. Close the **IBM Cognos Viewer** window to return to IBM Cognos Report Studio.

    By using a combination of string functions, we were able to split the original text field into 
    three text items that contained all text before the searched string, the actual search string, and 
    all text after the searched string, respectively. Once the query was built, we were able to use a simple 
    IBM Cognos Report Studio built-in feature to unlock the report list cells in order to be able to 
    condense the report and combine all the row data in one defined column.
Our careful string manipulation and simple font-color change allowed us to create an illusion of word highlighting within a larger text field based on the word search entered by the user at runtime.

**Avoiding Query Macros**

In class, we teach students that query macros can be written to take advantage of the IBM Cognos BI capability to dynamically change the report queries at runtime. Query macros can be built to integrate information about the report consumer or to enhance the queries that are written. Unfortunately, the query macros are not easy to master because the documentation exists only in the IBM Cognos Framework Manager documentation. In our example, we will show how the solution to the common business problem can be resolved without resorting to the use of query macros.

The sales team wants to be able to quickly analyze how each retailer region is performing according to product quantities sold, revenue produced, and gross profit achieved. The sales team would like to be able to filter the results in one of three ways: by selected date, by selected order method, or by selected employee.

The team would like one report where they can select the type of filter and the value to include for the filter and see the results in a crosstab so that they can quickly compare the numbers between the products and the regions. The final prompt result we are trying to achieve should look similar to Figure 1.8.
After the prompt is selected, the report will run with a completely different filter option, and in case the prompt triggers another parameter, a new corresponding prompt will show up for the user to make the final selection.

Different second-page prompts are illustrated in Figures 1.9, 1.10, and 1.11.

Figure 1.9  Second conditional prompt page: Date Range

Figure 1.10  Second conditional prompt page: Order Method
Figure 1.11  Second conditional prompt page: Employee

Figure 1.12 illustrates the final report that is desired (we are assuming an Order method prompt selection and a specific order method selection).

Figure 1.12  Final report

Design

We have discovered that macro code syntax help is not readily available for IBM Cognos Report Studio developers. It is covered extensively in IBM Cognos Framework Manager training and materials but not in IBM Cognos Report Studio user guides.
We have to change the syntax of the filter expression depending on what the user selects in the prompt at runtime.

The reason we cannot just pass the filter expression as a parameter value is that it will be treated by the report engine as a text value and not as “code” that has to be used as a filter expression.

For this reason, the expression is captured in a prompt macro function. However, writing the macro function or finding out what the correct syntax is may be difficult for novice report developers who may not have access to the IBM Cognos Framework Manager developers who can help them.

The solution we are proposing in this example will completely avoid the use of macros, and it will be easy for business users to understand and replicate.

Our sample report will be a crosstab report that will be filtered in one of the three ways that users select at runtime. The options will be by date range, by order method, or by sales rep.

**Step-by-Step**

We will start with a simple crosstab template.

**Step 1: Start the Report**

1. Launch **Report Studio** and select the **GO Data Warehouse (query)** package.
2. Click on **Create new** option.

**COGNOS 8 NOTE** The option is **Create a new report or template**.

3. Select the **Crosstab** report template and click **OK**.
   
   We will be using the **Sales (query)** namespace inside the **Sales and Marketing (query)** folder (same as for the previous example).

**Step 2: Set Up the Crosstab and the Query**

When it comes to creating reports, there are two approaches. As in this example, you can build the query and the report layout at the same time. Our first example provides an approach where you can build the query first and then create the report layout.

1. From the **Source** tab of the **Insertable Objects** pane, drag the following query items into the **Crosstab**:
   
   • **Product Line** from the **Products** query subject to the **Rows** drop zone
   
   • **Quantity**, **Revenue**, and **Gross profit** from the **Sales fact** query subject to the **Columns** drop zone

**COGNOS 8 NOTE** The **Products** query subject is called **Product**, and **Time** is called **Time Dimension**.
2. In the **Explorer** bar, mouse over the **Query Explorer** and select **Query1**.

3. From the **Toolbox** tab of the **Insertable Objects** pane, drag the **Filter** object into the **Detail Filters** pane.
   
The Detail Filters Expression box pops up.

4. Create the following filter expression:
   ```
   CASE ?choice?
   WHEN 1 THEN ([Sales (query)].[Time].[Date] in_range ?Date?)
   WHEN 2 THEN ([Sales (query)].[Order method].[Order method code] = ?OrderMethod?)
   ELSE ([Sales (query)].[Employee by region].[Employee key] = ?Employee?)
   END
   ```

5. Validate the expression, choosing any prompt values, and click **OK** to close the dialog box.

### NOTE
This is the filter expression we are using instead of the prompt macro expression, which would look like this:

```
#prompt('choice', 'token')#
```

6. To return to the page design, mouse over the **Page Explorer** tab and select **Page1**.

7. Click on any whitespace in the page body to select it and click on the **Center** button on the toolbar.

8. Click on the report title text to select it, and change the **Source Type** property from **Text** to **Report Expression**.

   
The Report Expression dialog box opens.

10. Create the following expression:
    ```
        'Product Line Summary for ' + ParamDisplayValue('choice')
    ```

11. Validate the expression, choosing any prompt values, and click **OK**.
    
    Our crosstab report setup is complete at this point.

### Step 3: Set Up the First Prompt Page

1. Mouse over **Page Explorer** and select the **Prompt Pages** folder.

2. Drag a **Page** object from the **Insertable Objects** pane into the **Prompt Pages** pane.
   
   This will be Prompt Page1.

3. Double-click on **PromptPage1** to enter page design mode.
4. Change the page title text to this:
   Prompt Page 1 - Select Filter Type
5. From the Toolbox tab of the Insertable Objects pane, drag a Value Prompt object into the page body of the prompt page.
   The Prompt Wizard dialog box opens.
6. Click on the Use existing parameter radio button, and from the drop-down menu, select the choice parameter.
7. Click on the Finish button to close the Prompt Wizard dialog box.
8. Click on the newly created value prompt to select it.
   The Static Choices dialog box is displayed.
10. Click on the Add button in the lower-left corner of the Static Choices dialog box.
    The Edit dialog box opens.
11. Type in the value 1 in the Use property text box and type Filter by date range in the Display property text box.
12. Repeat the preceding step to add two more static values:
    • Use: 2 and Display: Filter by order method
    • Use: 3 and Display: Filter by sales rep
   Your Static Choices dialog box should look similar to Figure 1.13.
13. Click OK to close the Static Choices dialog box.
14. While you still have the value prompt selected, change the Select UI property to Radio button group.
15. Change the Auto-Submit property to Yes.
16. Click on any whitespace in the prompt page body to select it and click on the Center button on the Toolbar.
17. Click on the page footer (which has all the prompt buttons) and Delete it.

We do not need the buttons because the prompt control we built on this page has the auto-submit property turned on, and it will submit the selections as soon as the user clicks on one of the radio buttons.

We have completed the first prompt page.

Step 4: Set Up the Second Prompt Page
The prompt controls shown on the second prompt page will depend on the selections made in the first page.

1. Mouse over Page Explorer and select the Prompt Pages folder.
2. Drag a Page object from the Insertable Objects pane into the Prompt Pages pane below Prompt Page1.
   This will be Prompt Page2.
3. Double-click on PromptPage2 to enter prompt page design mode.
4. Change the page title text to this:
   Prompt Page 2 - Select the Filter Value
5. From the Toolbox tab of the Insertable Objects pane, drag the Conditional Blocks object into the prompt page body.

NOTE  We will use the conditional blocks to display a different prompt based on selection from the previous prompt page.

6. Click on the Conditional Blocks object to select it.
7. Double-click on the Block Variable property in the Properties pane.
   The Block Variable dialog box opens.
8. From the Variable drop-down menu, select the <New string variable> option.
   The New Variable dialog box opens.
9. Make the Name of the new variable choice.
10. Click on the Add button in the lower-left corner of the dialog box. The Add dialog box opens.

11. Enter the value 1 and click OK.

12. Click on the Add button again in the lower-left corner of the dialog box. The Add dialog box opens.

13. Enter the value 2 and click OK.

14. Click on the Add button one more time in the lower-left corner of the dialog box. The Add dialog box opens.

15. Enter the value 3 and click OK.

   Your New Variable dialog box will look similar to Figure 1.14.

![New Variable dialog box](image)

**Figure 1.14** New Variable dialog box

16. Click OK.

   The Report Expression dialog box window opens.

17. Create the following expression:

   ```plaintext
   ParamValue('choice')
   ```

18. Validate the expression and click OK twice to close the Report Expression and Variable dialog boxes.

19. Change the Current Block property value from (Other) to 1.

   We will now design the prompt for when the users select a date range filter type.
20. From the Toolbox tab of the Insertable Objects pane, drag a Date prompt into the conditional block.
   The Prompt Wizard dialog box is displayed.
21. Click on the Use existing parameter radio button, and from the drop-down menu, select the Date parameter.
22. Click the Finish button to close the Prompt Wizard dialog box.
23. Click on the newly inserted Date prompt control to select it.
24. Change the Multi-Select property to No.
25. Click on the background of the Conditional Block to select it.
26. Change the Current Block property to 2.
   We will now design the prompt for when the users select an order method filter type.
27. From the Toolbox tab of the Insertable Objects pane, drag a Value prompt into the conditional block.
   The Prompt Wizard dialog box opens.
28. Select the Use existing parameter radio button and from the drop-down menu select the OrderMethod parameter.
29. Click the Next button.
30. Change the Name property from Query2 to OrderMethodPrompt.
31. Set the Values to display value to [Sales (query)].[Order method].[Order method type].

**COGNOS 8 NOTE** The Order method type query item is called Order method.

32. Click on the Finish button to close the Prompt Wizard dialog box.
33. Click on the background of the Conditional Block to select it.
34. Change the Current Block property to 3.
   We will now design the prompt for when the users select an employee filter type.
35. From the Toolbox tab of the Insertable Objects pane, drag a Value prompt into the conditional block.
   The Prompt Wizard dialog box opens.
36. Click on the Use existing parameter radio button, and from the drop-down menu, select Employee parameter.
37. Click on the Next button.
38. Change the Name property from Query2 to EmployeePrompt.
39. Set the **Values to display** value to [Sales (query)].[Employee by region].[Employee name].

40. Click on the **Finish** button to close the Prompt Wizard dialog box.

   Our second prompt page design is finished at this point. It can be enhanced by the addition of text boxes for additional instructions to the users, or prompt controls can be modified to have a different UI.

   You can now test the report prompt page flow.

**Step 5: Adjust the Report Title to Show the Selected Prompt Value**

The objective is to dynamically display the prompt selections that the user selected at runtime.

1. Mouse over **Page Explorer** and select the **Page1** object.

2. From the **Toolbox** tab of the **Insertable Objects** pane, drag the **Conditional Blocks** object into the page header area below the report title block.

   We will reuse the variable we created for the purposes of the second prompt page.

3. Click on the **Conditional Block** object we have just inserted, and double-click on the **Block Variable** property in the **Properties** pane.

   The Block Variable dialog box opens.

4. From the **Value** drop-down menu, select the **choice** variable that was created during the second prompt page design.

5. Click **OK** to close the Block Variable dialog box.

6. Change the **Conditional Block** property value from **(Other)** to **1**.

7. From the **Toolbox** tab of the **Insertable Objects** pane, drag a **Layout Calculation** object into the **Conditional Block**.

   The Report Expression dialog box opens.

8. Click on the **Parameters** tab of the **Available Components** section of the dialog box.

9. Drag the **Date** parameter into the **Expression Definition** area.

10. Validate the expression and click **OK** to close the Report Expression dialog box.

11. From the **Toolbar**, click the **Center** button to center the parameter expression in the report title area.

12. Change the **Current Block** property value to **2**.

13. From the **Toolbox** tab of the **Insertable Objects** pane, drag a **Layout Calculation** object into the **Conditional Block**.

   The Report Expression dialog box opens.

14. Click on the **Parameters** tab of the **Available Components** section of the dialog box.
15. Drag the **Order Method** parameter into the **Expression Definition** area.
16. Validate the expression and click **OK** to close the Report Expression dialog box.
17. From the **Toolbar**, click the **Center** button to center the parameter expression in the report title area.
18. Change the **Current Block** property value to 3.
19. From the **Toolbox** tab of the **Insertable Objects** pane, drag a **Layout Calculation** object into the **Conditional Block**.

   The Report Expression dialog box opens.
20. Click on the **Parameters** tab of the **Available Components** section of the dialog box.
21. Drag the **Employee** parameter into the **Expression Definition** area.
22. Validate the expression and click **OK** to close the Report Expression dialog box.
23. From the toolbar, click the **Center** button to center the parameter expression in the report title area.

   Our report design is completed for this example.

   We have achieved the desired result by using a conditional block in a second prompt page, which will show different second prompt options depending on the selections made on the first prompt page.

   Furthermore, we have integrated the dynamic filter logic without the use of macro functions in order to demonstrate that novice report developers can be quite capable of creating very complex dynamic prompts and filter reports without advanced macro programming knowledge.

   Finally, we have shown you how to dynamically control what will be shown in the title of the report based on the user’s selections during the prompt process.

**Complex Crosstab Calculations**

Sometimes, the easiest of report requests give report developers the hardest time. The solution is easy; however, it takes time to find the correct property or “discover” the correct button that does the trick.

   The final result we are trying to achieve should look similar to Figure 1.15.

**Design**

The order of calculations in more complex data containers, such as crosstabs and charts, can sometimes cause report developers to get undesired results when summarizing data. In this example, we will explore the default behavior of summarizations in crosstabs and discover the alternatives and seldom-used properties.
We will start with a simple crosstab template.

Step 1: Start the Report

1. Launch Report Studio and select the GO Data Warehouse (analysis) package.
2. Click on the Create new option.

COGNOS 8 NOTE  The option is Create a new report or template.

3. Select the Crosstab report template and click OK.

We will be using the Sales (analysis) namespace inside the Sales and Marketing (analysis) folder, same as we did for the previous examples in this chapter.

Step 2: Set Up the Crosstab

1. From the Source tab of the Insertable Objects pane, drag the following levels into the Crosstab:
   - Product Line from the Products dimension and Products hierarchy to the Rows drop zone
   - Year from the Time dimension and Time hierarchy to the Columns drop zone
2. Drag Revenue and Planned revenue from the Sales fact measures to the Columns drop zone and nest them under the Year data item.

COGNOS 8 NOTE  The Products and Time dimensions and hierarchies are called Product and Time Dimension.
3. Ctrl-click the Revenue and Planned revenue column headings in the Crosstab.

4. From the Data menu item, select Calculate and click on the %(Revenue, Planned revenue) option.

   This will create a calculation item under each Year column and next to the Revenue and Planned revenue data items. The calculation will represent the percentage of planned revenue achieved. In addition, you will notice when you run the report that the formatting of the data will already be in percentage format.

5. Right-click the newly created %(Revenue, Planned revenue) column title in the Crosstab and select the Show Text... option.

   **COGNOS 8 NOTE** The Show Text... option is called Edit Text...

   The Edit label dialog box opens.

6. Change the text to % of Plan and click OK to close the dialog box.

7. In the Crosstab, click on the Product Line row title to select it.

8. From the toolbar, click on the Summarize button and select the Total option.

   **COGNOS 8 NOTE** The Summarize toolbar button is the Aggregate button.

9. From the Run menu, select Run Report – HTML to view the report. Your results should be similar to Figure 1.16.

   **Figure 1.16** Initial crosstab view

   Notice how the Total line for the percentage calculations is actually adding the percentages. This is not the desired result. We are expecting to see the overall % of Plan for each year.
10. Close the IBM Cognos Viewer window to return to IBM Cognos Report Studio. We will showcase two ways of correcting this problem in Steps 3a and 3b.

**Step 3a: Fix the Crosstab Total Percentage Calculation**

1. Click on the % of Plan column heading to select it.
2. In the Properties pane, change the Solve Order property from a blank value to 2.
   
   By default, all the data item properties do not have this property set.

   Solve Order property indicates which values will be calculated first in crosstabs and charts. The items with the lowest sort order values are calculated first; otherwise, the calculations on the detail rows are performed first, and then all the summaries.

   The percentage calculation column should be calculated last, and since the summaries of the Revenue and Projected Revenue will already exist, the report server will use them to calculate the overall Year percentage.
3. From the Run menu, select Run Report – HTML to view the report. The report results should look similar to Figure 1.17.

   ![Figure 1.17](image)

   Notice how the Total line for the percentage calculations is now correct.
4. Close the IBM Cognos Viewer window to return to IBM Cognos Report Studio.

**Step 3b: Try an Alternative Solution**

There is actually an easier and quicker way to achieve the same result. Instead of task 8 in Step 2, do the following simple task:

1. From the Toolbar, click on the Summarize button and select the Automatic Summary option.
2. From the Run menu, select Run Report – HTML to view the report. The results should resemble Figure 1.18.

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Revenue</td>
<td>Planned</td>
<td>% of</td>
<td>Revenue</td>
</tr>
<tr>
<td></td>
<td>Equipment</td>
<td>332,088,338.86</td>
<td>361,496,588.97</td>
<td>92.11%</td>
</tr>
<tr>
<td>Golf Equipment</td>
<td>153,553,800.0</td>
<td>159,875,640.96</td>
<td>90.39%</td>
<td>168,096,427.07</td>
</tr>
<tr>
<td>Outdoor Protection</td>
<td>36,165,521.07</td>
<td>38,181,339.96</td>
<td>94.72%</td>
<td>25,068,574.08</td>
</tr>
<tr>
<td>Personal Accessories</td>
<td>51,647,095.61</td>
<td>50,923,067.50</td>
<td>98.18%</td>
<td>458,323,355.0</td>
</tr>
<tr>
<td>Mountaineering Equipment</td>
<td>107,099,659.94</td>
<td>113,303,166.75</td>
<td>94.47%</td>
<td>161,039,023.26</td>
</tr>
<tr>
<td>Summary</td>
<td>914,232,602.72</td>
<td>966,476,137.62</td>
<td>94.41%</td>
<td>1,159,195,599.16</td>
</tr>
</tbody>
</table>

Figure 1.18  Final crosstab view

Notice how the Total line for the percentage calculations is also correct using this alternative suggested step.

3. Close the IBM Cognos Viewer window to return to IBM Cognos Report Studio.

Sometimes the trick is just to find the correct property or a button. With the ever-changing list of features or options that are added to the new releases of IBM Cognos BI, you will keep discovering easier and better ways to solve the same report issues. Over time, you will notice that there are several ways to do the same thing, all correct, and it will come down to personal preference when you need to decide which approach to take.

**Summary**

In this chapter, we wanted to focus on some practical tips and hints to help report authors get some new ideas for their report requirement solutions that simplify the presentation of the reports.

In class, we cover most of the commonly used IBM Cognos Report Studio object properties; however, it takes some time and report-building experience to find out what the rest of the properties are useful for.

The first example builds on the exceptional highlighting techniques we cover in the IBM Cognos Report Studio Fundamentals and Advanced classes. For example, the classes teach the students how to highlight values in individual cells or the whole rows of data based on some kind of static or user-defined thresholds. Our example takes exceptional highlighting to the next level by combining the highlighting techniques with some complex report expression building to achieve the desired results.
The second example allows users to change the filter expression and avoid complex macro expressions that are not really expected from the majority of business report authors.

The third example showcases some of the less-used IBM Cognos Report Studio object properties and provides alternative approaches to solving the same report requirements.

Some techniques that you may want to integrate into other reports include these:

- Various string manipulation functions
- Unlocking of the list container cells to condense reports
- Multiple prompt pages to guide the user to narrow down the focus of the report
- Conditional blocks in the prompt pages and in the report pages
- Reuse of report parameters and conditional variables in different areas of the report
- Solve Order property adjustment for crosstab reports to resolve aggregation issues
Index

A
Active Report Variables
dialog box, 227-228
active reports, 201, 220
bar charts, formatting,
240-242
charts, inserting, 230-232
controls, inserting,
221-225
combination charts,
formatting, 243-247
data, inserting, 204-206
HTML code, replacing,
202-206
link controls, 224-230
pie charts, formatting,
242-244
tab controls, setting up,
203-204

B
Background Effects dialog
box, 255-256
bar charts, formatting,
240-242
Baselines dialog box, 240
block objects, setting up,
177-185
Block Variable dialog box,
16-19
Border dialog box, 178-179
box plot charts, creating,
263-265
branch queries, expected
volumes, setting up, 71-74
briefing books
creating, 127-140
page lists, 130-133
query lists, 131-132
table of contents
building entries,
136-137
complete design,
137-140
creating, 134-136
building list reports, 49-50,
74-78
building-block approach,
queries, 191

C
Calculated Measure
Expression dialog box, 267
Calculated Member
Expression dialog box, 65
Calculated Member
object, 65
calculations, crosstabs, 20-24
charting engine, 201
charts
active reports, inserting, 230-232
bar charts, formatting, 240-242
box plot charts, creating, 263-265
combination charts, formatting, 43-45, 243-247
page breaks, 196-197
pie charts, formatting, 42-43, 242-244
setting up, 194-195
Choose Map dialog box, 31
Choose Package Item dialog box, 258
city prompts, creating, 153-154
Classes dialog box, 155
Color dialog box, 40, 255
columns, headers, 93-96
combination charts, formatting, 43-45, 243-247
Combinations dialog box, 239
complex calculations, crosstabs, 20-24
Component Reference dialog box, 104, 113, 134
conditional variables, adding, 260-262
configuration, interactive dashboards, 82-89
Connect dialog box, 225-228
containers, active reports, inserting, 204-206
content, dashboards, creating, 31-32
data, active reports, inserting, 204-206
Data Attributes dialog box, 210-211
Data Button Bar control, 221
data containers, inserting, 185-187
data content, inserting, 185-187
Data Format dialog box, 40, 51, 56, 167-169, 245
Data Item Expression dialog box, 33, 46-48, 60-61, 146, 163, 190, 233
data items, dashboards, adding to, 36-38, 236-240
Data Mapping dialog box, 210
data models, overriding, 141-144
Data Radio Button Group control, 222
data sources, reports, adding to, 207-220
Date Range prompt page, 11
Default Selections dialog box, 105, 114, 135
descriptive statistics, creating, 251-255
design, reports creating, 6-8
finalizing, 8-10
design pages, reports, 197-199
designing dashboards, 28-45
Detail Filter Expression dialog box, 73-74, 80, 107, 116-117, 126, 159, 191
detail page, formatting, 166-167
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Report Variables</td>
<td>227-228</td>
</tr>
<tr>
<td>Background Effects</td>
<td>255-256</td>
</tr>
<tr>
<td>Baselines</td>
<td>240</td>
</tr>
<tr>
<td>Block Variable</td>
<td>16-19</td>
</tr>
<tr>
<td>Border dialog box</td>
<td>178-179</td>
</tr>
<tr>
<td>Calculated Measure Expression</td>
<td>267</td>
</tr>
<tr>
<td>Calculated Member Expression</td>
<td>65</td>
</tr>
<tr>
<td>Choose Map</td>
<td>31</td>
</tr>
<tr>
<td>Choose Package Item</td>
<td>258</td>
</tr>
<tr>
<td>Classes</td>
<td>155</td>
</tr>
<tr>
<td>Color</td>
<td>40, 255</td>
</tr>
<tr>
<td>Combinations</td>
<td>239</td>
</tr>
<tr>
<td>Component Reference</td>
<td>104, 113, 134</td>
</tr>
<tr>
<td>Connect</td>
<td>225-228</td>
</tr>
<tr>
<td>Create Calculation</td>
<td>267</td>
</tr>
<tr>
<td>Create Two-Way Chi-Square Test</td>
<td>266</td>
</tr>
<tr>
<td>Data Attributes</td>
<td>210-211</td>
</tr>
<tr>
<td>Data Format</td>
<td>40, 51, 56, 167-169, 245</td>
</tr>
<tr>
<td>Data Item Expression</td>
<td>33, 46-48, 60-61, 146, 163, 190, 233</td>
</tr>
<tr>
<td>Data Mapping</td>
<td>210</td>
</tr>
<tr>
<td>Default Selections</td>
<td>105, 114, 135</td>
</tr>
<tr>
<td>Detail Filter Expression</td>
<td>73-74, 80, 107, 116-117, 126, 159, 191</td>
</tr>
<tr>
<td>Drill-Through Definitions</td>
<td>83-85, 87, 170</td>
</tr>
<tr>
<td>Edit</td>
<td>259</td>
</tr>
<tr>
<td>Edit Label</td>
<td>22</td>
</tr>
<tr>
<td>External Data Wizard</td>
<td>208</td>
</tr>
<tr>
<td>Floating</td>
<td>179</td>
</tr>
<tr>
<td>Foreground Color</td>
<td>115</td>
</tr>
<tr>
<td>Grouping &amp; Sorting</td>
<td>76, 150</td>
</tr>
<tr>
<td>HTML</td>
<td>183</td>
</tr>
<tr>
<td>Image URL</td>
<td>97</td>
</tr>
<tr>
<td>Insert Chart</td>
<td>31, 230</td>
</tr>
<tr>
<td>Insert Table</td>
<td>31, 56, 98, 152, 168, 221, 257</td>
</tr>
<tr>
<td>Interactive Behavior</td>
<td>225-227</td>
</tr>
<tr>
<td>Join Relationships</td>
<td>162</td>
</tr>
<tr>
<td>Legend</td>
<td>243</td>
</tr>
<tr>
<td>List Headers &amp; Footers</td>
<td>49-52, 77</td>
</tr>
<tr>
<td>Manage External Data</td>
<td>210</td>
</tr>
<tr>
<td>Mapping Options</td>
<td>211</td>
</tr>
<tr>
<td>Margin</td>
<td>57, 96</td>
</tr>
<tr>
<td>Margins</td>
<td>257</td>
</tr>
<tr>
<td>Master Detail Relationships</td>
<td>37, 236-240</td>
</tr>
<tr>
<td>Members</td>
<td>65, 235</td>
</tr>
<tr>
<td>New Variable Value</td>
<td>229</td>
</tr>
<tr>
<td>Padding</td>
<td>31, 168, 241-243</td>
</tr>
<tr>
<td>Palette</td>
<td>39-40, 245</td>
</tr>
<tr>
<td>Parameters</td>
<td>87</td>
</tr>
<tr>
<td>Populate Control</td>
<td>257-258</td>
</tr>
<tr>
<td>Prompt Wizard</td>
<td>15, 18, 104, 113, 134, 154, 257</td>
</tr>
<tr>
<td>Render Variable</td>
<td>262-263, 266</td>
</tr>
<tr>
<td>Select a Package</td>
<td>129</td>
</tr>
<tr>
<td>Select Data</td>
<td>209</td>
</tr>
<tr>
<td>Select Statistic</td>
<td>262-266</td>
</tr>
<tr>
<td>Set Definition</td>
<td>235, 251</td>
</tr>
<tr>
<td>Set Filter Condition</td>
<td>235</td>
</tr>
<tr>
<td>Set Sorting</td>
<td>65-66</td>
</tr>
<tr>
<td>Show Values</td>
<td>243</td>
</tr>
<tr>
<td>Size &amp; Overflow</td>
<td>38, 99, 177, 243-244</td>
</tr>
<tr>
<td>Slicer Member Expression</td>
<td>252</td>
</tr>
<tr>
<td>Sorting</td>
<td>153</td>
</tr>
<tr>
<td>SQL</td>
<td>160</td>
</tr>
<tr>
<td>Static Choices</td>
<td>15, 259</td>
</tr>
<tr>
<td>Table Properties</td>
<td>57</td>
</tr>
<tr>
<td>Text</td>
<td>54-56, 95, 257</td>
</tr>
<tr>
<td>Updated Active Report Variables</td>
<td>230</td>
</tr>
<tr>
<td>dimensional sources</td>
<td>58-70</td>
</tr>
<tr>
<td>DIV tags</td>
<td>176</td>
</tr>
<tr>
<td>Drill-Through Definitions dialog box</td>
<td>82-86, 170</td>
</tr>
<tr>
<td>E Edit dialog box</td>
<td>259</td>
</tr>
<tr>
<td>Edit Label dialog box</td>
<td>22</td>
</tr>
<tr>
<td>Employee prompt page</td>
<td>12</td>
</tr>
<tr>
<td>entries, briefing books</td>
<td></td>
</tr>
<tr>
<td>table of contents, building, 136-137</td>
<td></td>
</tr>
<tr>
<td>expected volumes, setting up, branch queries, 71-74</td>
<td></td>
</tr>
<tr>
<td>Expense_by_Manager query</td>
<td>110-112</td>
</tr>
<tr>
<td>expressions, two single quotes without spaces, 4-5</td>
<td></td>
</tr>
<tr>
<td>External Data Wizard dialog box</td>
<td>208</td>
</tr>
</tbody>
</table>
F
finalizing report designs, 8-10
first, list reports, building
header, 56, 74
first column, list reports,
customizing, 52-54
first prompt page, setting up,
14-16
Floating dialog box, 179
footers
creating, 98-100
reports, adding to,
103-105, 113-116
Foreground Color dialog
box, 115
formatting
bar charts, 240-242
combination charts,
243-247
crosstab reports, 69-70
detail page, 166-167
header objects, 96-98
pie charts, 242-244
reports, inheriting,
109-120
formatting combination
charts, 43-45
formatting list reports, 49-53
formatting map, dashboard,
39-42
formatting pie charts, 42-43
Framework Manager
Model, 91
functionality,
report queries, 3-6
G–H
graphs, calculated values, 195
Grouping & Sorting dialog
box, 76, 150
headers
columns, 93-96
dashboards, creating,
29-30
formatting objects, 96-98
list reports, building,
54-56
reports, adding to,
103-105, 113-116
hierarchies
prompting, 45-58
reports, 91
layout libraries, 91-108
highlighting selected text,
2-10
HTML code, replacing, active
reports, 202-206
HTML dialog box, 183
HTML objects, creating,
183-185
I–J
if then else logic, 191
Image URL dialog box, 97
inheriting, report structure,
120-127
inheriting formatting, reports,
109-120
Insert Chart dialog box,
31, 230
Insert Table dialog box, 31,
56, 98, 152, 168, 221, 257
Interactive Behavior dialog
box, 225, 227
interactive dashboards,
configuring, 82-89
interactive links, creating,
170-171
Join Relationships dialog
box, 162
joining queries, 156-172
K–L
layout libraries, 91-108, 140
legacy queries, building,
159-162
Legend dialog box, 243
Line Styles dialog box, 241
link controls, active reports,
224-230
links, interactive, creating,
170-171
List Headers & Footers dialog
box, 49-52, 77
list reports
building, 49-50, 74-78,
105-107
first column, customizing,
52-54
formatting, 49-53
header, building, 54-55
merging lists, 78-79
prompts, adding, 79-81
summary singleton,
adding, 56
titles, adding, 79-81
lists, merging, 78-79
local data sources, reports,
adding to, 207-220
M–N
macros, query macros, avoiding, 10-20
main list reports, building, 76-78
main prompt page, 10
Manage External Data dialog box, 210
Mapping Options dialog box, 211
maps, dashboards, formatting, 39-42
Margin dialog box, 57, 96, 257
Master Detail Relationship dialog box, 37, 236-240
master-detail reports, 70-81
Members dialog box, 65, 235
merging lists, 78-79
model queries, joining, 156-172
multiple queries, reports, integrating, 187-199
New Variable Value dialog box, 229

O
objects
block objects, setting up, 177-185
dashboards, fixing size, 38-39
headers, formatting, 96-98
HTML objects, creating, 183-185
Order Method prompt page, 11
organization queries, recruitment, 102-103
overriding data models, 141-144
Prompt Wizard dialog box, 15, 18, 104, 113, 134, 154, 257
prompting hierarchies, 45-58
prompts
city prompts, creating, 153-154
reports, adding to, 79-81, 106-109, 116-118
year and month prompts, creating, 151-153
property windows, Size & Overflow, 178
Pyka, Erin, xvii

Q
queries
building-block approach, 191
Expense_by_Manager query, 110-112
legacy queries, building, 159-162
model queries, joining, 156-172
product queries, setting up, 60-64
prompt pages
backgrounds, creating, 255-257
first, setting up, 14-16
main, 10
second, setting up, 16-19
second conditional (Date Range), 11
second conditional (Employee), 12
second conditional (Order Method), 11
product and reason report, 59
product catalogs, 1-2
search functionality, 3-6
search text, 2-10
setting up, 157-158
R
retailers, 73
returns/shipped ratio
query, setting up, 32-34,
46-48, 232-233
returns by product line
query, setting up, 33-35,
233-234
setting up, 13-16
shipping volume by month
query, setting up, 34-36,
234-236
SQL, joining, 156-172
Query Explorer design
window, 189
query lists, briefing books,
131-132
query macros, avoiding,
10-20
query-logic, building,
190-192
quotation marks, expressions,
two single quotes without
spaces, 4-5
reports, 1
active reports, 201, 220
formatting bar charts,
240-242
formatting combination
charts, 243-247
formatting pie charts,
242-244
inserting charts,
230-232
inserting controls,
221-225
inserting data, 204-206
link controls, 224-230
replacing HTML code,
202-206
cover pages, creating,
168-169
crosstab reports
aggregating, 66-68
building, 62-64
formatting, 69-70
sorting, 64-66
crosstabs
calculations, 20-24
setting up, 13-16
design
creating, 6-8
finalizing, 8-10
design page, 197-199
dimensional sources,
58-70
first prompt page, setting
up, 14-16
footers
adding, 113-116
adding to, 103-105
creating, 98-100
formatting, inheriting,
109-120
functionality, tabbed
worksheets, 176-187
headers, adding to,
103-105, 113-116
hierarchy, 91
layout libraries, 91-108
interactive links, creating,
170-171
list reports
adding, 56
building, 49-50, 74-78,
105-107
building header, 54-55
customizing first
column, 52, 54
formatting, 49, 51-53
merging lists, 78-79
summary singleton, 56
local data sources, adding
to, 207-220
main prompt page, 10
master-detail reports,
70-81
multiple queries,
integrating, 187-199
page breaks, creating, 166
product and reason, 59
prompts
adding, 116-118
adding to, 79-81,
106-109
queries
avoiding macros, 10-20
beginning, 3
building-block
approach, 191
search functionality, 3-6
search text, 2-10
setting up, 13-16, 157-158
returned/shipped, 46-58
saving as templates, 118-120
second conditional prompt page (Date Range), 11
second conditional prompt page (Employee), 12
second conditional prompt page (Order Method), 11
second prompt page, setting up, 16-19
starting, 2
statistical reports, 202, 247-251
    adding conditional variables, 260-262
    building prompts, 257-260
    creating descriptive statistics, 251-255
prompt page backgrounds, 255-257
structure, inheriting, 120-127
titles
    adding, 116-118
    adding to, 79-81, 106, 108-109
variance reports, creating analysis, 262-264
Retailers query, 73
returned/shipped ratio query dashboards, setting up, 32-34
    setting up, 46-48, 232-233
returned/shipped reports, 45-58
returns, product queries, setting up, 60-64
returns by product line query dashboards, setting up, 33-35
    setting up, 233-234
row data, sorting, 64-66
saving reports as templates, 118-120
search functionality, report queries, 3-6
search text, report queries, 2-10
second conditional prompt page (Date Range), 11
second conditional prompt page (Employee), 12
second conditional prompt page (Order Method), 11
second prompt page, setting up, 16-19
Select a Package dialog, 129
Select Data dialog box, 209
Select Statistic dialog box, 262-266
selected text, highlighting, 2-10
separate lists, master-detail reports, 70-81
Set Definition dialog box, 235, 251
Set Filter Condition dialog box, 235
Set Sorting dialog box, 65-66
shipping volume by month query dashboards, setting up, 34-36
    setting up, 234-236
Show Values dialog box, 243
singleton object, 56-57
Size & Overflow dialog box, 38, 99, 177, 243-244
Size & Overflow property window, 178
Slicer Member Expression dialog box, 252
sorting crosstab reports, 64-66
Sorting dialog box, 153
SPAN tags, 177
spreadsheets, 175
SQL dialog box, 160
SQL queries, joining, 156-172
standard headers and footers, reports, adding to, 103-105, 113-116
starting reports, 2
Static Choices dialog box, 15, 259
statistical analysis, 247-251
    box plot charts, creating, 263, 265
    creating descriptive statistics, 251-255
two-way chi-square tests, creating, 266-268
variance reports, 262-264
statistical reports, 202
statistics report, 247-251
adding conditional variables, 260-262
building prompts, 257-260
creating descriptive statistics, 251-255
prompt page backgrounds, 255-257
structure, reports, inheriting, 120-127
Summarize button, 76
summary screenshots of final products, xx-xxxvi

T
tab controls, setting up, 203-204
tabbed worksheets, 176-187

Table Properties dialog box, 57
tables of contents, briefing books
building entries, 136-137
complete design, 137-140
creating, 134-136
templates, reports, saving as, 118-120
Text dialog box, 54-56, 95, 257
Time dimension, 30
titles, reports, adding to, 79-81, 106-109, 116-118
total percentage calculations, crosstabs, 23
two-way chi-square tests, creating, 266-268

U–Z
unions, creating, 142-156
Updated Active Report
Variables dialog box, 230
variables, conditional, adding, 260-262
variance reports, creating, 262-264
worksheets, tabbed, 176-187
year and month prompts, creating, 151-153
This page intentionally left blank