IBM Cognos Report Studio: Author Professional Reports Fundamentals (v10.2.2)

Student Guide Vol 2

Course Code: B5A58

IBM Cognos Report Studio: Author Professional Reports Fundamentals (v10.2.2)

B5A58

ERC: 1.0

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Contents

Extend Reports Using Calculations

IBM Cognos BI

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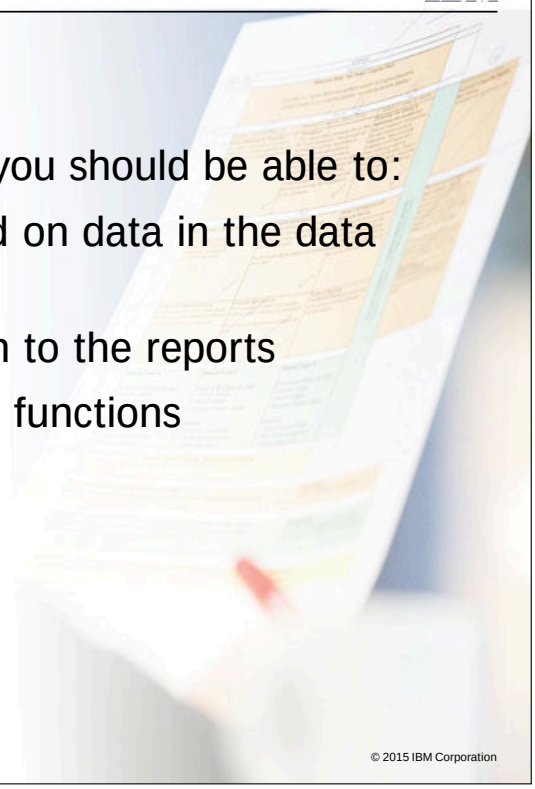
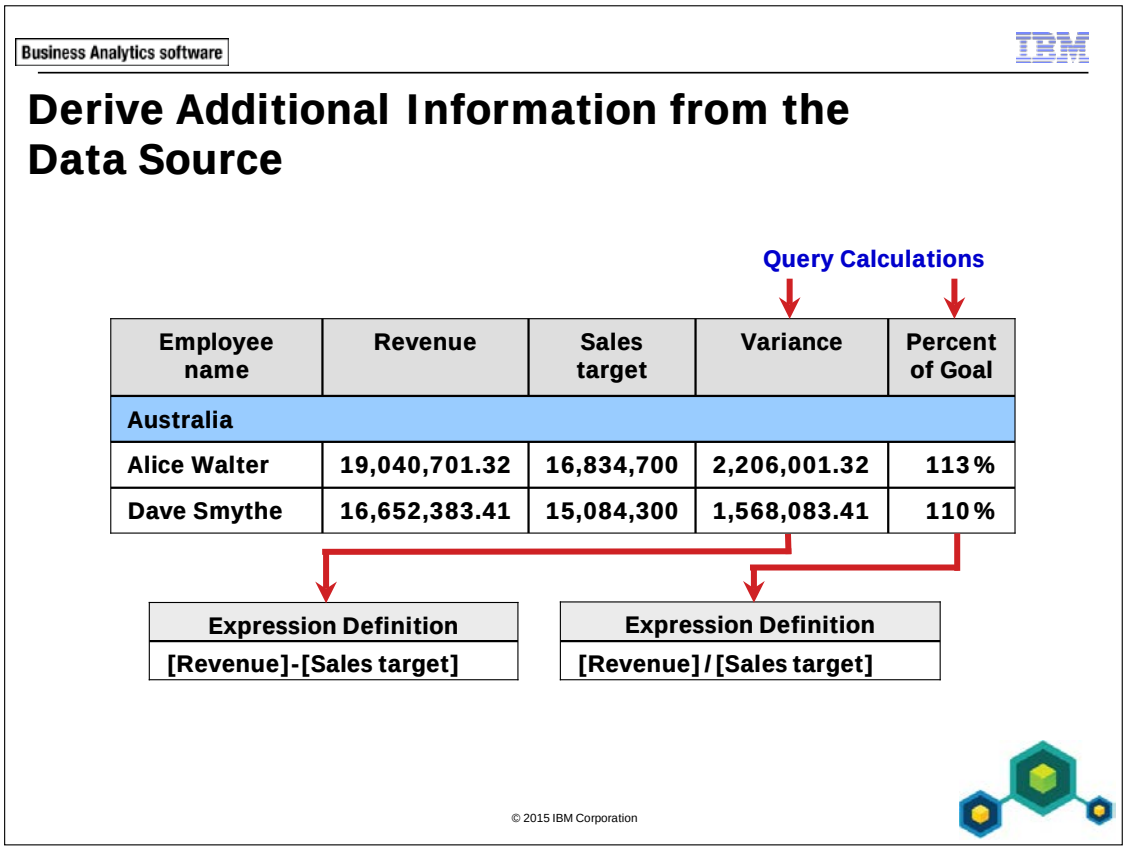
Objectives

- At the end of this module, you should be able to:
  - create calculations based on data in the data source
  - add run-time information to the reports
  - create expressions using functions

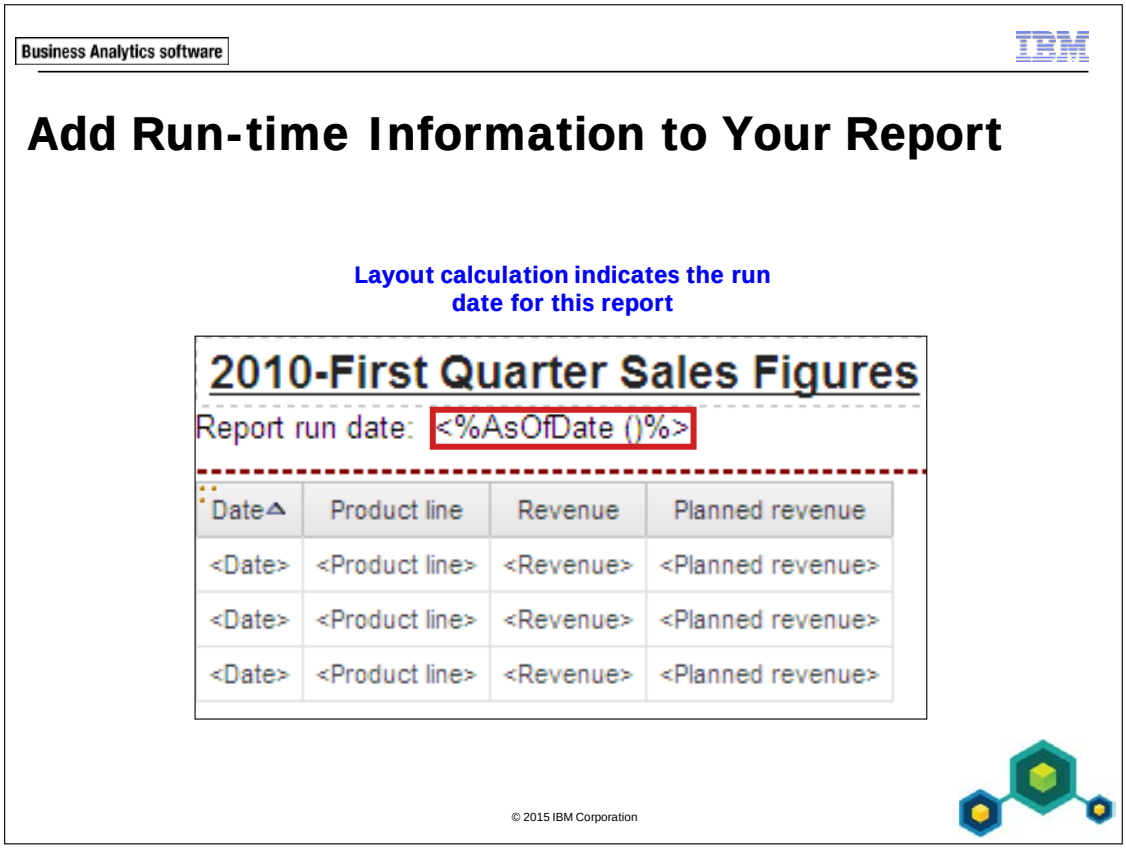




Create a layout calculation to add information to your report.

Create calculated columns based on existing items in the model using query calculations.

Calculations can be added to a list, crosstab, or chart report, as well as to the body, headers, and footers.



Layout calculations can include run-time information such as current date, current time, and user name.

Including calculated columns can help provide further insight into your data.

You can create a query or layout calculation by inserting a calculation in to your report and then creating the expression in the Expression Editor.

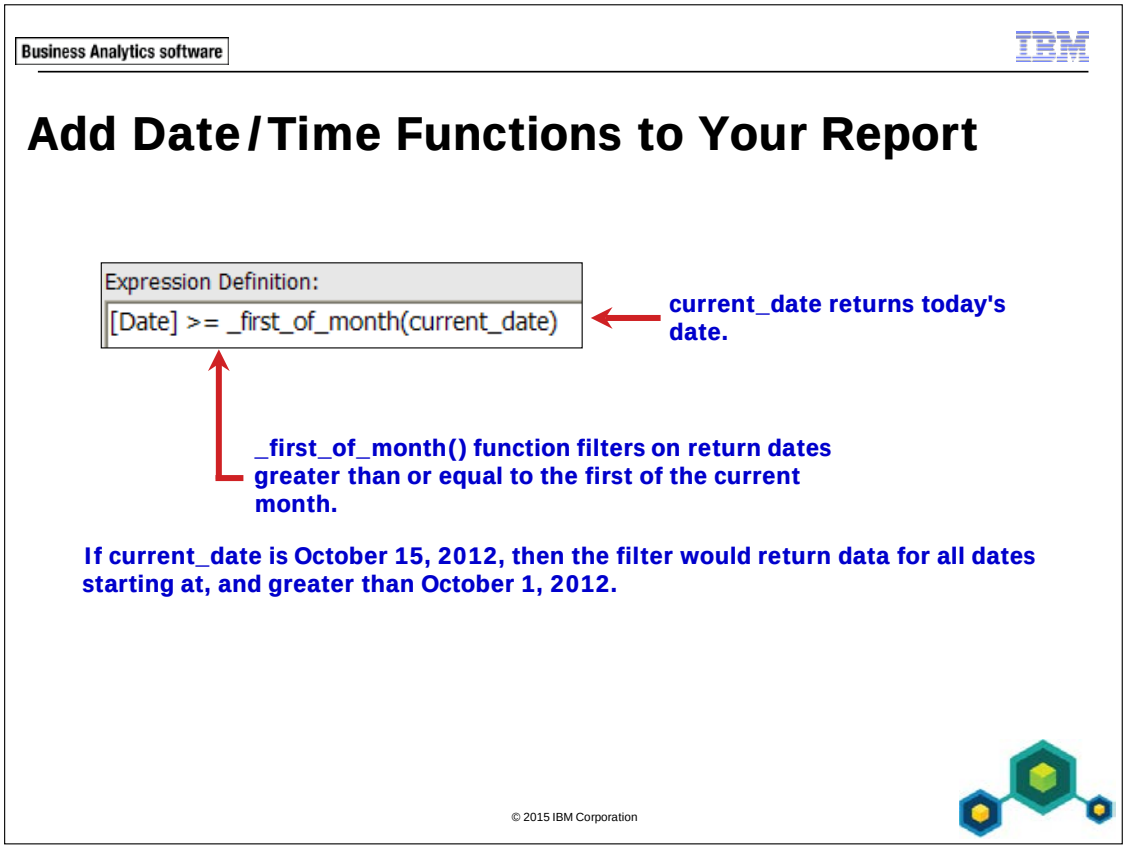
Create a calculated column to make a report more meaningful by deriving additional information from the data source. For example, you create an invoice report, and you want to see the total sale amount for each product ordered. Create a calculated column that multiplies the product price by the quantity ordered.

If an expression is used in multiple reports, or used by different report authors, ask your modeler to create the expression as a standalone object in the model and include it in the relevant package.

To build the expression use the:

- Source tab to find all query items available from the package.
- Data Items tab to find the query items currently found in your report.
- Functions tab to find operators, summaries, constants, and constructs to create the expression you want to display your customized data.

Parameters tab to find query items used for prompts and parameters within the report.



Use date and time functions in calculations and filters to query on specific dates and times in your report.

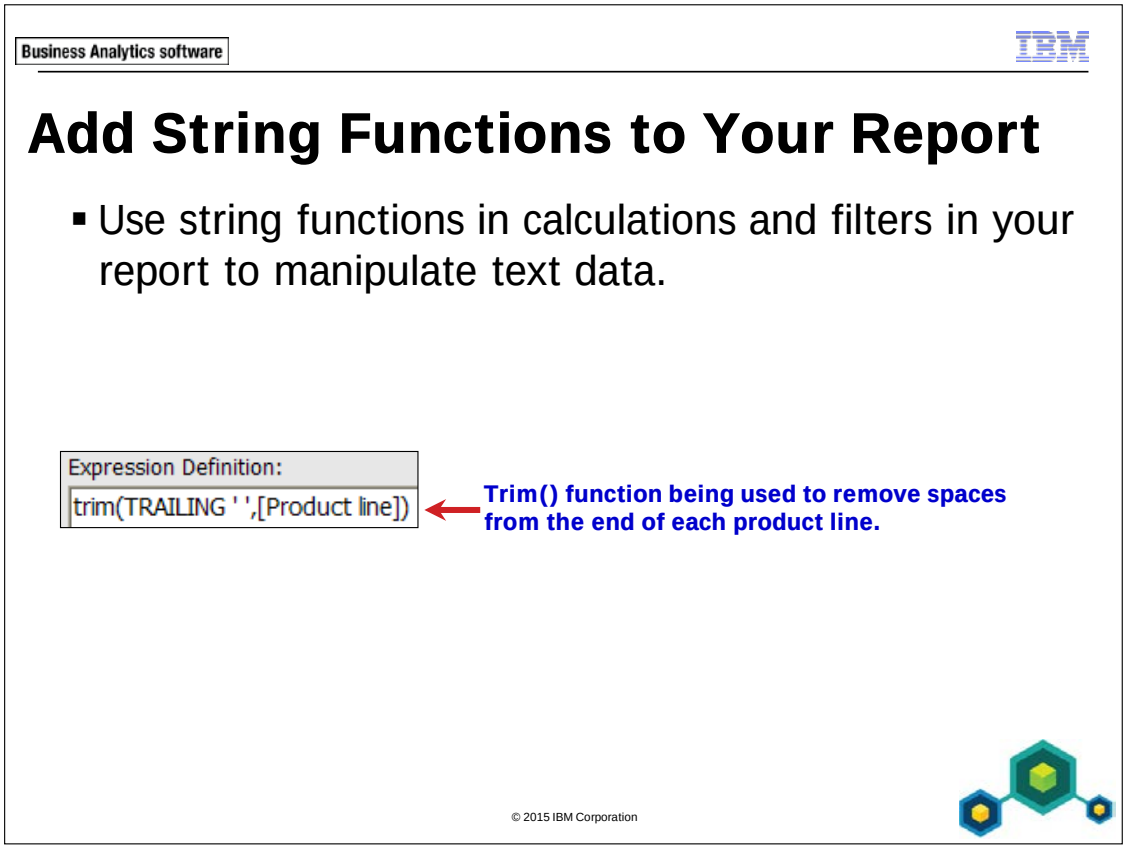
Date/Time functions can be used to build dates, modify existing dates or to filter the report for specific dates.

A useful date/time function is the extract() function which returns an integer representing the value of datepart (year, month, day, hour, minute, second) in your datetime expression.

Date/Time functions can be found under the Business Date/Time Functions folder, Vendor Specific Functions folder or the Common Functions folder. If you are going to use vendor specific functions, ensure that they are specific to the database that is currently being queried.

Not all data sources support functions the same way. The data modeler can set a quality of service indicator (icon appearing beside some functions) on functions to give a visual clue about the behavior of the functions. Report authors can use the quality of service indicators to determine which functions to use in a report. The quality of service indicators are:

- (**X**) not available -This function is not available for any data sources in the package.
- (**!!**) limited availability -The function is not available for some data sources in the package.
- (**!**) poor performance -The function is available for all data sources in the package but may have poor performance in some data sources.
- (**no symbol**) unconstrained -The function is available for all data sources.



Use string functions in calculations and filters in your report to manipulate text data..

Some examples of string functions include:

- **substring()** function to return part of a string
- **trim()** function removes specific characters from the beginning or end of a specific text data item
- **upper()** function changes the text returned to be in uppercase
- **lower()** function changes the text returned to be in lowercase

String functions can be found under the Common Functions folder, or Vendor Specific Functions folder. For the above slide, if a user entered 'Golf Equipment '(with a space at the end) into the database, the report author would get unexpected results if they queried the database and was doing a comparison against 'Golf Equipment' (without a space at the end). This is a real world example where the trim() function should be used to remove trailing spaces before doing a comparison.

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Demo 1

- Add Calculations to a Report

Sales Figures for January 2010

Report run by: Frank Bretton

Date	Product line	Revenue	Planned revenue	Percent of Goal
Jan 12, 2010	Camping Equipment	20,217,372.98	21,714,739.59	93%
Jan 12, 2010	Golf Equipment	9,141,599.89	9,815,894.17	93%
Jan 12, 2010	Outdoor Protection	2,263,380.47	2,393,032.12	95%
Jan 12, 2010	Personal Accessories	7,414,443.06	7,797,859.04	95%
Jan 13, 2010	Camping Equipment	5,000,710.6	5,350,515.31	93%
Jan 13, 2010	Golf Equipment	2,536,524.65	2,723,837.61	93%
Jan 13, 2010	Outdoor Protection	474,025.75	496,960.85	95%
Jan 13, 2010	Personal Accessories	3,477,197.59	3,586,395.95	97%
Jan 14, 2010	Camping Equipment	633,110.2	674,140.61	94%

Demo 1: Add Calculations to a Report

Purpose:
You have been asked to create a report that will return revenue and planned revenue for product lines for January 2010. In addition to looking at actual revenue versus planned revenue, users want to see a percentage for how much of the planned revenue was met. The report should also display the date that the report is run.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type: **List**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the list and include a calculated column for percent of goal.

1. Open a new **List** template without saving any previous reports.
2. From the **Source** tab, add the following query items to the new list report object:
   - Time: **Date**
   - Products: **Product line**
   - Sales fact: **Revenue**, **Planned revenue**

Date	Product line	Revenue	Planned revenue
<Date>	<Product line>	<Revenue>	<Planned revenue>

3. From the **Toolbox** tab drag a **Query Calculation** as the last column.
   The Data Item Expression dialog box appears.

4. In the **Name** box, type **Percent of Goal**, then create and validate the following expression:

   [Revenue]/[Planned revenue]

   Hint:

   - Drag Revenue and Planned Revenue form the Data Items tab.

5. Click **OK**.

   This column will show the percentage of revenue achieved for each product line on each day.

Task 2. Add a detail filter to filter dates.

1. On the toolbar, click **Filters**, **Edit Filters**, and then click **Add**.
2. Click **Advanced**, and then **OK**.
3. Create and validate the following expression:

   [Date] between _first_of_month(2010-01-01) and _last_of_month (2010-03-20)

   Hint:

   - Drag Date from the Data Items tab.

   This filter will return dates between January 1 2010 and March 31 2010 (First quarter of 2010). The _first_of_month() function returns the first day of the month in the date expression, while the _last_of_month() function returns the last day of the month in the date expression. You can use any date for the expression as long as it's in the proper format and it contains data. Make sure that there is a space between each function.

4. Click **OK** to close the **Expression** dialog box, and then click **OK** to close the **Filters** dialog box.

Task 3. Format the data in the list.

1. In the work area, click the **<Date>** list column body.
2. On the toolbar, click **Sort**, and then click **Ascending**.
3. Click the **<Percent of Goal>** list column body.
4. In the **Properties** pane, under **Data**, double-click **Data Format**.
5. In the **Format type** list, click **Percent**, in the **Percentage Symbol** property, click the % sign, and then click **OK**.
6. With **Percent of Goal** still selected, on the toolbar, click **Summarize** and then click **Calculated**.

   Calculated is applied if the data item expression:

   - contains a summary function
   - is an if then else or case expression that contains a reference to at least a modeled measure in its condition
   - contains a reference to a model calculation or to a measure that has the Regular Aggregate property set to a value other than Unsupported
   - contains a reference to at least one data item that has the Rollup Aggregate Function property set to a value other than None

Task 4. Add run-time information to the report.

You want to display the run date of the report under the title of the report.

1. Double-click the report title and type: **2010-First Quarter Sales Figures and Overall Calculated Percent of Goal** and then click **OK**.
2. Click the header block and then on the toolbar, click **Left**.
3. From the **Toolbox** tab, drag a **Text item** under the block in the header, type **Report run date:** press the spacebar, and then click **OK**.
4. From the **Toolbox** tab, drag a **Layout Calculation** to the right of the text item.

5. Create and Validate the following expression:
   AsOfDate()
   Hint:
   - Drag AsOfDate from the functions Tab/Report Functions folder.
6. Click **OK**.
7. On the toolbar, click **Run Report**.
   A section of the results appear as follows:

2010-First Quarter Sales Figures and Overall Calculated Percent of Goal

Report run date: Sep 4, 2014

Date	Product line	Revenue	Planned revenue	Percent of Goal
Jan 12, 2010	Camping Equipment	20,217,372.98	21,714,739.59	93%
Jan 12, 2010	Golf Equipment	9,141,599.89	9,815,894.17	93%
Jan 12, 2010	Outdoor Protection	2,263,380.47	2,393,032.12	95%
Jan 12, 2010	Personal Accessories	7,414,443.06	7,797,859.04	95%
Jan 13, 2010	Camping Equipment	5,000,710.6	5,350,515.31	93%
Jan 13, 2010	Golf Equipment	2,536,524.65	2,723,837.61	93%
Jan 13, 2010	Outdoor Protection	474,025.75	496,960.85	95%
Jan 13, 2010	Personal Accessories	3,477,197.59	3,586,395.95	97%
Jan 14, 2010	Camping Equipment	633,110.2	674,140.61	94%
Jan 14, 2010	Golf Equipment	388,795.27	416,145.37	93%
Jan 14, 2010	Outdoor Protection	91,322.21	95,966.85	95%
Jan 14, 2010	Personal Accessories	2,118,932.8	2,146,163.5	99%

8. Click **Bottom** to see that the report includes all of the months of the first quarter. And the overall, calculated percent of goal.
9. Close **IBM Cognos Viewer**.
10. Double-click the **<Percent of Goal>** list column body to open the expression dialog box.
11. Overwrite the current expression using query items from the **Source** tab as follows: **[Sales (query)].[Sales fact].[Revenue]/[Sales (query)].[Sales fact].[Planned revenue]**
12. Validate and then click **OK**.

13. On the toolbar, click **Run Report**.

    The results appear as follows:

Date	Product line	Revenue	Planned revenue	Percent of Goal
Jan 12, 2010	Camping Equipment	20,217,372.98	21,714,739.59	66,858%
Jan 12, 2010	Golf Equipment	9,141,599.89	9,815,894.17	24,356%
Jan 12, 2010	Outdoor Protection	2,263,380.47	2,393,032.12	25,745%
Jan 12, 2010	Personal Accessories	7,414,443.06	7,797,859.04	80,525%
Jan 13, 2010	Camping Equipment	5,000,710.6	5,350,515.31	20,130%
Jan 13, 2010	Golf Equipment	2,536,524.65	2,723,837.61	7,577%
Jan 13, 2010	Outdoor Protection	474,025.75	496,960.85	6,954%

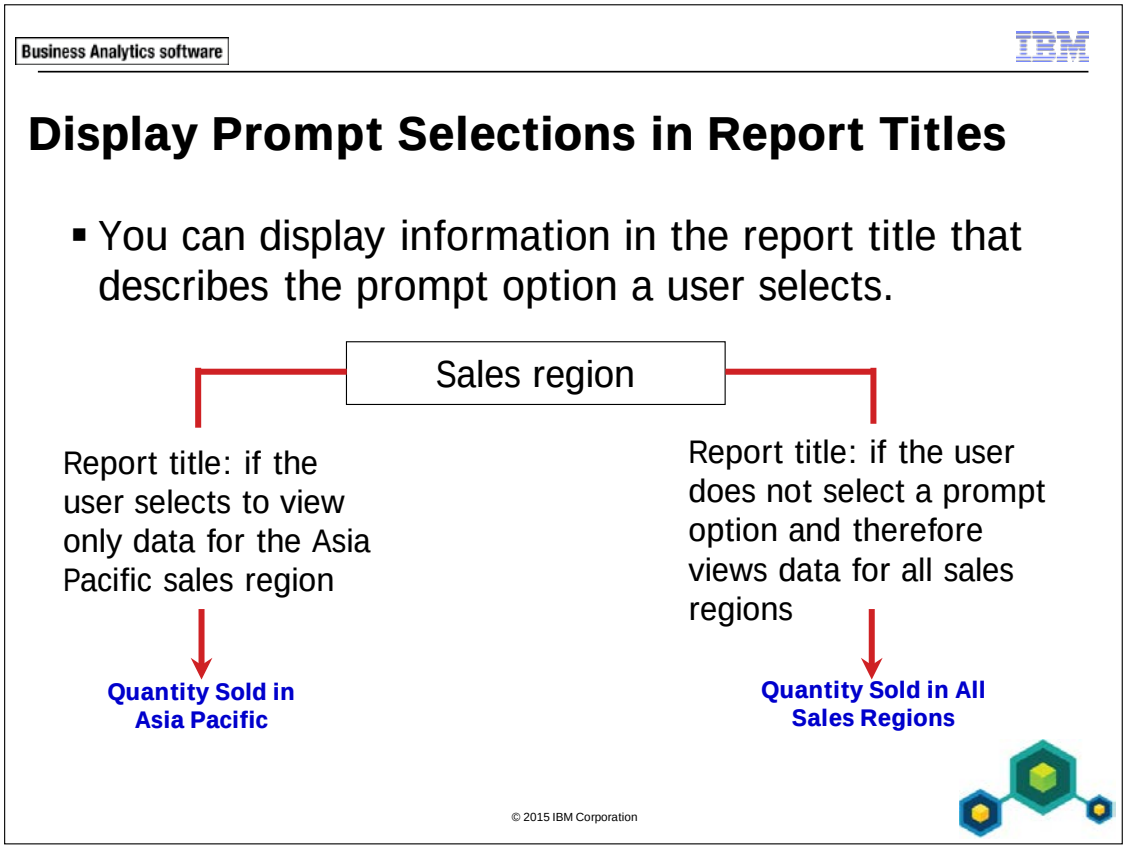
    The calculations do not match because the timing of the aggregation is different.

14. Close **IBM Cognos Viewer**.
15. Click **<Percent of Goal>** list column body.
16. In the **Properties** pane, under the **Data Item** section, change the **Aggregate Function** to **Calculated**.
17. On the toolbar, click **Run Report**.

    Now the expression returns the same results as the previous expression.

18. Close **IBM Cognos** Viewer.
19. Leave **Report Studio** open for the next demo.

Results:
You created a report to show revenue and planned revenue and the percentage of planned revenue that was achieved for product lines for the first quarter of 2010. You also included the date when the report was run.



To display the selected prompt option in the report title, add a layout calculation to the report title that returns a different value depending on the prompt option a user selects.

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Demo 2

- Display Prompt Selections in the Report Title

Quantity Sold in Asia Pacific

Quantity		2010	2011	2012	2013
PERSONAL ACCESSORIES	Binoculars	43,340	45,626	62,144	49,788
	Eyewear	22,252	50,760	79,760	69,607
	Knives	396,185	275,620	388,653	307,093
	Navigation	117,074	84,358	107,223	113,107
	Watches	33,936	46,015	60,211	44,995
	PERSONAL ACCESSORIES	**612,787**	**502,379**	**697,991**	**584,590**
MOUNTAINEERING EQUIPMENT	Climbing Accessories		410,155	526,482	573,585
	Rope		30,530	45,981	38,024
	Safety		85,114	104,518	87,855
	Tools		187,255	245,019	236,781
	MOUNTAINEERING EQUIPMENT		**713,054**	**922,000**	**936,245**

Demo 2: Display Prompt Selections in the Report Title

Purpose:
You have been asked for a report that displays the quantity of products sold for each order year. You also need to display all product lines in uppercase. The report should contain an optional prompt that lets users view data by sales region. Add a report title that indicates which sales region users select in the prompt. It should also indicate if they do not select a region as well. You will use a layout calculation to display the report title.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type: **Crosstab**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the crosstab and edit the expression to return product line values in uppercase.

1. Open a new **Crosstab** template without saving the previous report.
2. From the **Source** tab, add the following query items to the new crosstab report object:
   - **Rows** area:
     - Products: **Product line**
     - **Product type** (nested to the right of Product line)
   - **Columns** area:
     - Time: **Year**
   - **Measures** area:
     - Sales fact: **Quantity**

Quantity		<#Year#>	<#Year#>
<#Product line#>	<#Product type#>	<#1234#>	<#1234#>

3. Click the **<#Product type#>** crosstab node member, from the toolbar click **Summarize**, and then click **Total**.
4. On the crosstab click **Total**, in the **Properties** pane, under **Text Source**, **Source Type**, click **Data Item Label**, and then click **Data Item Value** from the list.
5. In the **Properties** pane, under **Text Source**, click **Total (Product type)**, and then click **Product line** form the list.
6. In the crosstab, double-click <#**Product line#>**.
7. Update and validate the existing expression as follows:

   upper([Sales (query)].[Products].[Product line])
8. Click **OK**.

   You will add an optional filter containing a parameter that lets users specify the sales region for which they want to view data.

Task 2. Add an optional parameter.

1. On the toolbar, click **Filters**, **Edit Filters**, ensure the **Detail Filters** tab is selected, click **Add**, click **Advanced**, and then click **OK**.
2. From the **Available Components** pane, expand the **Sales and Marketing** folder, expand **Sales (query)**, and then expand **Employee by region**.
3. Create and validate the following expression: (Validate using Americas)

   [Sales (query)].[Employee by region].[Branch region]=?Region?
4. Click **OK** to close the validation dialog box, and then **OK** to close the **Expression** dialog box.
5. In the **Filters** dialog box, with the filter you just added selected, click **Optional**, and then click **OK**.

   You will run this report to test the prompt.

6. On the toolbar, click **Run Report**.
7. In the **Branch region** prompt, click **Asia Pacific**, and then click **OK**.

   The results (with Product line highlighted) appear as follows:

Quantity		2010	2011	2012	2013
PERSONAL ACCESSORIES	Binoculars	43,340	45,626	62,144	49,788
	Eyewear	22,252	50,760	79,760	69,607
	Knives	396,185	275,620	388,653	307,093
	Navigation	117,074	84,358	107,223	113,107
	Watches	33,936	46,015	60,211	44,995
	PERSONAL ACCESSORIES	**612,787**	**502,379**	**697,991**	**584,590**
MOUNTAINEERING EQUIPMENT	Climbing Accessories		410,155	526,482	573,585
	Rope		30,530	45,981	38,024
	Safety		85,114	104,518	87,855
	Tools		187,255	245,019	236,781
	MOUNTAINEERING EQUIPMENT		**713,054**	**922,000**	**936,245**

   The report displays data only for the Asia Pacific region.

   Notice that the Total line caption now reflects the product line that it summarizes and that all Product line titles are uppercase.
8. Close **IBM Cognos Viewer**.

Task 3. Display the parameter value in the report title.

To give this report some context, you want the region selected to appear in the report title. If no region is selected, you want the report title to indicate that the data displayed represents quantity sold in all regions.

1. On the report page, double-click the report title text, type **Quantity Sold in** press the spacebar, and then click **OK**.
2. Click the header block, and then on the toolbar, click **Left**.

   You will create a layout calculation to display the prompt option selected in the report title.
3. From the **Toolbox** tab, drag a **Layout Calculation** object to the end of the report title.

   You will create an expression that specifies that if a parameter value is selected, the layout calculation should show the display value for the selected parameter value. Otherwise, the layout calculation should show All Regions.
4. Create and validate the following expression:

   if(ParamDisplayValue('Region')<> ' ') then (ParamDisplayValue('Region')) else 'All Regions'

   Hint: ParamDisplayValue('Region') is found on the parameter tab.

   The empty quotes represent no display value. This will be the case when the prompt is optional and the user does not select anything.
5. Click **OK** to close the dialog box.

   You will format the layout calculation text to look like the report title text.
6. Click the report title block, and then on the toolbar, click **Pick up Style**  .
7. Click the layout calculation block, and then on the toolbar, click **Apply Style**  .

Task 4. Test the prompt.

1. On the toolbar, click **Run Report**.
2. On the prompt page, in **Provide a value**, click **Branch region**, and then click **OK** to run the report without selecting a prompt option.

   A section of the results appear as follows:

Quantity Sold in All Regions

Quantity		2010	2011	2012	2013
PERSONAL ACCESSORIES	Binoculars	242,233	260,220	328,175	244,459
	Eyewear	4,066,410	5,180,407	6,354,258	4,710,321
	Knives	1,727,090	1,639,228	2,183,581	1,679,415
	Navigation	495,710	404,836	574,517	517,650
	Watches	1,040,896	1,082,666	1,265,484	910,149
	PERSONAL ACCESSORIES	**7,572,339**	**8,567,357**	**10,706,015**	**8,061,994**
MOUNTAINEERING EQUIPMENT	Climbing Accessories		1,571,481	2,101,101	2,177,669
	Rope		105,488	169,221	143,851
	Safety		311,141	437,813	386,240
	Tools		656,603	992,127	847,356
	MOUNTAINEERING EQUIPMENT		**2,644,713**	**3,700,262**	**3,555,116**

The report title explains that this report contains data about quantity sold in all regions.

3. In **IBM Cognos Viewer**, click **Run Report** to run the report again, and in the **Provide a value** prompt, click **Asia Pacific**, and then click **OK**.

   A section of the results appear as follows:

Quantity Sold in Asia Pacific

Quantity		2010	2011	2012	2013
PERSONAL ACCESSORIES	Binoculars	43,340	45,626	62,144	49,788
	Eyewear	22,252	50,760	79,760	69,607
	Knives	396,185	275,620	388,653	307,093
	Navigation	117,074	84,358	107,223	113,107
	Watches	33,936	46,015	60,211	44,995
	PERSONAL ACCESSORIES	**612,787**	**502,379**	**697,991**	**584,590**
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	Safety		85,114	104,518	87,855
	Tools		187,255	245,019	236,781
	MOUNTAINEERING EQUIPMENT		**713,054**	**922,000**	**936,245**

   The report title explains that this report contains data about quantity sold in Asia Pacific.

4. Close **IBM Cognos Viewer**.
5. Leave **Report Studio** open for the workshop.

Results:
You created a report that displays the quantity sold for products by order year. You also displayed all product lines in uppercase. Users have the option to select a region for which to view data. To add context to the report, the user's prompt selection appears in the report title, by using a layout calculation.

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Summary

- At the end of this module, you should be able to:
  - create calculations based on data in the data source
  - add run-time information to the reports
  - create expressions using functions

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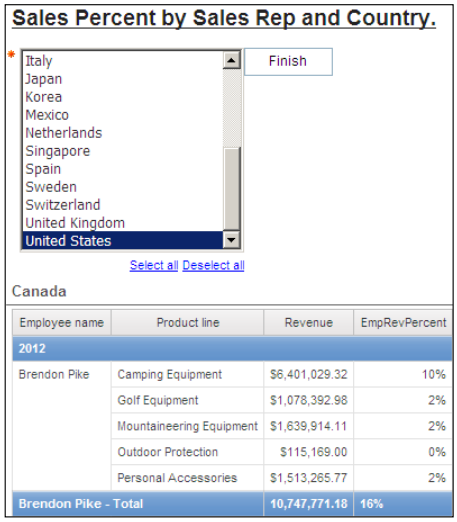
Workshop 1

- Sales Percent by Sales Rep and Country



Workshop 1: Sales Percent by Sales Rep and Country

Sales management would like to improve overall product line sales. To do this they need to start with a report that shows which product lines each salesperson tends to sell the most of. Sales management would like to be able to filter by specified year and country or countries.

To accomplish this:

- Open a new list template without saving the previous report.
- Add the following query items to the list report object:
  - Employee by region: Country
  - Employee by region: Employee name
  - Time: Year
  - Products: Product Line
  - Sales fact: Revenue
- Add a calculated column called EmpRevPercent.
- Group Country, Year and Employee Name,
- Create a header using Country
- Summarize the Revenue by Total and format the data as $(USD).
- Add an EmpRevPercent summary row and format as a percent.
- Format summary row to display the data item value.
- Create a Year parameter
- Add a prompt to allow users to focus on one or more countries.
- Add a report title
- Run the report and then focus on information for Canada and the United States, and for the year 2012.

For more information about where to work and the workshop results, refer to the Tasks and Results section that follows. If you need more information to complete a task, refer to earlier demos for detailed steps.

Workshop 1: Tasks and Results

Task 1. Create the list and add a calculated column.

- **Toolbar**: Open a new List template without saving the previous report.
- **Source tab**: Add Employee by Region: Country to the list report object.
  - Add Time: Year to the list report object.
  - Add Employee by Region: Employee name to the list report object.
  - Add Products: Product line to the list report object.
  - Add Sales fact: Revenue to the list report object.
- **Toolbox tab**: Create and validate the **EmpRevPercent** query calculation, and add it to the end of the list: **[Revenue]/Total([Revenue] for [Country])**.

  Note: You can retrieve the Total function from the Function tab, Summaries folder. You can also drag Revenue and Country from the Data Items tab.

  The results appear as follows:

Country	Year	Employee name	Product line	Revenue	EmpRevPercent
<Country>	<Year>	<Employee name>	<Product line>	<Revenue>	<EmpRevPercent>

Task 2. Group and summarize the report.

- **Toolbar**: Group **<Country>**, **<Year>** and **<Employee name>**.
  - Create a header using the **<Country>** column and delete the redundant list column body.
  - Summarize **<Revenue>** by **Total**.

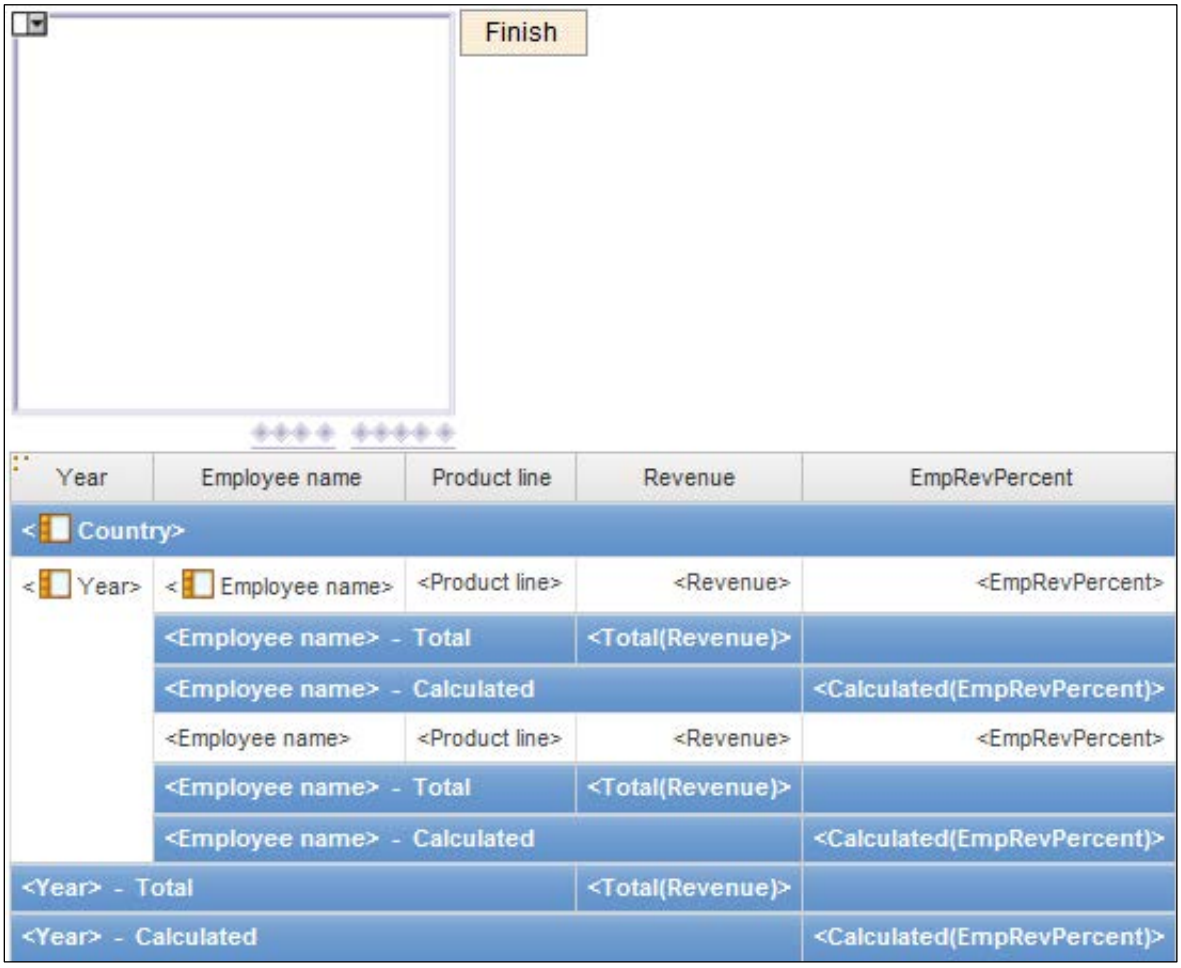
Task 3. Format the data.

- **Toolbar**: Format all of the **<Total(Revenue)>** summary cells for **$(USD) currency**.
  - Summarize the **<EmpRevPercent>** by **Calculated**.
  - Format all of the **<EmpRevPercent>** cells and **<Calculated(EmpRevPercent)>** summary cells for **Percent** (with **Percentage Symbol %**).

Task 4. Add a parameter and a prompt.

- **Toolbar**: Create and validate the following advanced filter expression: **[Year] =?Year?**.(Validate using 2012)
- **Toolbox tab**: To the left of the list report object, create a multi-select **Value Prompt**, named **Countries**, based on the **Country** query item.
  - Add a **Prompt Button** to the right of the value prompt.
- **Properties pane**: Change the Prompt button type to **Finish**.

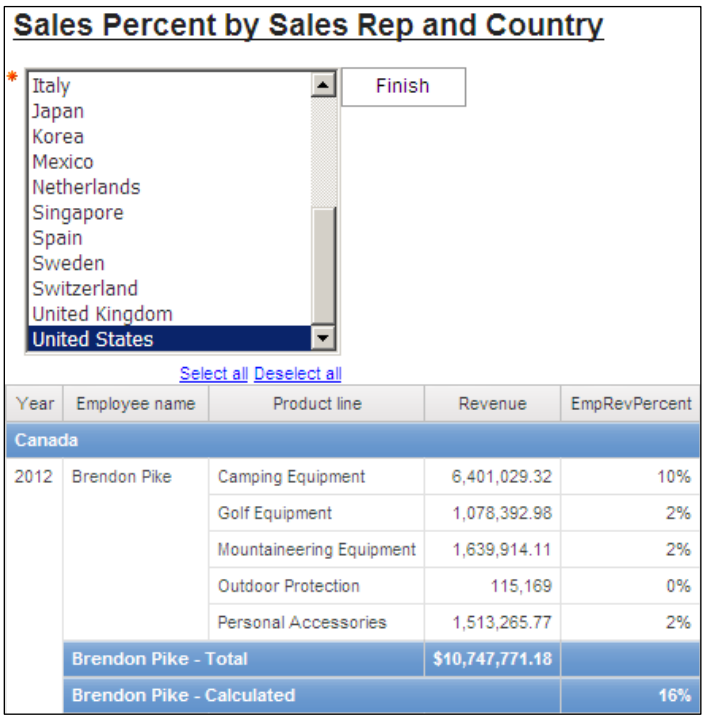
A section of the results appear as follows:



Task 5. Add a report title and run the report.

- **Work area**: Add the following title to the header block: **Sales Percent by Sales Rep and Country**.
- **Toolbar**: Left justify the header block.
  - Run the report.
- **Value Prompt**: Select **Canada** and **United States.**
- **Year Parameter**: Type **2012**.

The results appear as follows:



Year	Employee name	Product line	Revenue	EmpRevPercent
Canada				
2012	Brendon Pike	Camping Equipment	6,401,029.32	10%
		Golf Equipment	1,078,392.98	2%
		Mountaineering Equipment	1,639,914.11	2%
		Outdoor Protection	115,169	0%
		Personal Accessories	1,513,265.77	2%
	Brendon Pike - Total		$10,747,771.18	
	Brendon Pike - Calculated			16%

- Close **IBM Cognos Viewer**.
- Close **Report Studio**.
- Close the Web browser.

You have created report that shows which product lines each salesperson tends to sell the most of. The report is focused on a specified year and country or countries.

Additional Information: Some Common Functions

cast (expression , datatype_specification) Converts "expression" to a specified data type. Some data types allow for a length and precision to be specified. Make sure that the target is of the appropriate type and size

char_length (string_expression) Returns the number of logical characters in "string_expression". The number of logical characters can be distinct from the number of bytes in some East Asian locales.

current_date Returns a date value representing the current date of the computer that the database software runs on.

current_time Returns a time with time zone value, representing the current time of the computer that runs the database software if the database supports this function. Otherwise, it represents the current time of the computer that runs IBM® Cognos® BI software.

floor (numeric_expression) Returns the largest integer that is less than or equal to "numeric_expression".

localtime Returns a time value, representing the current time of the computer that runs the database software.

mod (integer_expression1, integer_expression2) Returns the remainder (modulus) of "integer_expression1.

position (string_expression1 , string_expression2) Returns the integer value representing the starting position.

substring (string_expression , integer_expression1 [, integer_expression2]) Returns the substring of "string_expression" that starts at position

trim ([[trailing|leading|both] [match_character_expression] ,] string_expression) Returns "string_expression" trimmed of leading and trailing blanks.

upper (string_expression) Returns "string_expression" with all lowercase characters converted to uppercase.

percentage (Returns the percent of the total value for selected data items.

total (Returns the total value of selected data items.

between Determines if a value falls in a given range.

Use Additional Report Building Techniques

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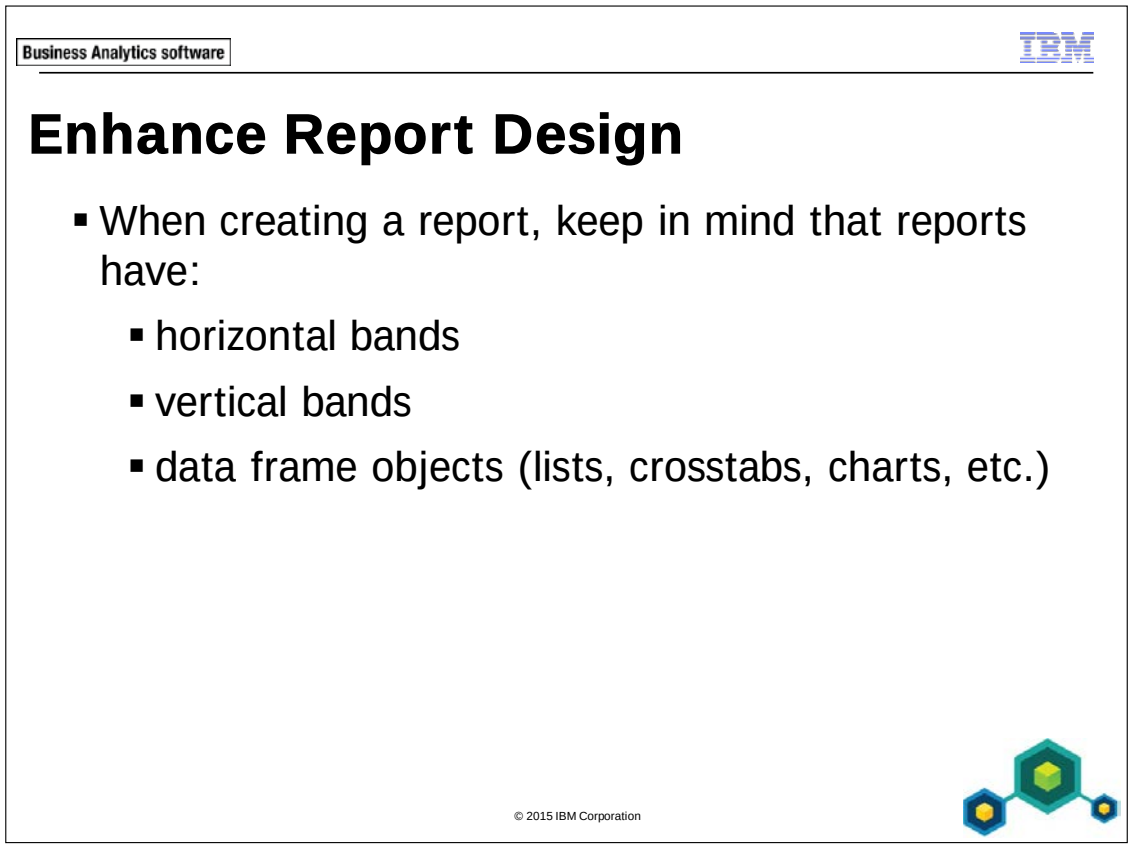
Objectives

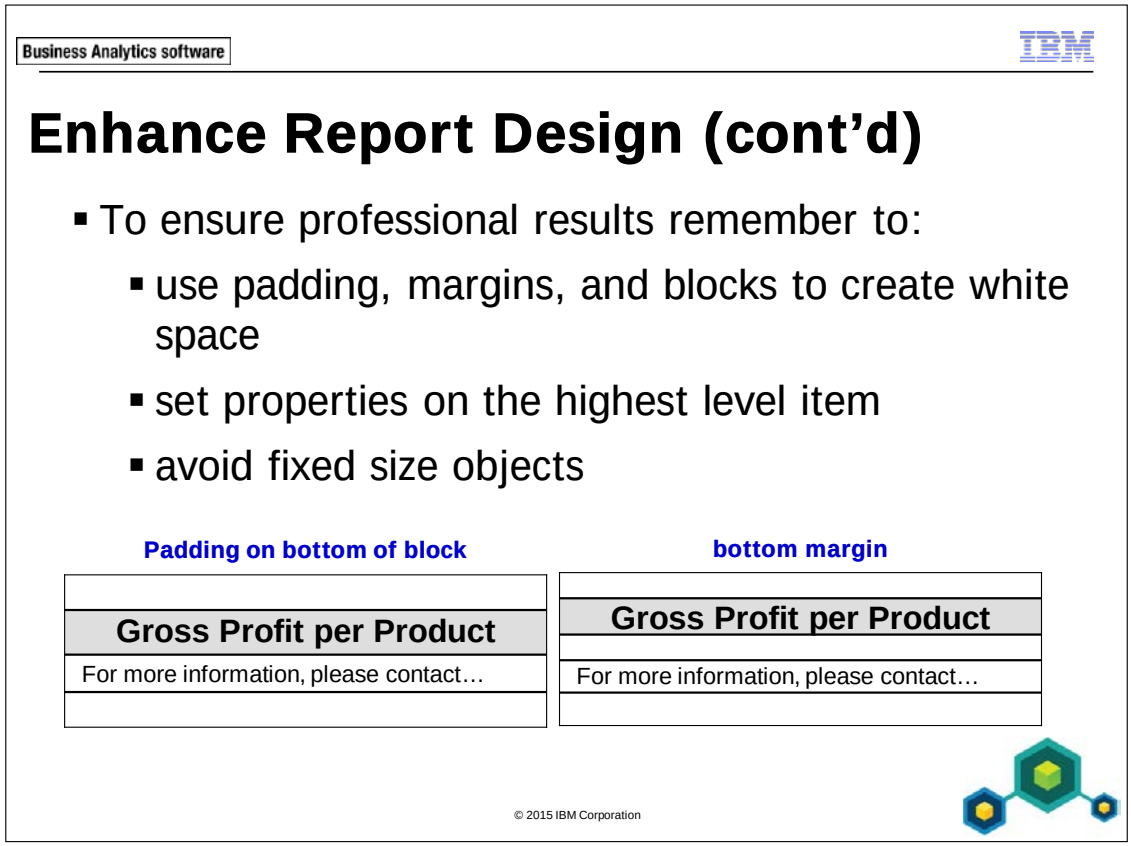
- At the end of this module, you should be able to:
  - enhance report design with report objects
  - reuse objects within the same report
  - share layout components among separate reports
  - discuss report templates
  - choose options to handle reports with no available data



When information runs in horizontal bands, use a block to hold the objects.

Reports may also have headers and footers. Determine what objects to use when building a report based on the kind of information you want to display, and how you want it to appear. If information applies to the entire report and you want it to appear on every page, place it in the header or footer.

When information runs vertically, such as text beside an image, use a table to organize the objects.



Properties applied to an object will also be applied to any child items; therefore, it is best to set styling properties at the highest level.

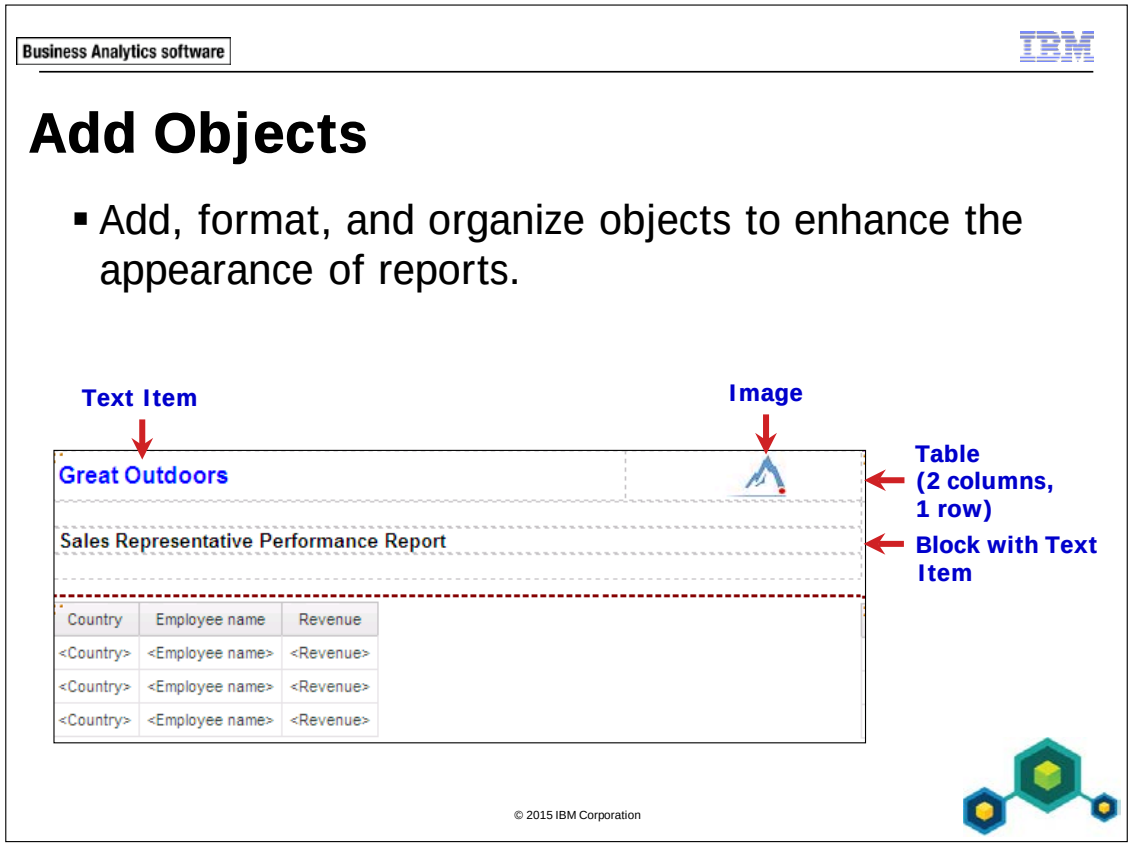
Avoid fixed size objects because they are rigid and may not work with your overall design.

An empty block does not add space between objects. The block must contain an object, or you must specify the padding of the block to use the block for spacing.

Property Inheritance is the passing of parent attributes to child items. Use the Select Ancestor button on the Properties pane title bar to help determine the level at which to apply settings.

Applying properties at the highest level saves time and effort. For example, if you set the font type for a list object then all items in the list or added to the list will inherit the same font.

If objects have borders, use margins to make the objects look spaced apart.



You can format items and objects to change their size, shape, location, and behavior according to your needs.

You can use text items to communicate relevant information about the report to its users.

You can add a background image to a data frame object like a list or crosstab, a cell in a table, or to the entire page. It is important to be aware that a background image can obscure the data in the report to some degree.

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Organize Objects Using Tables

- Add a table to a page to hold and organize objects such as titles, list, images, and charts.

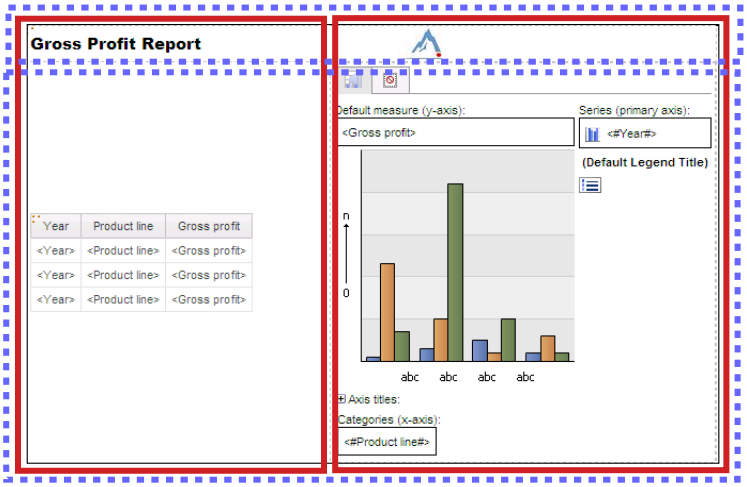
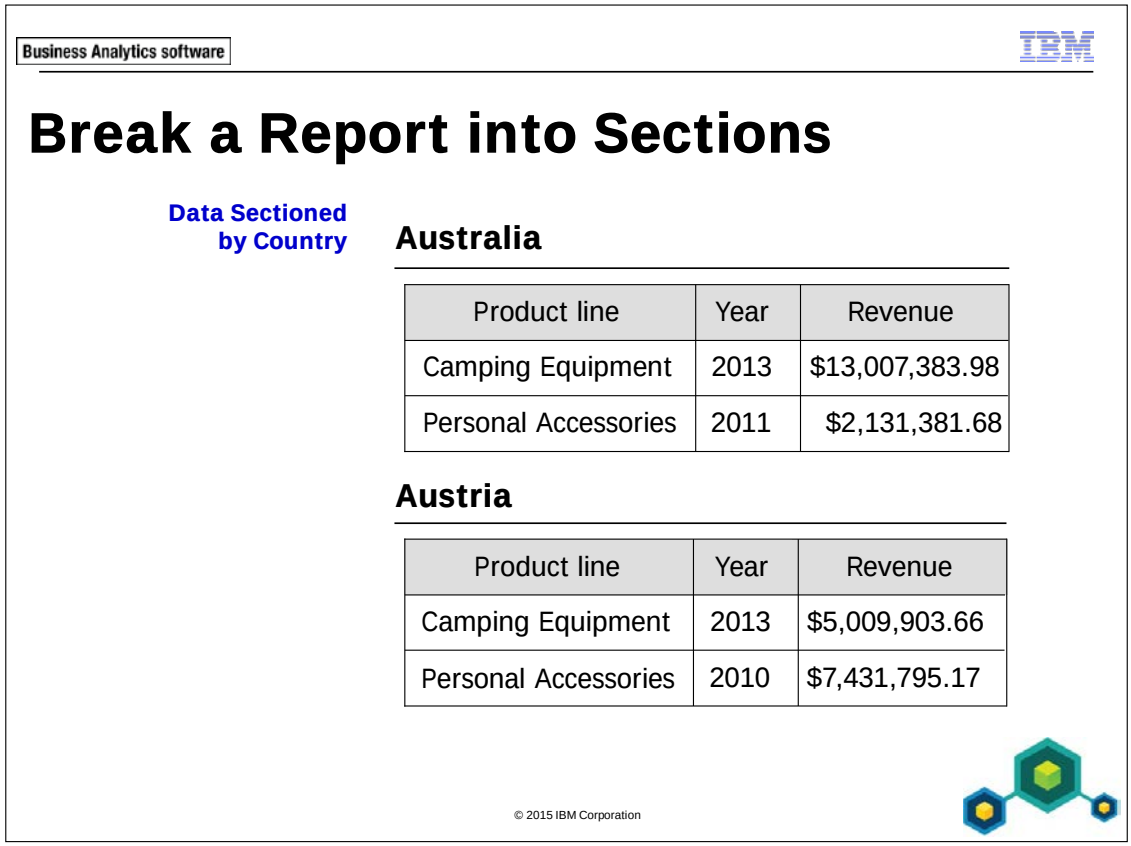


Table with 2 rows (-) and 2 columns (|)

You can use tables to assist with the spatial layout of report types and layout objects.

You need tables to control where objects are placed. Unlike some graphics software, you cannot place objects anywhere on the work area.



Create sections in a report to show grouped information in separate report objects. This makes information easier to locate, and lets you view data for one group of items at a time.

Creating sections is similar to grouping on a query item. The difference is that section headers and footers appear outside the list, crosstab, or chart.

Create separate lists, crosstabs, or charts for specific query items by creating a section header.

When you run the report, separate sections appear for each value.

To remove section headers or footers, click the header or footer, and then from the Structure menu, click List Headers & Footers. Clear the appropriate check boxes. The item will disappear from the report.

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Convert a List to a Crosstab

- Condense a report and view data from a different perspective by converting a list to a crosstab.

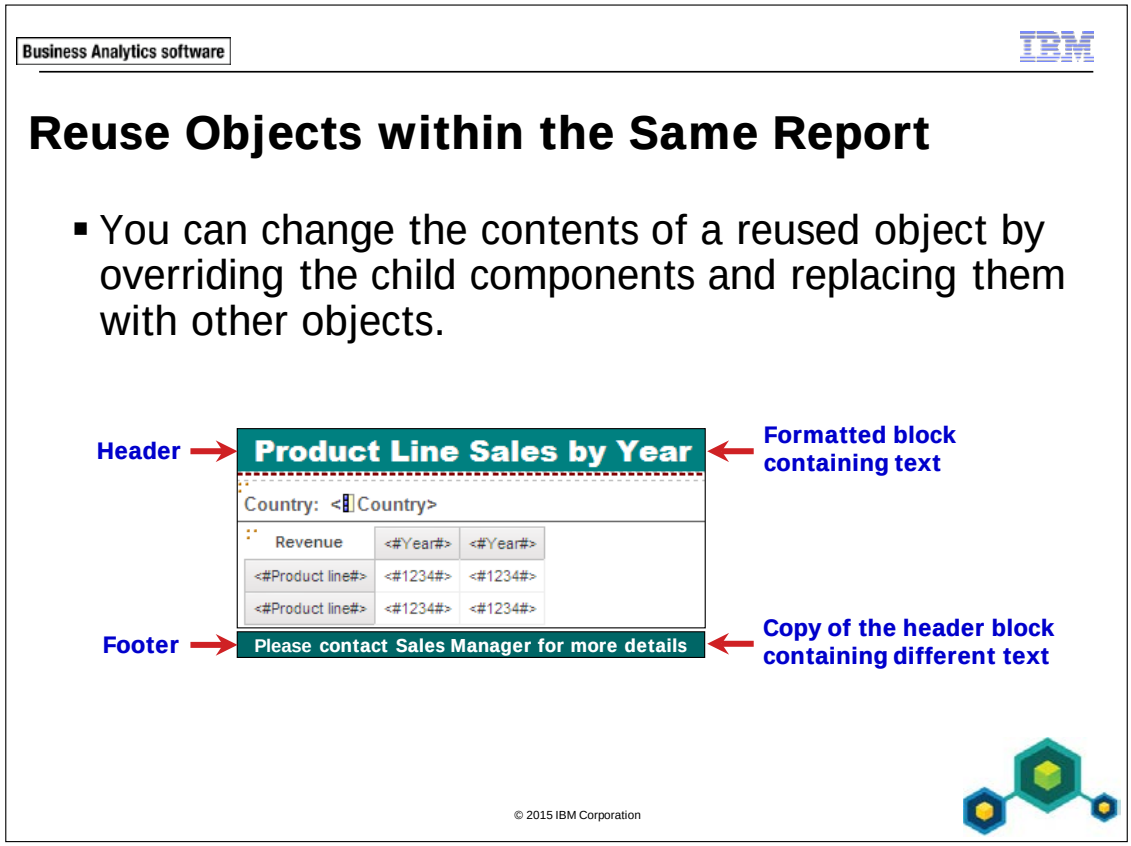
Convert a List Report to a Crosstab Report

Product line	Year	Revenue
<Product line>	<Year>	<Revenue>
<Product line>	<Year>	<Revenue>
<Product line>	<Year>	<Revenue>

Revenue	<#Year#>	<#Year#>
<#Product line#>	<#1234#>	<#1234#>
<#Product line#>	<#1234#>	<#1234#>

The list columns you select become columns and nested columns in the crosstab, and the unselected columns become rows and nested rows.

If you have one measure, it becomes the cells of the crosstab. If you have more than one measure, then the measures will appear as columns.



If you reuse an object that contains other objects, you can replace the child objects with a different object to customize your report.

To change the contents of a reused object, you must override the child object using the Properties pane.

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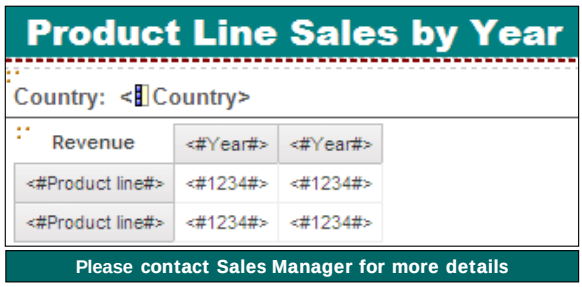
Demo 1

- Reuse Objects within the Same Report



Demo 1: Reuse Objects within the Same Report

Purpose:
You have been asked to add some descriptive information to a sectioned report. The report must include a title on each page describing the contents of the report, and information about whom to contact if users have any questions.

Portal:	**http://localhost:88/ibmcognos**
User/Password:	**brettonf/Education1**
Studio:	**Report Studio**
Package:	**Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type:	**Blank**
Folder:	**Sales and Marketing (query)**
Namespace:	**Sales (query)**

Task 1. Add a list to a blank page.

1. Open a new **Blank** report template without saving any previous reports.
2. From the **Toolbox** tab, drag a **List** report object onto the page, and then click **OK** to accept the **Object** and **Query Name** defaults.
3. From the **Source** tab, add the following query items to the new list report object:
   - Employee by region: **Country**
   - Products: **Product line**
   - Time: **Year**
   - Sales **fact**: **Revenue**

Country	Product line	Year	Revenue
<Country>	<Product line>	<Year>	<Revenue>

Task 2. Section data and convert to a crosstab.

1. Click the **<Country>** list column body, and then on the toolbar, click **Section**  .

   There is now a separate list displayed for each country.
2. On the toolbar, click **Run Report**.

   The report is sectioned at the Country level. However it is difficult to interpret.
3. Close **IBM Cognos Viewer**.
4. Click the **<Year>** list column body, on the toolbar, click **Pivot List to Crosstab**  , and then click **Run Report**.

   A section of the results appear as follows:

Country: Australia

Revenue	2011	2012	2013
Camping Equipment	9,752,591.01	19,175,957.2	13,007,383.98
Golf Equipment	4,094,643.54	8,482,438.67	6,502,474.22
Mountaineering Equipment	2,691,279.15	5,861,253.12	5,380,587.79
Outdoor Protection	600,956.77	367,636.38	171,750.41
Personal Accessories	2,131,381.68	5,081,517.25	4,261,477.85

Country: Austria

Revenue	2010	2011	2012	2013
Camping Equipment	7,431,795.17	9,163,419.93	13,471,100.17	9,731,648.11
Golf Equipment	3,411,617.12	4,465,999.47	6,234,620.98	5,009,903.66
Outdoor Protection	824,026.84	640,221.64	294,954.55	130,312.39
Personal Accessories	2,198,565.39	2,458,706.23	3,754,115.48	3,182,909.11
Mountaineering Equipment		2,615,339.21	4,594,176.48	3,926,993.16

   Because you selected Year before you converted the list into a crosstab, it now appears as columns. Product line appears on rows, and Revenue, because it can be aggregated, appears as measures on the report. You can now interpret the data more quickly.
5. Close **IBM Cognos Viewer**.

Task 3. Add a header and footer, and add objects to the header.

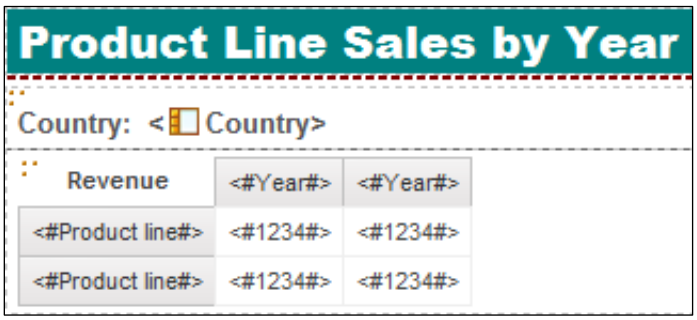
1. From the **Structure** menu, point to **Headers & Footers**, click **Page Header & Footer**, select the **Header** and **Footer** check boxes, and then click **OK**.
2. From the **Toolbox** tab, drag a **Block** into the page header.
3. Drag a **Text Item** to the block in the header, type **Product Line Sales by Year** and then click **OK**.

   You now want to format the objects you added to the header.

Task 4. Apply style to the header block and text.

1. Click the header block, on the toolbar, click the **Background Color**  arrow, and then click **Teal**.
2. In the header, click the text item to select it, and then on the toolbar, change the font to **Arial Black**, **16 pt**, with a **Foreground Color** of **White**.

   The result appears as follows:



   The report contains a header with the title that you specified. It has been formatted according to the properties you have set.

   You now want to reuse the objects that you created and formatted to avoid repeating steps in building the footer.

Task 5. Specify unique object names.

1. Click the header block, in the **Properties** pane, under **Miscellaneous**, in the **Name** property, type **Block**, and then press **Enter**.
2. Click the header text, in the **Properties** pane, under **Miscellaneous**, in the **Name** property, type **Text**, and then press **Enter**.

   If you try to assign a name that is not unique, Report Studio displays a warning message informing you that the name must be unique.

   If you select an element of the report, such as a column in a list, and want to deselect it, press Esc on your keyboard.

Task 6. Reuse the header block and change the text in the footer.

1. From the **Toolbox** tab, drag a **Layout Component Reference** into the footer.

   To reuse an object in the footer you need to specify the object to be referenced. You can choose from the two objects to which you have previously assigned names, as well as the list containing the crosstab. In this case, you will select the block object because it also contains the text item object.
2. Under **Available components to reference**, click **Block**, and then click **OK**.

   The footer now contains the same object and formatting as the header.
3. Click the text in the footer.

   In the Properties pane you can only select the layout component reference object and not the block or text item objects individually. This is because it is referencing the block object in the header. Remember, the block object in the header also contains the text item object.

   You want to change the text in the footer to contain contact information.

4. In the **Properties** pane, click **Overrides**, and then click the **ellipsis**.
5. In the **Overrides** dialog box, select the **Text** check box, and then click **OK**.

   The layout component reference object in the footer no longer contains text. Only the referenced block object remains.
6. Drag a **Text Item** into the **Component Override** area of the footer block, type **Please contact Sales Manager for more details**, and then click **OK**.
7. Click the text item object in the footer, and then change the font to **12 pt**, **Bold**, and a white foreground color.
8. On the toolbar, click **Run Report**, and then scroll down to view the footer.

   The results appear as follows:

   This is a simplified example of reusing report objects. This technique might be best for reusing an object with numerous format properties applied.

   You can also reuse objects between different reports. This will be discussed later in this module.
9. Close **IBM Cognos Viewer**.
10. Leave **Report Studio** open for the next demo.

Results:
You enhanced the Product Line Sales by Year report by adding a header and footer. To build the footer and to minimize your work, you reused objects from the header.

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Share Layout Components Among Separate Reports

- In Report Studio you can reuse layout components in different reports.
- You can choose to update shared layout objects manually or automatically.
- Be sure to name each layout component you want to reuse in other reports.
- Create a report containing all the objects you want to reuse in different reports, and then use it as an object library.

Instead of creating new layout components (such as page headers) for each report, you can create an object in one report and then reuse it in different reports. Reusing layout components saves you time and lets you apply standard company formatting to multiple reports.

By default, reused objects are automatically updated each time the report is run. This means that when you open or run a report containing a reused object, if the object has been changed in the source report, this change will automatically be applied in your report.

If you want a reused object to be updated manually instead of automatically, in the report where the object is reused, select the object, and then in the Properties pane, change the Embed property from Reference to Copy.

When you reuse a layout object in a different report, you can override child objects within this object (such as a text item in a page header object) if the child objects have been named in the source report.

Shared objects are stored in the layout component cache. The cache contains the definitions of the shared objects. When you open a report that contains layout component reference objects, the report(s) containing the shared layout objects is opened and the definitions are copied into the Report Studio cache. Object names cannot contain white space and must begin with a letter. When you override child objects, you can replace the child object with any other object, not just an object of the same type. For example, if the child object is a text item, you can replace it with an image.

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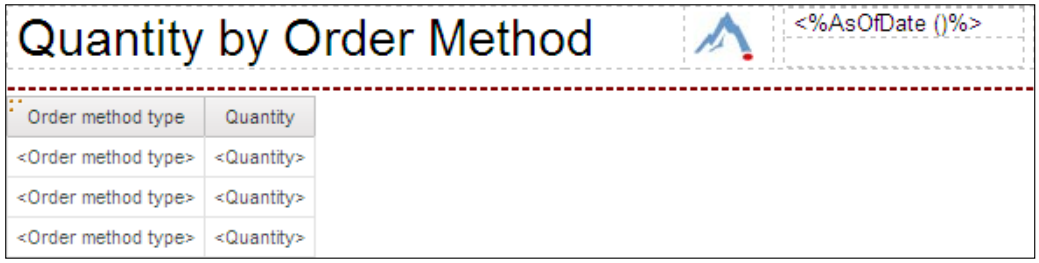
Demo 2

- Reuse Layout Components in a Different Report

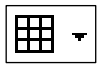


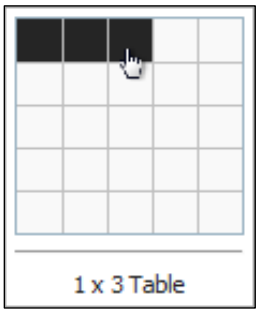
Demo 2: Reuse Layout Components in a Different Report

Purpose:
To save time when creating new reports, you will create one report containing a standard page header that can be used in many. Next, you will create one report that will reuse this page header.

Portal:	**http://localhost:88/ibmcognos**
User/Password:	**brettonf/Education1**
Studio:	**Report Studio**
Package:	**Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type:	**Blank**
Folder:	**Sales and Marketing (query)**
Namespace:	**Sales (query)**

Task 1. Create a report with a page header that can be reused in other reports.

1. Open a new **Blank** template without saving the previous report.
2. On the toolbar, click **Insert Table**  , and then create a **1 x 3 Table**, as shown below:



Because you want to reuse this table as a page header in other reports, you will name the table object.

3. Click the **Container selector** in the upper left cell to select the entire table.
4. In the **Properties** pane, under **Miscellaneous**, in the **Name** property, type **StandardPageHeader** and then press **Enter**.

   You want to add your company logo to the left side of the page header.
5. From the **Toolbox** tab, drag an **Image** object to the left cell of the table.
6. Click the **Image** object that you just added to the left cell, and then in the **Properties** pane, under **URL Source**, double-click the **URL** property.
7. In the **Image URL** dialog box, click **Browse**, navigate to **http://localhost:88/ibmcognos/samples/images**, and then click **go_logo_small.jpg**.
8. Click **OK** to close the **Image** dialog box, and then click **OK** to close the **Image browse** dialog box.

   You want to add a text item in the middle of the page header that can be used to add a report title.
9. From the **Toolbox** tab, drag a **Text Item** to the center cell of the table, and then click **OK** to close the **Text** dialog box.

   You will not specify the text to be used because this will be different for each report. You will name this text object so that it can be overridden when the page header is reused in other reports.
10. Click the **Text Item** you just added, in the **Properties** pane, under **Miscellaneous**, in the **Name** cell, type **ReportTitle**, and then press **Enter**.

Task 2. Add additional details to the page header and save the report.

You want to add date and time information to the report header.

1. From the **Toolbox** tab, drag a **Table** object to the right cell of the table.
2. In the **Number of columns** box, type **1**, in the **Number of rows** box, type **2**, and then click **OK**.
3. From the **Toolbox** tab, drag a **Layout Calculation** object to the top cell of the table you added in step 2.
4. In the **Report Expression** dialog box, click the **Functions** tab  , expand the **Report Functions** folder, and then drag **AsOfDate** to the **Expression Definition** pane.
5. Validate the expression, and then click **OK** to close the **Report Expression** dialog box.

   You want to add time stamp to appear in the bottom-right corner of the page header.
6. From the **Toolbox** tab, drag a second **Layout Calculation** object to the bottom cell of the table you added in step 2.
7. Click the **Functions** tab, expand **Report Functions**, and then drag **AsOfTime** to the **Expression Definition** pane.
8. Validate the expression, and then click **OK** to close the **Report Expression** dialog box.
9. From the **File** menu, click **Save**.
10. Navigate to **My Folders**, in the **Name** box, type **Layout Library**, and then click **Save**.

Task 3. Create a second report that reuses the standard page header.

1. On the toolbar, click **New**, click **List**, and then click **OK**.
2. In the page header, select the **Block** object, and then press **Delete**.
3. From the **Toolbox** tab, drag a **Layout Component Reference** object to the page header area.
4. In the **Component Reference** box, click **Another report**, click the **ellipsis**, and then navigate to **My Folders**.
5. Click **Layout Library**, and then click **Open**.
6. Under **Available components to reference**, click **StandardPageHeader**, and then click **OK**.

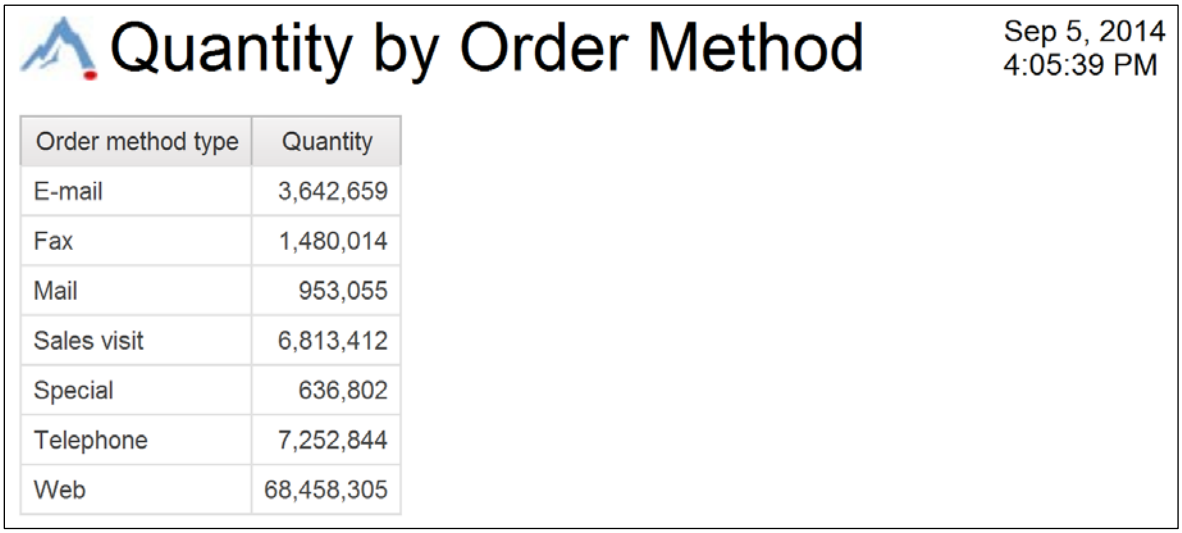
   The page header from the Layout Library report appears. You want to customize the report.
7. In the header, click the **Layout Component Reference** object, and then in the **Properties** pane, double-click the **Overrides** property.

   The Overrides dialog box appears. Because you gave the report title text object a distinct name, you can now override its contents in the shared page header.
8. Select the **ReportTitle** check box, and then click **OK**.
9. From the **Toolbox** tab, drag a **Text Item** to the **Component Override** area of the center cell of the header, in the **Text** dialog box, type **Quantity by Order Method** and then click **OK**.
10. Click the **Quantity by Order Method** title you just added, and then on the toolbar, change the font to **Arial**, and the size to **22 pt**.

Task 4. Add data to the list report and format the report.

1. From the **Source** tab, expand the **Sales and Marketing (query)** folder, and then expand the **Sales (query)** namespace.
2. Add the following query items to the list:
   - Order method: **Order method type**
   - Sales fact: **Quantity**
3. Save the report in the **My Folders** folder as **Quantity by Order Method**.
4. On the toolbar, click **Run Report**.

   The results appear as follows:



Quantity by Order Method

Sep 5, 2014
4:05:39 PM

Order method type	Quantity
E-mail	3,642,659
Fax	1,480,014
Mail	953,055
Sales visit	6,813,412
Special	636,802
Telephone	7,252,844
Web	68,458,305

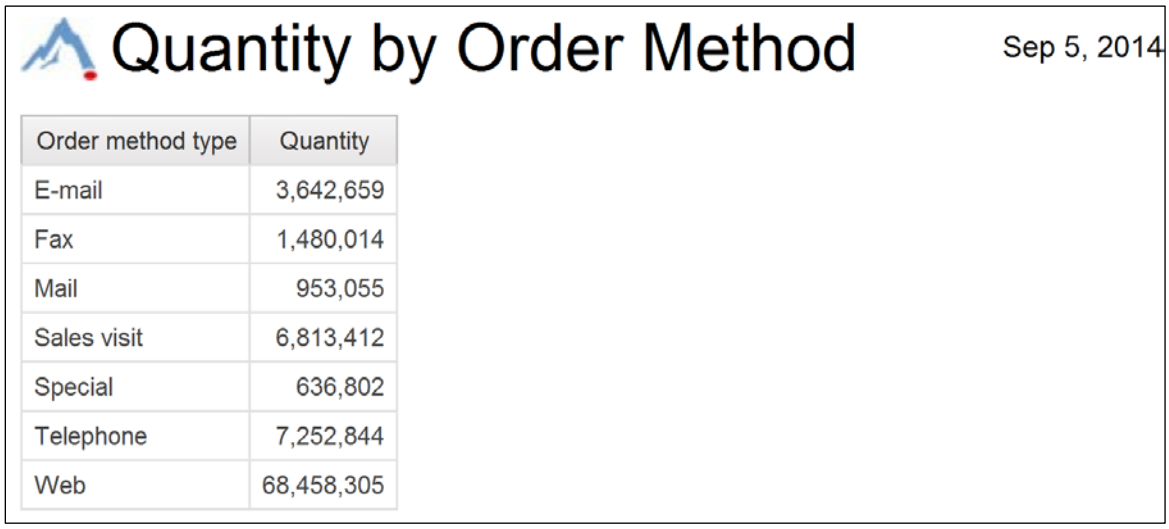
   The header you created in the Layout Library report displays the title that you added to this report.
5. Close **IBM Cognos Viewer**.

Task 5. Modify the shared page header and observe the results.

1. In the page header of the list report, click the **Layout Component Reference** object.

   In the Properties pane, the Embed property is set to Reference. This means any changes made to the shared page header in the Layout Library source report will be automatically applied in this report. You will now modify the shared page header in the source report.
2. Open the **Layout Library** report.
3. In the page header, click **AsOfTime()**, and then press **Delete**.
4. On the toolbar, click **Save**.
5. Open the **Quantity by Order Method** report from **My Folders**, and then on the toolbar, click **Run Report**.

   The result appears as shown below:


Quantity by Order Method

Sep 5, 2014

Order method type	Quantity
E-mail	3,642,659
Fax	1,480,014
Mail	953,055
Sales visit	6,813,412
Special	636,802
Telephone	7,252,844
Web	68,458,305

   The change that you made to the page header in the source report has automatically been applied to this shared page header, as seen in the top right corner.
6. Close **IBM Cognos Viewer**.

Task 6. Manually update changes to the shared page header.

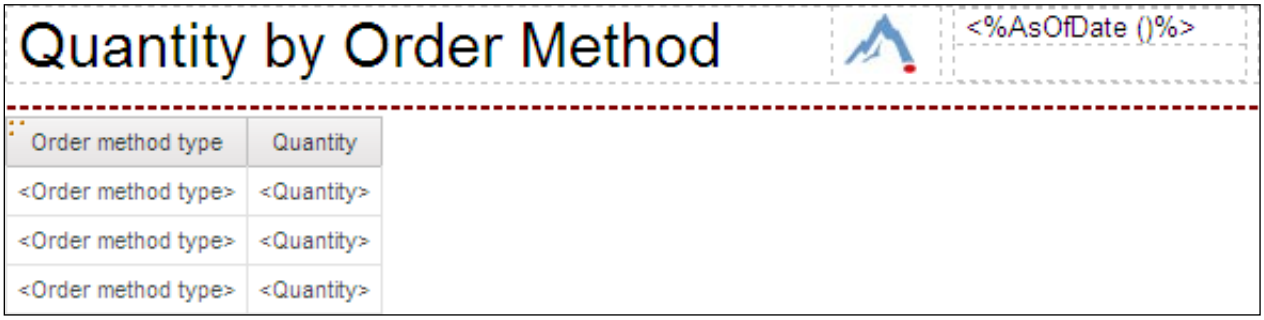
You decide you do not want changes to the page header in this report to be applied automatically when the header changes in the source (Layout Library) report.

1. In the **Quantity by Order Method** report, in the page header, click the **Layout Component Reference** object.
2. In the **Properties** pane, click the **Embed** property, and then in the list, click **Copy**.
3. Save the report.
4. Open the **Layout Library** report from **My Folders**.
5. In the page header, in the left cell, click and drag the **Image** object into the center cell of the table, to the right of the title.
6. In the table, in the center cell, click and drag the **Text** object into the left cell.
7. Save the report.
8. Open the **Quantity by Order Method** report from **My Folders**.

Although you switched the order of the image and text objects in the source report, this change is not reflected in the page header in this report. To make the page header in the Quantity by Order Method report consistent with the standard page header you created in the Layout Library report, you will now manually update the shared page header.

9. In the report, in the page header, right-click the **Layout Component Reference** object, and then click **Update Component Copy**.

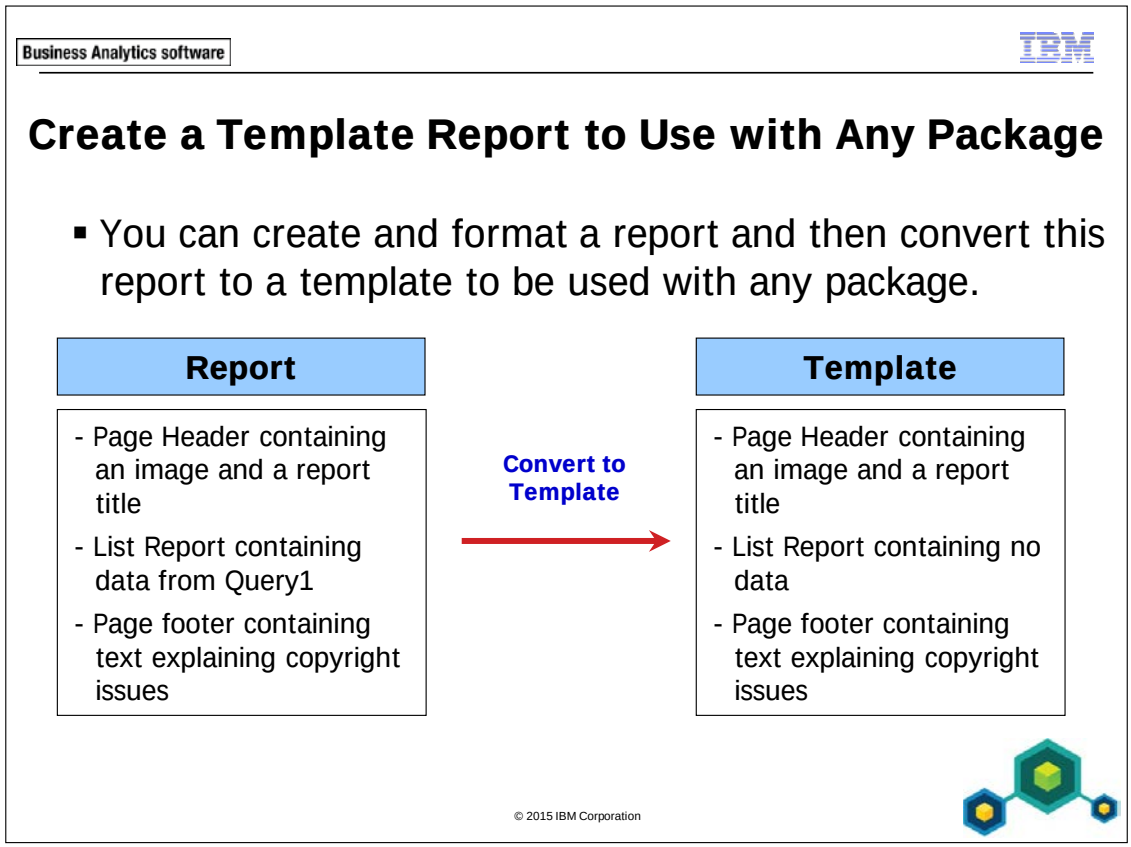
   The result appears as shown below:



   The page header is updated with the changes made in the Layout Library.

10. Leave **Report Studio** open for the next demo.

Results:
You created and reused a standard page header and then compared automatically and manually updating the reused page header when it changed in the source report.



To convert a report to a template, from the File menu, click Convert To Template.

When you convert a report to a template, Report Studio removes any query-related data from the report. For example, Report Studio will remove all data items, calculations, and filters.

Report Studio removes all query-related data so that the template can then be used with any package, rather than only with the package used to create the template.

After you convert a report to a template, the Source tab will not display any package data.

To create a report using a template, first open the package you require so this package data appears on the Source tab. Next, open the template and add data from the package you previously opened.

You can also click New from Template at the Report Studio welcome screen. This option allows you to access all available reports and automatically create a template based on the chosen report. Note that not all reports are suitable to be used as a template.

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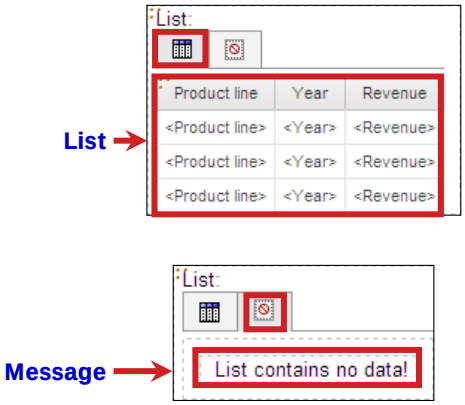
Handle Reports with No Data

- When a query returns no data, you can provide alternate content or remove the data frame from the report.



Each data frame has a property called No Data Contents. When this is set to Yes, a new frame appears that you can populate with a text message, or an alternate data frame, and so on.

Each data frame also has a Render Page when Empty property. When this property is set to No, the page does not render.

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Demo 3

- Explore Options for Reports that Contain No Data

Page 3 -Show Custom Message when No Data is Returned

List:
List contains no data!

Crosstab:
Crosstab contains no data!

Demo 3: Explore Options for Reports that Contain No Data

Purpose:
You want to create a report with three pages showing different methods of handling no data being returned. The first page will show default data handling, the second page will not display when the list is empty, and the third page will generate a custom message to replace the empty container.

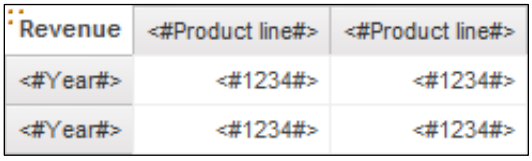
Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type: **List/Crosstab**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create a list and a crosstab.

1. Open a new List template without saving the previous report.
2. From the Source tab, add the following query items to the new list report object:
   - Products: **Product line**
   - Time: **Year**
   - Sales fact: **Revenue**

3. From the **Toolbox** tab, add a new crosstab report object below the list.
4. From the **Query Name** list, click **Query1**, and then click **OK**.

5. From the **Data Items** tab, add the following query items to the new crosstab:
   - **Rows** area:
     - Time: **Year**
   - **Column** area:
     - Products: **Product line**
   - **Measure** area:
     - Sales fact: **Revenue**



Revenue	<#Product line#>	<#Product line#>
<#Year#>	<#1234#>	<#1234#>
<#Year#>	<#1234#>	<#1234#>

6. From the **Toolbox** tab, drag a **Table** to the page below the crosstab.
7. Clear the **Maximize width** check box, and click **OK**.
8. Click the left table cell, and then in the **Properties** pane, under **Box**, double-click **Padding**.
9. In the **Right** box, type **10**, and then click **OK**.
10. Click the list **Container Selector** and drag the list into the left table cell.
11. Click the crosstab **Container Selector** and drag the crosstab into the right table cell.
12. From the **Toolbox** tab, drag a **Text Item** to the left of the list but within the **left** table cell.
13. Type **List:**, and then click **OK**.
14. From the **Toolbox** tab, drag a **Text Item** to the left of the crosstab, within the right table cell.
15. Type **Crosstab:** then click **OK**.
16. Click to the right of the text for the crosstab and then on the toolbar, click **Top**.

17. Double-click the text in the page header and type **Page 1 -Default Behavior**, and then click **OK**.
18. Click the **Block** to the right of the title text, and then on the toolbar, click **Left**.

    The results appear as follows:

Task 2. Add filters to your list and crosstab.

Both reporting objects are linked to Query1, so only one set of filters will be needed;

1. Click anywhere in the list, click **Filters**, and then click **Edit Filters**.
2. Click **Add**, click **Advanced**, and then click **OK**.
3. Create and validate the following expression:

   [Year] =?pyear?

   Validate using 2011.
4. Click **OK** to close the **Prompt** dialog box, and then click **OK** to close the **Expression** dialog box.
5. Create and validate another detail filter expression as follows:

   [Product line]=?ppline?

   Validate using Camping Equipment.
6. Click **OK** to close the **Prompt** dialog box, click **OK** to close the **Expression** dialog box and then click **OK** to close the **Filters** dialog box.

Task 3. Create additional pages.

1. On the **Explorer** bar, point to **Page Explorer**, and click **Report Pages**.
2. Right-click **Page1** and then click **Copy**.
3. Right-click in the **Report Pages** pane and then click **Paste** to create **Page2**.
4. Right-click in the **Report Pages** pane and then click **Paste** to create **Page3**.

Task 4. Configure a page that does not display when the list is empty.

You do not want page 2 to render when the list is empty.

1. Double-click **Page2**, highlight the text in the page header and type **Page 2 -Do Not Render Page if No Data is returned in the List**.
2. Click the list **Container Selector** to select the entire list.
3. From the **Property** pane, under **General**, set the **Render Page when Empty** property to **No**.

Task 5. Configure a page with a custom No Data Handler that replaces an empty container with a message.

You want to display a custom message when the list or crosstab is empty.

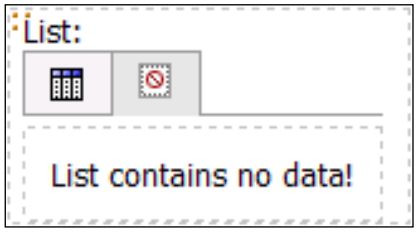
1. On the **Explorer** bar, point to **Page Explorer**, and then click **Page 3**.
2. Highlight the text in the page header and type **Page 3 -Show Custom Message when No Data is Returned**.
3. Click the list **Container Selector** to select the entire list.
4. From the **Property** pane, under **Conditional**, double-click the **No Data Contents** property.
5. Click the **Content specified in the No data tab** radio button, and then click **OK**.

   The No Data Contents property specifies whether to show the No Data Contents tab for the selected query frame. When set to Yes, you can specify on this tab what to show when there is no data. When set to No, the tab is hidden and the query frame reverts to the default behavior.

   Your list should now appear as follows with a new No Contents Data tab.

6. Highlight the text in the **No Contents Data** tab, and then type **List contains no data!**.

   The results appear as follows:



7. Click the crosstabs **Container Selector** to select the entire crosstab.
8. From the **Property** pane, under **Conditional**, double-click the **No Data Contents** property.
9. Click the **Content specified in the No data tab** radio button, and then click **OK**.
10. Highlight the text in the **No Contents Data** tab, and then type **Crosstab contains no data!**.

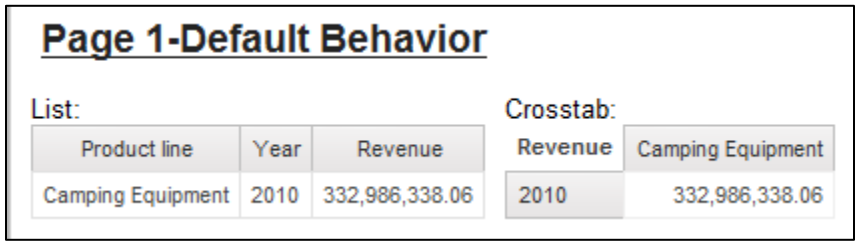
Task 6. Add a prompt page.

1. On the **Explorer** bar, point to **Page Explorer**, and then click **Prompt Pages**.
2. From the **Toolbox** tab, drag a **Page** to the **Prompt Pages** pane, and then double-click **Prompt Page1**.
3. Insert a **Table** of **2 rows** by **2 columns** into the work area.
4. Insert a **Text Item** in the top left cell, type **Select a Product Line:** press the space bar, and then click **OK**.
5. Insert a **Text Item** in the bottom left cell, type **Select a Year:** press the space bar, and then click **OK**.
6. Insert a **Value prompt** in the cell to the right of **Select a Product Line:**.
7. Select **Use existing parameter**, from the list, click **ppline**, click **Next**, and then click **Finish**.
8. Insert a **Value prompt** in the cell to the right of **Select a Year:**.
9. Select **Use existing parameter**, from the list, select **pyear**, click **Next**, and then click **Finish**.
10. Click the top left cell
11. In the **Properties** window, under **Positioning**, double-click **Size & Overflow**.
12. Type **150** for the **Width**, and then click **OK** to close the **Size & Overflow** dialog box.

Task 7. Run report displaying data, and with no data to display.

1. On the toolbar, click **Run Report**.
2. When prompted, next to **Select a Product Line** click **Camping Equipment**, next to **Select a Year**, click **2010**, and then click **Finish**.

   The results for page 1 appear as follows:



   Since all of the queries in this report are filtered by the same parameters, all lists and crosstabs on the three report pages should look the same when data is returned. The page numbers refer to the pages in Page Explorer and not in the HTML view

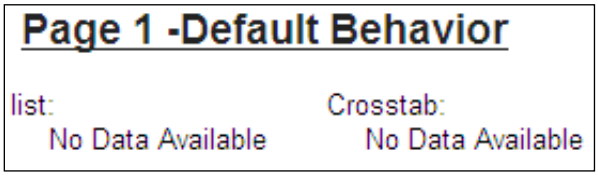
3. Click **Page Down** to see the **Page 2 -Do Not Render Page if No Data is Returned** in the **List** page.
4. Click **Page Down** to see the **Page 3 -Show Custom Message When No Data is Returned** page.

   Notice that all three pages appear with a list and crosstab in each.

5. In **IBM Cognos Viewer**, click **Run** to run the report again.

6. When prompted, select the product line **Mountaineering Equipment**, select the year **2010**, and then click **Finish**.

   The results for page 1 appear as follows:



   Notice how the individual pages are affected in the report since there is no data for 2010 for the product line Mountaineering Equipment.

   The first page shows default behavior for the list and crosstab when there is no data returned. The list only shows the column titles, where the crosstab is not even rendered.

7. Click **Page Down**.

   Notice that Page 2 -Do Not Render Page if No Data is Returned in the List page did not display at all. This list contains no data and the list property Render Page When Empty is set to No, so the page did not render. You are now looking at Page 3 -Show Custom Message When No Data is Returned page. Both the list and crosstab are showing the custom message you created when no data is returned.

   The results appear as follows:

8. Close **IBM Cognos Viewer**.
9. Leave **Report Studio** open for the workshop.

Results:
You created a report with three pages showing different methods of handling no data being returned. The first page showed default data handling, the second page did not display when the list was empty, and the third page generated a custom message to replace the empty container.

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Summary

- At the end of this module, you should be able to:
  - enhance report design with report objects
  - reuse objects within the same report
  - share layout components among separate reports
  - discuss report templates
  - choose options to handle reports with no available data

Business Analytics software

Workshop 1

- Analyze Product Quantities Sold by Month

Workshop 1: Analyze Product Quantities Sold by Month

The Production Department has asked you to prepare a report that shows the quantity of products sold in each month of 2012 for all product lines, to help estimate production requirements for next year. The report must be broken into separate sections for each product line so that products from each line can be analyzed separately. The report name and logo must appear at the top and bottom of each page of the report.

To accomplish this:

- Open a new List template, based on the GO Data Warehouse(query) package, without saving the previous report.
- Add the following query items to the list report object. :
  - Products: Product line
  - Products: Product
  - Time: Month
  - Sales fact: Quantity
- Section data and convert to a crosstab.
- Filter data so that only 2012 data is displayed and sort month data in ascending order.
- Edit title and add an image to the header block with the Company name and logo (cover2.jpg).
- Add a layout component reference (CompanyBlock) to the footer block.

For more information about where to work and the workshop results, refer to the Tasks and Results section that follows. If you need more information to complete a task, refer to earlier demos for detailed steps.

Workshop 1: Tasks and Results

Task 1. Create the List.

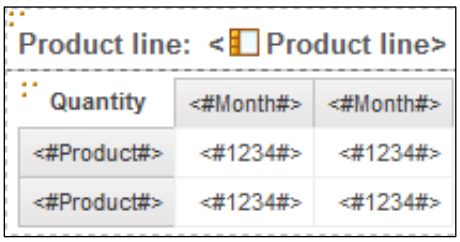
- **Toolbar**: Open a new list template, based on GO Data Warehouse (Query), without saving the previous report.
- **Source tab**: Add Products: **Product line** to the new list report object.
  - Add Products: **Product** to the new list report object.
  - Add Time: **Month** to the new list report object.
  - Add Sales fact: **Quantity** to the new list report object.

  The results appear as follows:

Product line	Product	Month	Quantity
<Product line>	<Product>	<Month>	<Quantity>

- **Toolbar**: Section **<Product line>**.
- Pivot the list to a crosstab using **<Month>**.

  The results appear as follows:



Product line: <Product line>		
Quantity	<#Month#>	<#Month#>
<#Product#>	<#1234#>	<#1234#>
<#Product#>	<#1234#>	<#1234#>

Task 2. Filter and sort month data.

- **Toolbar**: Create and validate the following advanced filter expression for the crosstab:
  [Sales (query)].[Time].[Year]=2012
  - Sort the **<#Month#>** column header ascending.

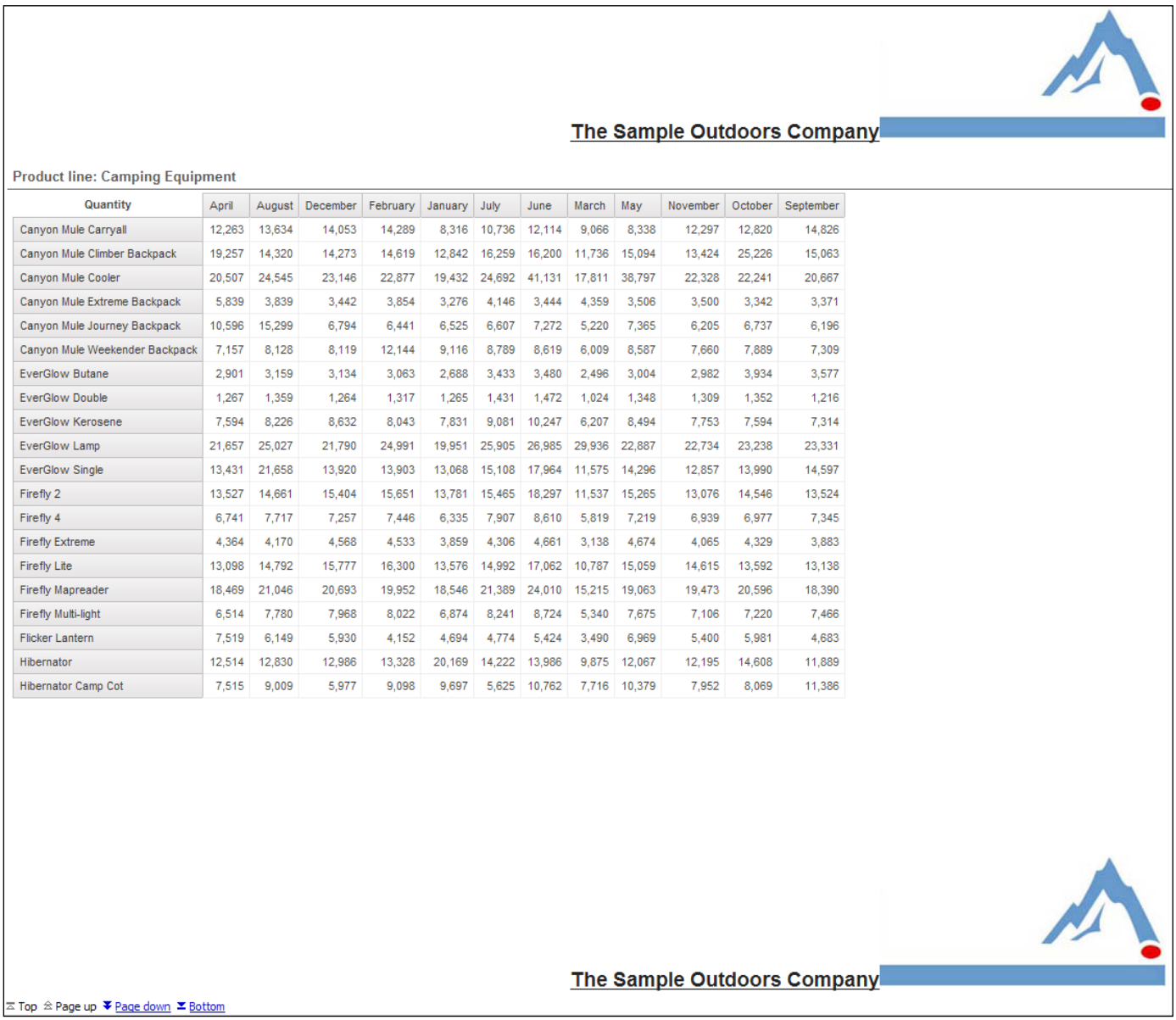
Task 3. Edit the title and add an image to the block.

- **Work area**: Click the **Block** in the page header.
- **Properties pane**: Name the header block **CompanyBlock**.
- **Work area**: Create the following title: **The Sample Outdoors Company**.
- **Toolbox tab**: Add the **cover2.jpg** image to the right of the title.

Task 4. Add a reference to the block and its components.

- **Work area**: Delete the table in the footer block.
- **Toolbox tab**: Add a **Layout Component Reference** for **CompanyBlock** into the page footer.
- **Toolbar**: Run the report.
- **IBM Cognos Viewer**: scroll down.

The results appear as follows:



The Sample Outdoors Company

Product line: Camping Equipment

Quantity	April	August	December	February	January	July	June	March	May	November	October	September
Canyon Mule Carryall	12,263	13,634	14,053	14,289	8,316	10,736	12,114	9,066	8,338	12,297	12,820	14,826
Canyon Mule Climber Backpack	19,257	14,320	14,273	14,619	12,842	16,259	16,200	11,736	15,094	13,424	25,226	15,063
Canyon Mule Cooler	20,507	24,545	23,146	22,877	19,432	24,692	41,131	17,811	38,797	22,328	22,241	20,667
Canyon Mule Extreme Backpack	5,839	3,839	3,442	3,854	3,276	4,146	3,444	4,359	3,506	3,500	3,342	3,371
Canyon Mule Journey Backpack	10,596	15,299	6,794	6,441	6,525	6,607	7,272	5,220	7,365	6,205	6,737	6,196
Canyon Mule Weekender Backpack	7,157	8,128	8,119	12,144	9,116	8,789	8,619	6,009	8,587	7,660	7,889	7,309
EverGlow Butane	2,901	3,159	3,134	3,063	2,688	3,433	3,480	2,496	3,004	2,982	3,934	3,577
EverGlow Double	1,267	1,359	1,264	1,317	1,265	1,431	1,472	1,024	1,348	1,309	1,352	1,216
EverGlow Kerosene	7,594	8,226	8,632	8,043	7,831	9,081	10,247	6,207	8,494	7,753	7,594	7,314
EverGlow Lamp	21,657	25,027	21,790	24,991	19,951	25,905	26,985	29,936	22,887	22,734	23,238	23,331
EverGlow Single	13,431	21,658	13,920	13,903	13,068	15,108	17,964	11,575	14,296	12,857	13,990	14,597
Firefly 2	13,527	14,661	15,404	15,651	13,781	15,465	18,297	11,537	15,265	13,076	14,546	13,524
Firefly 4	6,741	7,717	7,257	7,446	6,335	7,907	8,610	5,819	7,219	6,939	6,977	7,345
Firefly Extreme	4,364	4,170	4,568	4,533	3,859	4,306	4,661	3,138	4,674	4,065	4,329	3,883
Firefly Lite	13,098	14,792	15,777	16,300	13,576	14,992	17,062	10,787	15,059	14,615	13,592	13,138
Firefly Mapreader	18,469	21,046	20,693	19,952	18,546	21,389	24,010	15,215	19,063	19,473	20,596	18,390
Firefly Multi-light	6,514	7,780	7,968	8,022	6,874	8,241	8,724	5,340	7,675	7,106	7,220	7,466
Flicker Lantern	7,519	6,149	5,930	4,152	4,694	4,774	5,424	3,490	6,969	5,400	5,981	4,683
Hibernator	12,514	12,830	12,986	13,328	20,169	14,222	13,986	9,875	12,067	12,195	14,608	11,889
Hibernator Camp Cot	7,515	9,009	5,977	9,098	9,697	5,625	10,762	7,716	10,379	7,952	8,069	11,386

The Sample Outdoors Company

Top Page up Page down Bottom

- Close **IBM Cognos Viewer**.
- Close **Report Studio** without saving changes.
- Close the Web browser.

Customize Reports with Conditional Formatting

IBM Cognos BI

Business Analytics software

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Objectives

- At the end of this module, you should be able to:
  - create multi-lingual reports
  - highlight exceptional data
  - show and hide data
  - conditionally render objects in reports
  - conditionally format one crosstab measure based on another

Business Analytics software

Change Displays Based on Conditions

Display conditional text depending on language

Rapport sur les produits

Lignes de produits	Types de produit	Revenus
Accessoires personnels	Couteaux	153 420 439,59
	Jumelles	130 834 653,2
	Lunettes	867 125 198,48
	Matériel d'orientation	207 490 641,92
	Montres	526 802 374,59
Accessoires personnels - Total		1 885 673 307,78

Display conditional styles depending on data

Business Analytics software

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3 Steps for Conditional Formatting

1. Create a variable.
   - Define the condition and create values.
2. Assign the variable to an object in the report.
   - Properties pane, under Conditional, assign variable to object.
3. Apply formatting to object based on condition value.
   - Select specific value condition and apply formatting to object.

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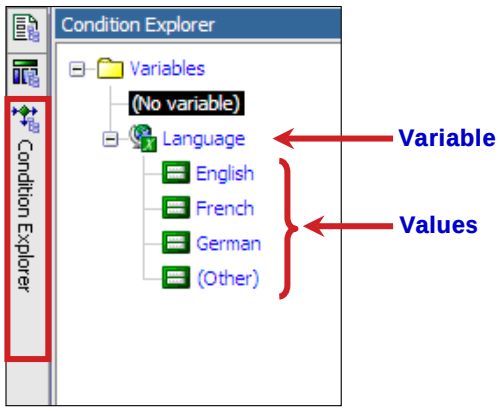
Step 1. Create a Variable

- Create variables and values to decide what element of the report will determine the change and the possible outcomes.



This step can be performed in Condition Explorer.

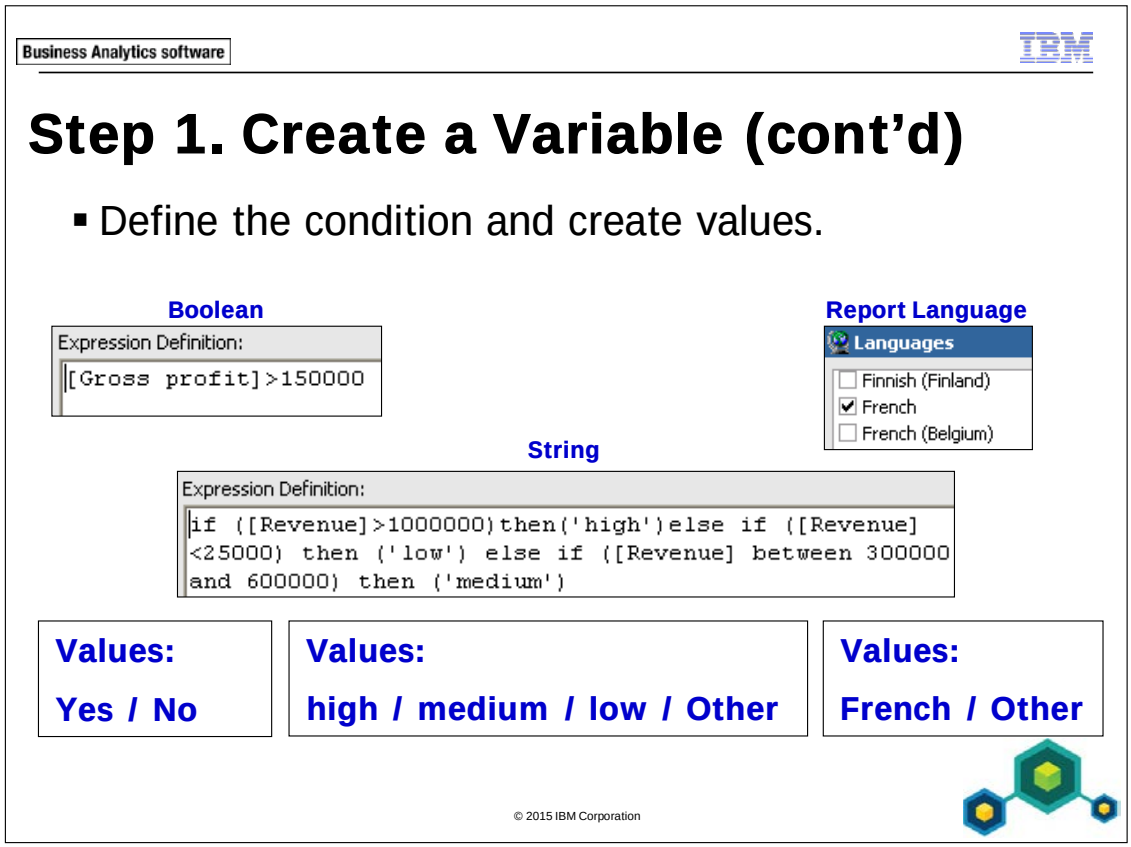
Boolean variables are used if there are only two possible outcomes, where the values will be Yes or No.

String variables are used if there is more than one outcome, based on string values you will specify.

Language variables are used when the values are different languages.

The variable determines what will change in the report. For example, the report will vary depending on revenue, product line or the language in which the report is run.

The values define the possible scenarios or outcomes for the variable. For example, revenue is either above $150,000 ('yes') or not ('no'), product line is 'Camping Equipment', 'Golf Equipment', or the language may be 'Chinese' or 'Dutch', and so on.

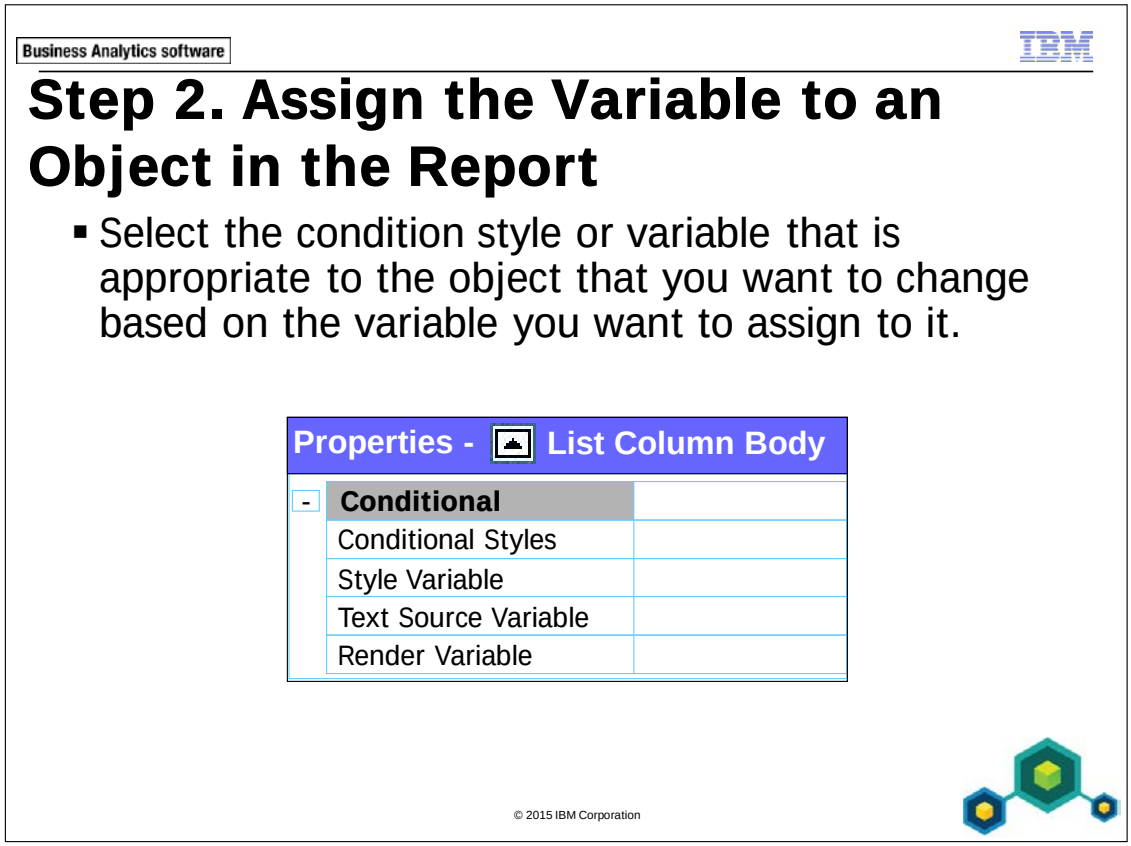


If you create a Boolean or string variable, you must define the condition.

If you create a language variable, you do not need to define the condition. You must choose the languages you want to support.

In the slide example for the string variable, revenue will be deemed 'high' if it is more than $1,000,000 or 'low' if it is less than $25,000.

The string variable's condition does not need to test all possible cases or the language variable hold all the possible languages because of the 'other' value. For example, in the slide string Expression Definition above, revenue between $25,000 and $300,000 is 'other'.



Conditional Styles: Add conditional styles to highlight data in you report, based on set ranges.

Style Variable: Specifies a variable based on which the object can be conditionally styled.

Text Source Variable: Specifies a variable based on which the text can be chosen.

Render Variable: Specifies a variable based on which the object can be conditionally rendered.

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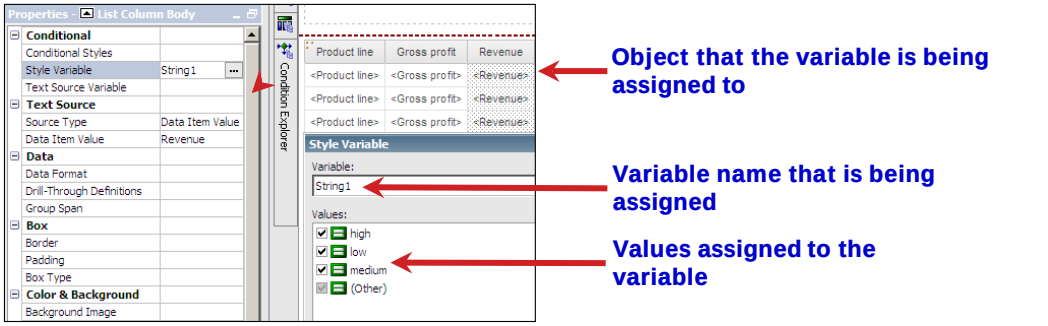
Step 2. Assign the Variable to an Object in the Report (cont'd)

- Once you have created a variable, assign the variable to the object that you wish to conditionally format.



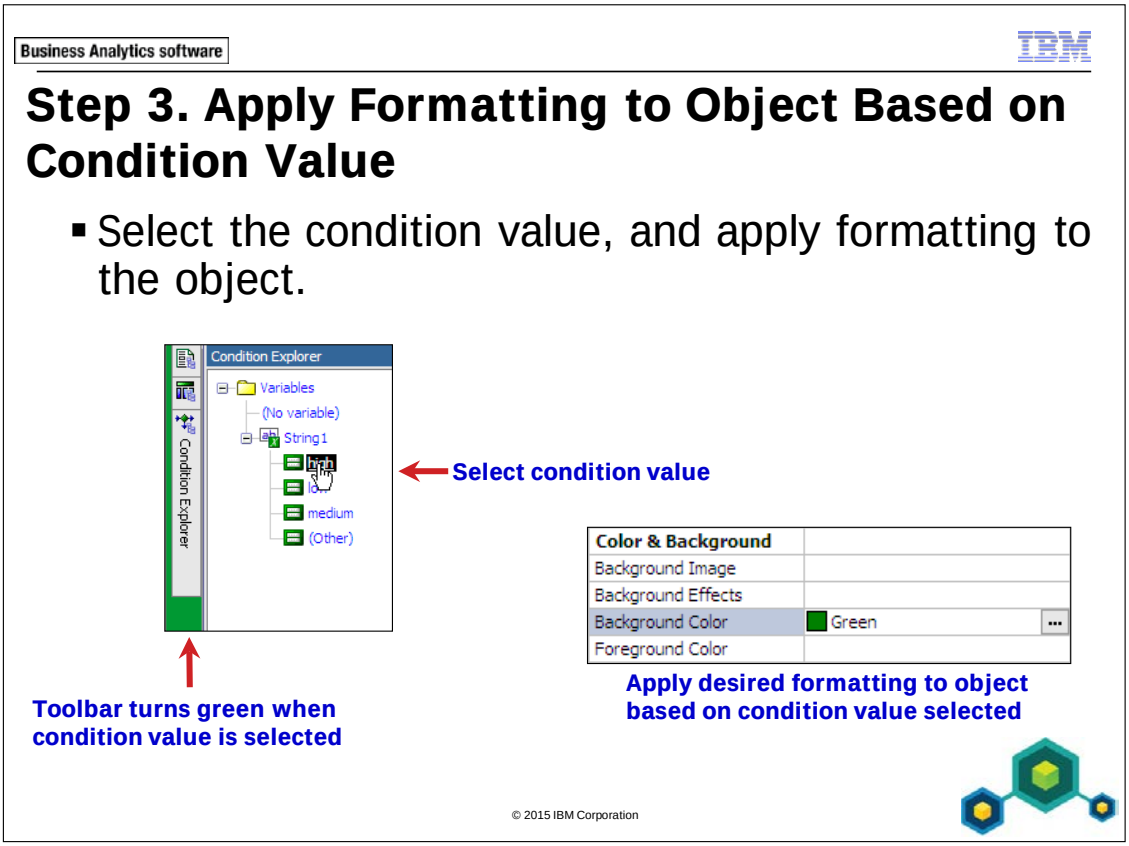
Select your object in the report layout that you want to add conditional formatting to. This step is performed in Conditional Explorer.

After you have created your variable, you must define how the report will appear for each value. To do this, select the text or part of the report that will vary, and then apply the variable to it using the Properties pane.

When you apply the variable, the values for which you can perform conditional authoring appear. By default Report Studio selects all the values assuming you will format all of them. If you wish to create conditional formatting for only some values, you can deselect the others.

If you apply a language variable, an additional value called Other appears by default.

When you create a string or report language variable, and create or choose variables for it, an additional value called Other appears by default.



Once the report element has been designated as conditional, set the display for that value by modifying the report to appear the way you want it to look if that condition is satisfied.

This step is performed in Conditional Explorer.

This step does not apply when working with a Render Variable.

When you select a value in the Condition Explorer, the Explorer bar will turn green. This is to notify you that conditional formatting is turned on, and to remind you that all changes you make to the report only apply to the variable you selected.

After you have set the display for each value, turn the conditional formatting off by double-clicking the Explorer bar, or by selecting No Variable from the Condition Explorer.

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Demo 1

- Create a Multilingual Report

Rapport sur les produits

Lignes de produits	Types de produit	Revenus
Accessoires personnels	Couteaux	153 420 439,59
	Jumelles	130 834 653,2
	Lunettes	867 125 198,48
	Matériel d'orientation	207 490 641,92
	Montres	526 802 374,59
Accessoires personnels - Total		**1 885 673 307,78**

Demo 1: Create a Multilingual Report

Purpose:
Your regional sales managers want to examine the revenue for all of your product types to promote the most profitable ones. Because this report will be distributed to offices in Germany, France, and the United States, you must run the report in different languages.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folder\Samples\Models\GO Data Warehouse (query)**
Report Type: **List**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the list.

1. Open a new **List** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new list report object:
   - Products: **Product line**, **Product type**
   - Sales fact: **Revenue**

Product line	Product type	Revenue
<Product line>	<Product type>	<Revenue>

3. Click **<Product line>** list column body and then **Group / Ungroup**.
4. Click **<Revenue>** list column body, on the toolbar click **Summarize**, and then click **Total**.

5. On the toolbar, click **Run Report** to examine the report.
6. Close **IBM Cognos Viewer**.

   You will apply conditional formatting to the header text so that a report title will appear in the language in which the report is run.

Task 2. Create a language variable and choose the languages.

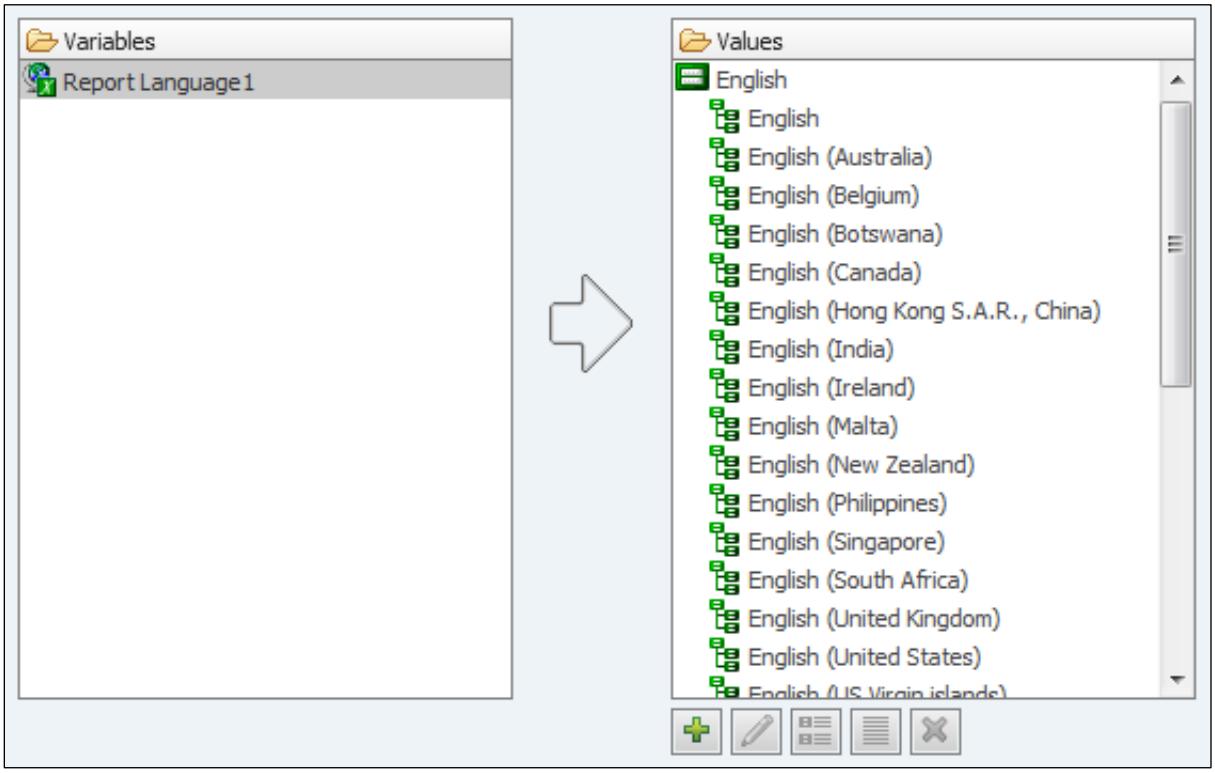
1. On the **Explorer** bar, point to **Condition Explorer**  .

   The Condition Explorer pane shows that there are currently no variables for this report.
2. Click **Variables**.
3. From the **Toolbox** tab, drag a **Report Language Variable** to the **Variables** pane.
4. Scroll through the list and select the check boxes beside all of the **English**, **French**, and **German** languages, and then click **OK**.
5. In the **Values** box, click **English**, Shift+click **English (Zimbabwe)** and then click **Group Values**  .
6. Repeat step 5 to group all **French** languages together.

7. Repeat step 5 to group all **German** languages together.

   There are seventeen English languages, six French, and six German. You want to select all of these languages so that you can group them together. That way you only have to format the report for three grouped values, rather than for each individual language.

   The results appear as follows:



   The report now has one variable with three grouped values, one for each language in which the report will be run. Because you created a language variable, the expression is created for you.

8. In the **Properties** pane, under **Miscellaneous**, in the **Name** box, type **Language**, and then press **Enter**.
9. On the toolbar, click **Back**.

Task 3. Define the title as conditional text.

1. Double-click the header title text, type **Product Report Title**, and then click **OK**.
2. Click the header block, and then click **Left**.
3. Click the title text, and then in the **Properties** pane, under **Conditional**, double-click **Text Source Variable**.

   The Text Source Variable dialog box appears.
4. Under **Variable**, click **Language**.

   The Values pane shows the three languages you chose, plus an option called Other. The three languages are selected by default so that you can use the Condition Explorer to perform conditional authoring for any of these three languages.
5. Click **OK**.

Task 4. Set the display for each value.

1. On the **Explorer** bar, point to **Condition Explorer**, and then click **English**.

   The Explorer bar turns green to remind you that any changes you make to the report will apply to the value you selected. The previous title also disappears because you must specify the text for this value.
2. Double-click the title text, and type **Product Report**.
3. On the **Explorer** bar, point to **Condition Explorer**, and then click **French**.
4. Double-click the title text, type **Rapport sur les produits**.
5. On the **Explorer** bar, point to **Condition Explorer**, and then click **German**.
6. Double-click the title text, type **Produktbericht**.

7. Double-click the **Explorer** bar to turn the conditional formatting off.

   You can also turn off conditional formatting by clicking No Variable in the Condition Explorer pane.

   In order to run a report in different languages, the data source must be multilingual. Your browser must also be able to support multilingual characters, or else the characters will appear as boxes.

   Now you can run the report in various languages.

Task 5. Run the report in various languages.

1. On the toolbar, click **Run Report**.

   Your report appears in English as this is our current default language. The report title appears as you created it for the English value. You will now run the report in French to see the results.

2. Close **IBM Cognos Viewer**, and then on the toolbar, click the down arrow beside **Run Report**.

   You are able to render reports in HTML, PDF, Excel 2007, Excel 2007 Data, Excel 2002, Delimited Text (CSV), and XML formats. You want to use the default output option of HTML but would like to choose a language other than our current default.

3. Click **Run Options**, under **Language**, scroll down and select **French (France)**, click **OK**, and then run the report.

   A section of the results appear as follows:

Rapport sur les produits

Lignes de produits	Types de produit	Revenus
Accessoires personnels	Couteaux	153 420 439,59
	Jumelles	130 834 653,2
	Lunettes	867 125 198,48
	Matériel d'orientation	207 490 641,92
	Montres	526 802 374,59
Accessoires personnels - Total		**1 885 673 307,78**

   The report appears in French including the title you created.

   Report Studio cannot translate the data returned by the query. This must be done as part of data modeling and must be included in the published package.

4. Close **IBM Cognos Viewer**.
5. Repeat steps 2 to 4 to run the report in **German (Austria)** and in **English (Zimbabwe)**.

   A section of the results appear as follows:

Produktbericht

Produktreihe	Produkttyp	Einnahmen
Accessoires	Ferngläser	130.834.653,2
	Messer	153.420.439,59
	Orientierung	207.490.641,92
	Sonnenbrillen	867.125.198,48
	Uhren	526.802.374,59
Accessoires - Total		**1.885.673.307,78**

Product Report

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	272,835,984.18
	Lanterns	126,925,660.64
	Packs	351,880,402.84
	Sleeping Bags	309,172,888.35
	Tents	528,221,728.02
Camping Equipment - Total		**1,589,036,664.03**

6. Close **IBM Cognos Viewer**.
7. Click the **Run Report** arrow, and then click **Run Options**.
8. Under **Language**, scroll up, select **(Default)**, and then click **OK**.
9. Leave **Report Studio** open for the next demo.

Results:
Regional Sales managers can examine the revenue for all of your product types to promote the most profitable products. This report can be distributed to offices in German, French, and English speaking countries in the appropriate languages.

Business Analytics software

Demo 2

- Highlight Exceptional Data

Revenue		Americas			
		2010	2011	2012	2013
Personal Accessories	Binoculars	8,848,023.06	9,284,403.09	11,564,283.97	9,698,328.44
	Eyewear	**51,804,488.86**	**64,364,796.83**	**89,687,954.94**	**68,629,625.09**
	Knives	11,328,869.94	10,661,897.75	15,047,283.69	10,513,594.42
	Navigation	15,667,887.05	13,943,283.78	19,757,626.39	14,382,780.56
	Watches	**40,906,913.37**	**44,372,804.39**	**51,213,306.66**	**32,018,631.1**
Mountaineering Equipment	Climbing Accessories		6,928,733.67	8,238,351.85	8,576,743.95
	Rope		8,065,619.48	13,952,404.12	11,568,118.68
	Safety		6,881,659.98	10,137,737.5	9,410,543
	Tools		10,178,540.49	16,831,986.21	12,356,958.95
Camping Equipment	Cooking Gear	18,885,808.93	**20,265,504.57**	**22,792,659.65**	16,933,277.29
	Lanterns	9,550,941.78	9,516,880.22	12,274,847.87	8,136,831.6
	Packs	**20,705,015.1**	**25,822,181.45**	**35,164,708.35**	**24,019,882.74**
	Sleeping Bags	19,652,376.81	**23,629,479.94**	**29,724,358.26**	19,755,089.84
	Tents	**35,466,023.41**	**43,218,510.95**	**49,900,030.23**	**36,031,372.05**
Outdoor Protection	First Aid	**2,122,816.09**	**841,085.19**	**536,893.86**	**256,402.95**
	Insect Repellents	5,872,450.6	**3,410,019.19**	**1,644,331.12**	**634,775.13**
	Sunscreen	**3,324,848.67**	**2,937,932.68**	**980,915.8**	**440,176.4**

Demo 2: Highlight Exceptional Data

Purpose:
A manager wants to quickly identify revenue greater than $20,000,000 and less than $5,000,000 to identify high and low revenue-generating product types in all sales regions. You need to create a report that displays revenue data in different colors depending on revenue values.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folder\Samples\Models\GO Data Warehouse (query)**
Report Type: **Crosstab**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the crosstab.

1. Open a new **Crosstab** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new crosstab report object:
   - **Rows** area:
     - Products: **Product line**, **Product type** (nested as a child)
   - **Columns** area:
     - Retailers: **Region**
     - Time: **Year** (nested under Region)
   - **Measure** area:
     - Sales fact: **Revenue**

Revenue		<#Region#>		<#Region#>	
		<#Year#>	<#Year#>	<#Year#>	<#Year#>
<#Product line#>	<#Product type#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>

You will create a variable to define revenue as 'high' or 'low' if the amount is above or below specified amounts.

3. On the **Explorer** bar, point to **Condition Explorer**.
4. In the **Condition Explorer** pane, click **Variables**, and then drag a **String Variable** to the **Variables** pane.

   Because you have created a string variable, you must specify the condition on which revenue will change, and then create values for the possible outcomes.
5. Create and validate the following expression:

   if ([Query1].[Revenue]>20000000) then ('high') else if ([Query1].[Revenue]<5000000) then ('low')

   Hint: You can double-click Revenue in the Available Components pane to add it to the expression as you write it.
6. Click **OK**.
7. Under the **Values** box, click **Add**.
8. In the **Add** dialog box, type **high**, and then click **OK**.
9. Repeat steps 7 and 8 to add a second value called **low**.

   The values created in steps 7-8 have to be spelled exactly as they are spelled in the expression definition for the variable.
10. In the **Properties** pane, under **Miscellaneous**, in the **Name** box, type **Revenue_high_low**, and then press **Enter**.
11. On the toolbar, click **Back**.

    Now that you have created a variable and specified its values, you must format the revenue cells for each value.

Task 2. Define the measures as conditional and set the display for each value.

1. Click any of the **Revenue** (**<#1234#>**) cells in the crosstab, in the **Properties** pane, click **Select Ancestor**, and then click **Crosstab Fact Cells**.
2. Under **Conditional**, double-click **Style Variable**.

   The Style Variable dialog box appears.
3. In the **Variable** list, click **Revenue_high_low**, and then click **OK**.

   The measures cells are now conditionally formatted using the variable you just created. You must now set the display for each value.
4. On the **Explorer** bar, point to **Condition Explorer**, and then click **high**.

   The Explorer bar turns green.
5. With the **Revenue** cells still selected, on the toolbar, click **Foreground Color**, click **Green**, and then click **Bold**.
6. Repeat steps 4 and 5 to change the font color for the low value to **Red**.
7. Double-click the **Explorer** bar to turn the conditional formatting off.

8. On the toolbar, click **Run Report**.

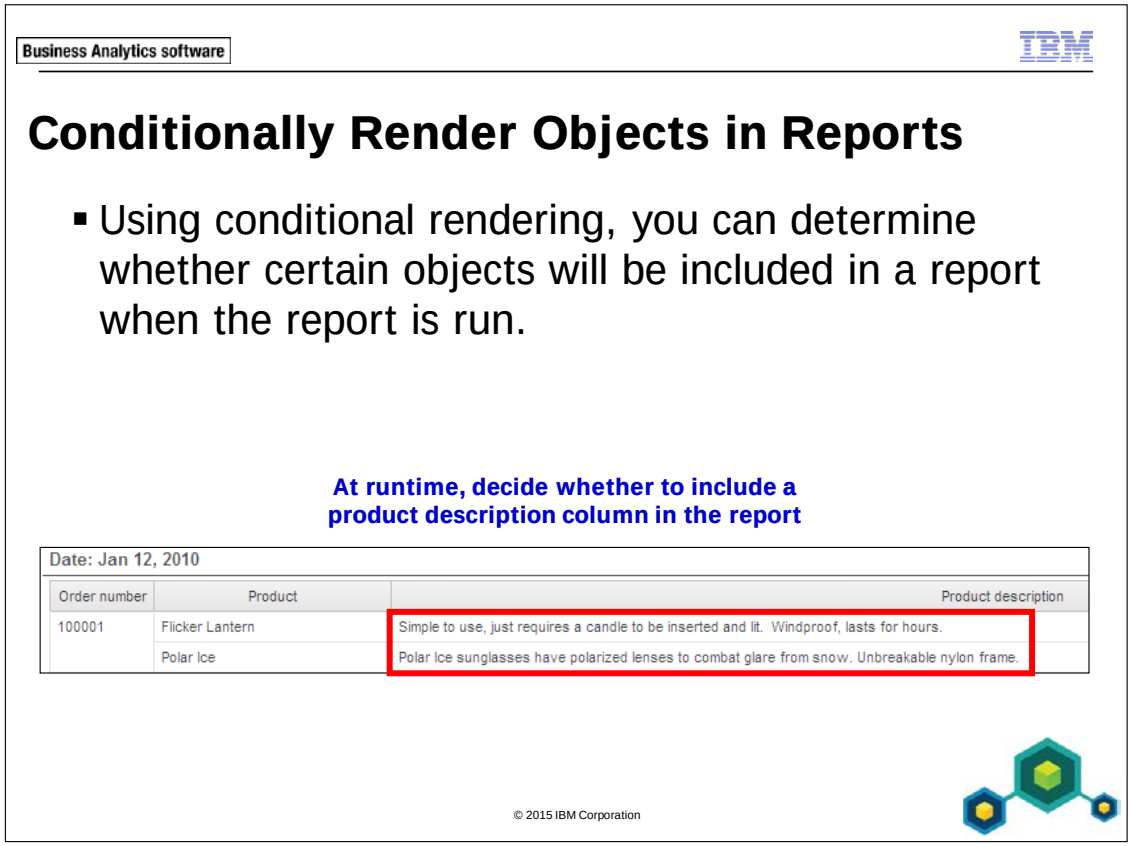
   A section of the results appear as follows:

Revenue		Americas			
		2010	2011	2012	2013
Personal Accessories	Binoculars	8,848,023.06	9,284,403.09	11,564,283.97	9,698,328.44
	Eyewear	**51,804,488.86**	**64,364,796.83**	**89,687,954.94**	**68,629,625.09**
	Knives	11,328,869.94	10,661,897.75	15,047,283.69	10,513,594.42
	Navigation	15,667,887.05	13,943,283.78	19,757,626.39	14,382,780.56
	Watches	**40,906,913.37**	**44,372,804.39**	**51,213,306.66**	**32,018,631.1**
Mountaineering Equipment	Climbing Accessories		6,928,733.67	8,238,351.85	8,576,743.95
	Rope		8,065,619.48	13,952,404.12	11,568,118.68
	Safety		6,881,659.98	10,137,737.5	9,410,543
	Tools		10,178,540.49	16,831,986.21	12,356,958.95
Camping Equipment	Cooking Gear	18,885,808.93	**20,265,504.57**	**22,792,659.65**	16,933,277.29
	Lanterns	9,550,941.78	9,516,880.22	12,274,847.87	8,136,831.6
	Packs	**20,705,015.1**	**25,822,181.45**	**35,164,708.35**	**24,019,882.74**
	Sleeping Bags	19,652,376.81	**23,629,479.94**	**29,724,358.26**	19,755,089.84
	Tents	**35,466,023.41**	**43,218,510.95**	**49,900,030.23**	**36,031,372.05**
Outdoor Protection	First Aid	**2,122,816.09**	**841,085.19**	**536,893.86**	**256,402.95**
	Insect Repellents	5,872,450.6	**3,410,019.19**	**1,644,331.12**	**634,775.13**
	Sunscreen	**3,324,848.67**	**2,937,932.68**	**980,915.8**	**440,176.4**

   You can see that some Camping Equipment product types generated high revenue over a four-year period in Central Europe, whereas Outdoor Protection generated low revenue. Notice that when the revenue condition is not satisfied (when it is neither high nor low) revenue appears in black.

9. Close **IBM Cognos Viewer**.
10. Leave **Report Studio** open for the next demo.

Results:
You created a report that compares product line revenue for all sales regions to quickly identify by color the product type revenues greater than $20,000,000 and less than $5,000,000.



If objects are not rendered, they do not take up space in the report when it is run.

Conditional rendering is useful when your report contains sensitive data or data that may be relevant for some consumers but not for others.

When conditional rendering is applied to a column in a list report, the conditional rendering applies to all portions of the column including the title, the body cells, and header and footer cells.

In the slide example, the product description column is rendered because the report was run in HTML format. An expression was created on the product description column to only render if the report output is HTML.

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Demo 3

- Create a Report with a Conditionally Rendered Column

Date: Jan 12, 2010

Order number	Product	Product description	Revenue
100001	Flicker Lantern	Simple to use, just requires a candle to be inserted and lit. Windproof, lasts for hours.	8,624.64
	Polar Ice	Polar Ice sunglasses have polarized lenses to combat glare from snow. Unbreakable nylon frame.	9,411.6
100001 - Total			18,036.24
100002	Bear Edge	Knife is 33 cm long with a 20 cm blade made of surgical stainless steel. The handle is laminated wood. The custom made sheath is black leather.	6,690.8
	Edge Extreme	Multi-purpose pocketknife ruggedly constructed of stainless steel. Includes 4 different blades, corkscrew, saw, scissors, pliers and more.	18,032.22
	Glacier GPS Extreme	Hand held GPS receiver with color display. Incredibly easy to use, three user-friendly navigation screens, and saves two routes. Up to 20 hours of battery life just on two AA batteries.	24,747.82
	Insect Bite Relief	The Insect Bite Relief helps the itching and swelling caused by most insect bites.	2,532
	Mountain Man Deluxe	Tough rubber strap, precision Swiss quartz movement, imbedded digital face, luminous hands and markers, hardened mineral crystal, start and stop buttons, water-resistant to 50 meters.	6,825.6
100002 - Total			58,828.44

Demo 3: Create a Report with a Conditionally Rendered Column

Purpose:
Some users want a report to include descriptions of each product, while others are familiar with the products and do not want these descriptions in the report. You will create a report that can be run with or without a column displaying product descriptions based on the format in which you run the report.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folder\Samples\Models\GO Data Warehouse (query)**
Report Type: **List**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the list.

1. Open a new **List** template without saving the previous report.
2. From the **Source** tab, add the following query items to the new list report object:
   - Time**: Date**
   - Sales order: **Order number**
   - Products: **Product**, **Product Description**
   - Sales fact: **Revenue**

Date	Order number	Product	Product description	Revenue
<Date>	<Order number>	<Product>	<Product description>	<Revenue>

3. Click **<Date>**, and then on the toolbar, click **Section**.
4. Click **<Order number>**, and then on the toolbar, click **Group / Ungroup**.
5. Click **<Revenue>**, on the toolbar, click **Summarize**, and then click **Total**.
6. On the toolbar, click **Filters**, click **Edit Filters**.
7. Click **Add**, click **Advanced**, and then click **OK**.
8. Create and validate the following expression:

   [Sales (query)].[Time].[Month key]=201001
9. Click **OK** to close the **Expressions** dialog box, and then click **OK** to close the **Filters** dialog box.

   The report runs more efficiently with this.
10. In the page header, double-click the title text, type **Order Details** and then click **OK**.

Task 2. Add a Boolean variable.

1. Click **<Product description>**, in the **Properties** title bar, click **Select Ancestor**, and then click **List Column** at the bottom of the list.
2. In the **Properties** pane, under **Conditional**, double-click the **Render Variable** property.
3. In the **Variable** list, click **New boolean variable**, in the **New Variable** dialog box, type **ShowDescrip**, and then click **OK**.
4. Create and validate the following expression:

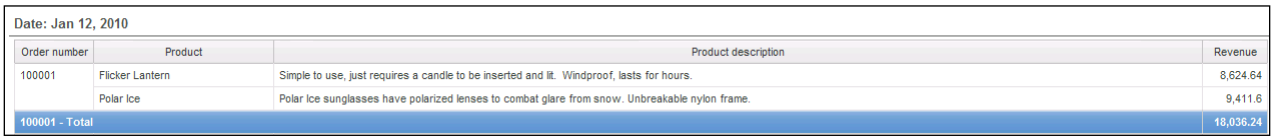
   ReportOutput ()='HTML'

   Hint: Find ReportOutput () from the Functions tab, Report Functions folder.
5. Click **OK** until all dialog boxes are closed.

Task 3. Run the report in HTML and then in PDF.

1. Run the report in **HTML**.

   A section of the results appear as follows:

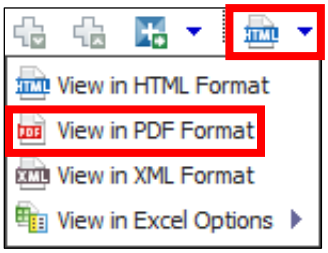


Date: Jan 12, 2010

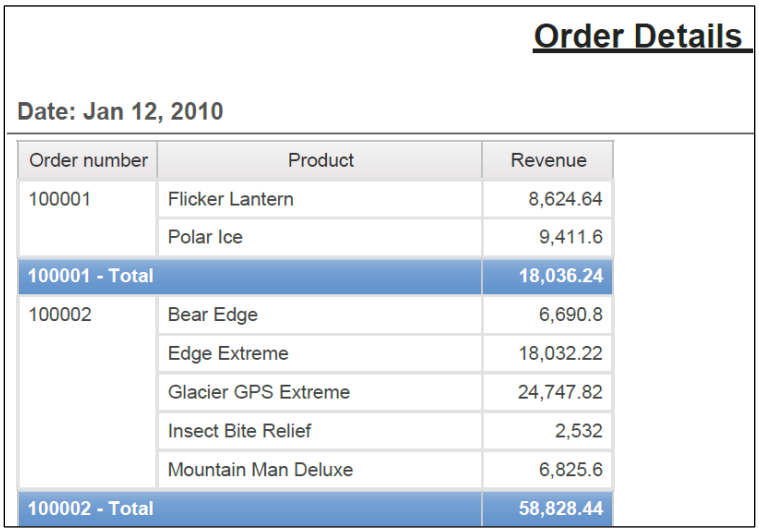
Order number	Product	Product description	Revenue
100001	Flicker Lantern	Simple to use, just requires a candle to be inserted and lit. Windproof, lasts for hours.	8,624.64
	Polar Ice	Polar Ice sunglasses have polarized lenses to combat glare from snow. Unbreakable nylon frame.	9,411.6
100001 - Total			18,036.24

   The report contains a column displaying a description of each product.

2. In **IBM Cognos Viewer**, change the report from an HTML format to a PDF format.



   A section of the results appear as follows:



Order Details

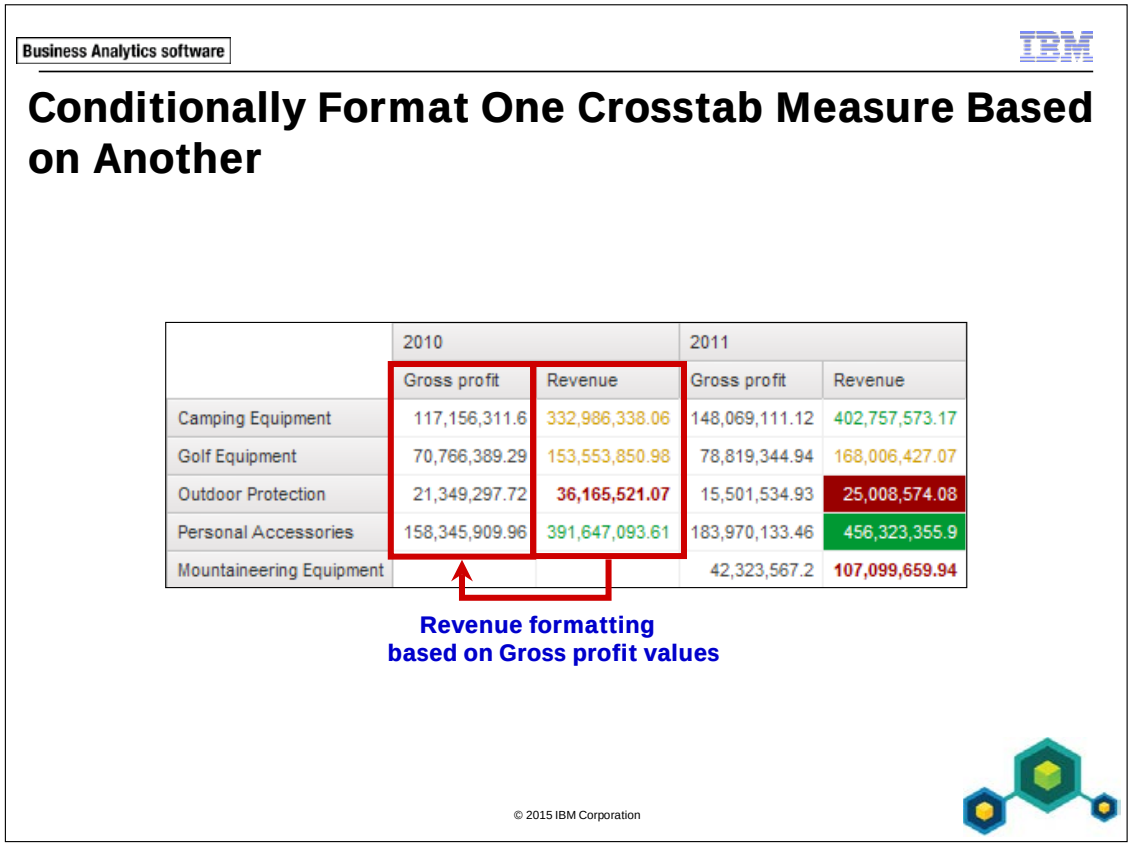
Date: Jan 12, 2010

Order number	Product	Revenue
100001	Flicker Lantern	8,624.64
	Polar Ice	9,411.6
100001 - Total		**18,036.24**
100002	Bear Edge	6,690.8
	Edge Extreme	18,032.22
	Glacier GPS Extreme	24,747.82
	Insect Bite Relief	2,532
	Mountain Man Deluxe	6,825.6
100002 - Total		**58,828.44**

   When the report is rendered in PDF format, the Product description does not appear.

3. Close **IBM Cognos Viewer**.
4. Leave **Report Studio** open for the next demo.

Results:
You created a report you can run with or without a column displaying product descriptions based on the format in which you run the report.



You can conditionally format one crosstab measure based on another crosstab measure using the Conditional Styles dialog box.

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Demo 4

- Conditionally Format One Crosstab Measure Based on Another

	2010		2011		2012		2013	
	Gross profit	Revenue	Gross profit	Revenue	Gross profit	Revenue	Gross profit	Revenue
Camping Equipment	117,156,311.6	332,986,338.06	148,069,111.12	402,757,573.17	188,942,774.28	500,382,422.83	132,630,896.65	352,910,329.97
Golf Equipment	70,766,389.29	153,553,850.98	78,819,344.94	168,006,427.07	115,965,213.04	230,110,270.55	86,642,694.9	174,740,819.29
Outdoor Protection	21,349,297.72	36,165,521.07	15,501,534.93	25,008,574.08	6,387,192.95	10,349,175.84	2,745,257.18	4,471,025.26
Personal Accessories	158,345,909.96	391,647,093.61	183,970,133.46	456,323,355.9	247,731,864.8	594,009,408.42	186,535,159.07	443,693,449.85
Mountaineering Equipment			42,323,567.2	107,099,659.94	64,233,527.4	161,039,823.26	56,718,814.19	141,520,649.7

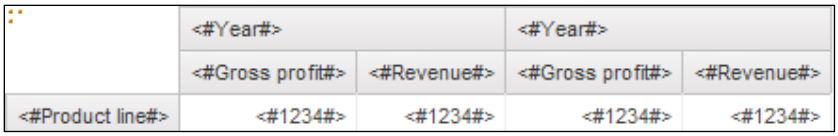
Demo 4: Conditionally Format One Crosstab Measure Based on Another

Purpose:
Consumers would like to see conditional formatting for revenue values based on Gross profit values in a crosstab. To achieve this, you will take advantage of the IBM Cognos ability to conditionally format one crosstab value based on another.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folder\Samples\Models\GO Data Warehouse (query)**
Report Type: **Crosstab**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the crosstab report.

1. Open a new **Crosstab** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new crosstab report object:
   - **Rows** area:
     - Products: **Product line**
   - **Columns** area:
     - Time: **Year**
     - Sales fact: **Gross Profit**, **Revenue** (Nested under Year)



	<#Year#>		<#Year#>	
	<#Gross profit#>	<#Revenue#>	<#Gross profit#>	<#Revenue#>
<#Product line#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>

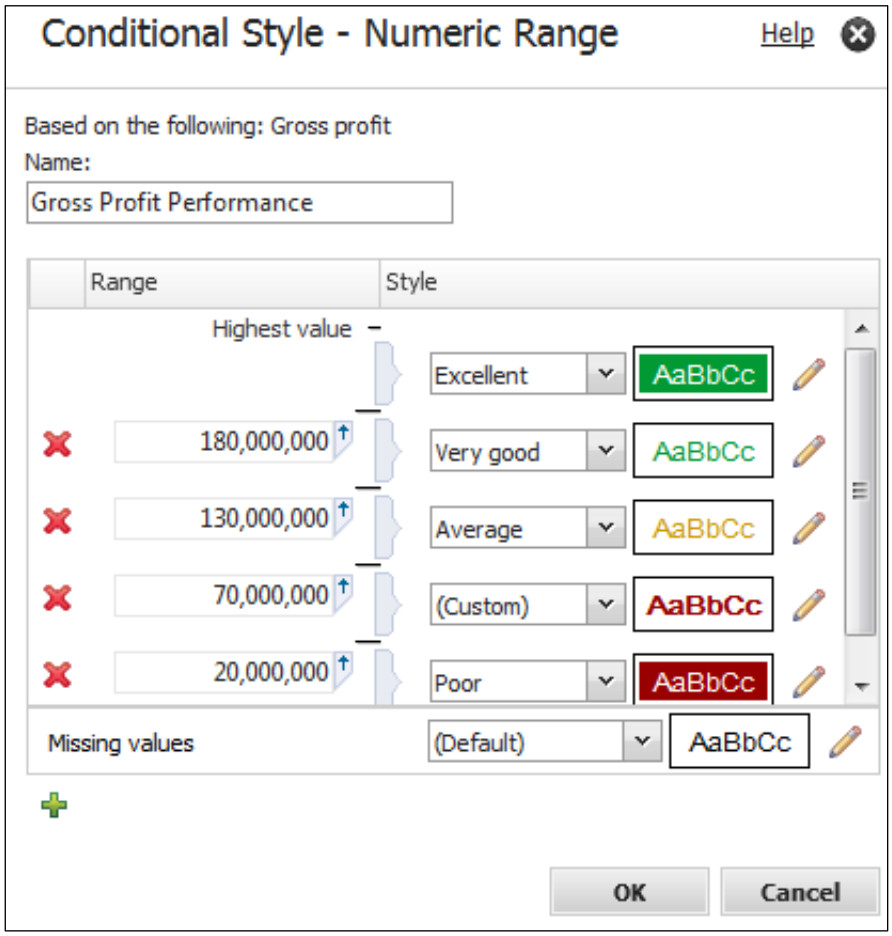
3. On the toolbar, click **Run Report**.
4. Examine the results.
5. Close **IBM Cognos Viewer**.

Task 2. Conditionally format one crosstab measure based on another.

1. Right-click the **Revenue** fact cells (**<#1234#>**), point to **Style** and then click **Conditional Styles**.
2. Click **New Conditional Style**  , and then click **New Conditional Style** from the list.
3. In the **Base it on the following data item** list, select **Gross profit**, and then click **OK**.
4. In the **Name** box, type **Gross Profit Performance**.
5. Click **New Value**  , type **180000000** (180,000,000), and then click **OK**.
6. Repeat step 5 to add values for **130000000** (130,000,000), **70000000** (70,000,000), and **20000000** (20,000,000).
7. In the **Style** column, in the top drop down list, select **Excellent**, and then for the remaining drop down lists select **Very good**, **Average**, **Below average**, and **Poor**.
8. To the right of **Below Average**, click **Edit Style**  .
9. Click **Edit** to the right of **Font**, then click **Bold** from the **Weight** list, and then click **OK**.

10. Click **OK** to close the **Style** dialog box.

    The results appear as follows:



11. Click **OK** to close the **Conditional Style - Numeric Range** dialog box, and then click **OK** again to close the **Conditional Styles** dialog box.

12. On the toolbar, click **Run Report**.

    The results appear as follows:

	2010		2011		2012		2013	
	Gross profit	Revenue	Gross profit	Revenue	Gross profit	Revenue	Gross profit	Revenue
Camping Equipment	117,156,311.6	332,986,338.06	148,069,111.12	402,757,573.17	188,942,774.28	500,382,422.83	132,630,896.65	352,910,329.97
Golf Equipment	70,766,389.29	153,553,850.98	78,819,344.94	168,006,427.07	115,965,213.04	230,110,270.55	86,642,694.9	174,740,819.29
Outdoor Protection	21,349,297.72	36,165,521.07	15,501,534.93	25,008,574.08	6,387,192.95	10,349,175.84	2,745,257.18	4,471,025.26
Personal Accessories	158,345,909.96	391,647,093.61	183,970,133.46	456,323,355.9	247,731,864.8	594,009,408.42	186,535,159.07	443,693,449.85
Mountaineering Equipment			42,323,567.2	107,099,659.94	64,233,527.4	161,039,823.26	56,718,814.19	141,520,649.7

Revenue values are conditionally formatted based on Gross profit values.

13. Close **IBM Cognos Viewer**.

    You will now apply the same Gross Profit Performance style to the Gross profit measure.

14. Right-click the **Gross profit** fact cells, then point to **Style**, and then click **Conditional Styles**.
15. Click **New Conditional Style**, select **Use Existing Conditional Style**, and then select **Gross Profit Performance**.
16. Click **OK** to close the **Select Existing Conditional Styles** dialog box, and then click **OK** to close the **Conditional Styles** dialog box.
17. On the toolbar, click **Run Report**.

    The results appear as follows:

	2004		2005		2006		2007	
	Gross profit	Revenue	Gross profit	Revenue	Gross profit	Revenue	Gross profit	Revenue
Camping Equipment	117,156,311.6	332,986,338.06	148,069,111.12	402,757,573.17	188,942,774.28	500,382,422.83	132,630,896.65	352,910,329.97
Golf Equipment	70,766,389.29	153,553,850.98	78,819,344.94	168,006,427.07	115,965,213.04	230,110,270.55	86,642,694.9	174,740,819.29
Outdoor Protection	21,349,297.72	36,165,521.07	15,501,534.93	25,008,574.08	6,387,192.95	10,349,175.84	2,745,257.18	4,471,025.26
Personal Accessories	158,345,909.96	391,647,093.61	183,970,133.46	456,323,355.9	247,731,864.8	594,009,408.42	186,535,159.07	443,693,449.85
Mountaineering Equipment			42,323,567.2	107,099,659.94	64,233,527.4	161,039,823.26	56,718,814.19	141,520,649.7

    Now the same conditional style is applied to both measures.

18. Close **IBM Cognos Viewer**.
19. Leave **Report Studio** open for the workshop.

Results:
By taking advantage of the IBM Cognos ability to conditionally format one crosstab value based on another, you were able to create a crosstab in which conditional formatting for revenue values were based on the Gross profit values. You then applied the same conditional formatting to the Gross profit values to create a uniform look for the crosstab.

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Summary

- At the end of this module, you should be able to:
  - create multi-lingual reports
  - highlight exceptional data
  - show and hide data
  - conditionally render objects in reports
  - conditionally format one crosstab measure based on another

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Workshop 1

- Distinguish Yearly Data

Quantity	Americas				Asia Pacific			
	2010	2011	2012	2013	2010	2011	2012	2013
Department Store	1,727,876	1,487,381	1,379,365	744,786	1,217,094	1,478,541	1,406,756	961,984
Direct Marketing	148,802	141,290	169,247	77,415	210,619	203,603	351,474	144,896
Equipment Rental Store	81,480	101,775	147,396	112,749	42,258	92,571	125,943	164,217
Eyewear Store	206,533	240,970	327,806	289,250	99,940	152,782	231,029	225,936
Golf Shop	271,114	313,422	404,204	285,323	272,825	509,698	614,846	457,216
Outdoors Shop	1,600,571	2,510,484	2,956,928	2,476,759	1,757,524	2,061,142	2,392,989	1,971,191
Sports Store	1,794,109	1,890,046	2,063,169	1,533,915	1,075,804	1,151,277	1,131,145	843,307
Warehouse Store	609,084	406,600	418,051	294,651	396,751	257,819	362,916	223,447

Workshop 1: Distiguish Yearly Date

You have been asked to create a report that shows the volume of sales in each region by retailer type. To make the yearly data easier to distinguish, you will format the report so each year column will have a different background color.

To accomplish this you will:

- Open a new crosstab template, using the GO Sales Warehouse (query) package, without saving the previous report.
- Add the following data items to a new crosstab using the GO Data Warehouse (query)\Sales (query):
  - Retailers: Region
  - Time: Year (Nested under Region)
  - Retailer type: Retailer type
  - Sales fact: Quantity
- Create a year string variable with values for each year.
- Assign the measures in the crosstab a conditional style using the year variable.
- Set the display for each year to display a yellow background for 2010, a green background for 2011, a blue background for 2012, and a red background for 2013.

For more information about where to work and the workshop results, refer to the Tasks and Results section that follows. If you need more information to complete a task, refer to earlier demos for detailed steps.

Workshop 1: Tasks and Results

Task 1. Create the crosstab report and add an Order year variable.

- **Toolbar**: Open a new **Crosstab** template, using the **GO Sales Warehouse (query)** package, without saving the previous report.
  - **Source tab**: Add Retailers: **Region** to the columns area of the crosstab report object.
    - Add Time: **Year** as a nested column under **Region**.
    - Add Retailer type: **Retailer type** to the rows area of the crosstab report object.
    - Add Sales fact: **Quantity** to the measures area of the crosstab report object.

    The results appear as follows:

Quantity	<#Region#>		<#Region#>	
	<#Year#>	<#Year#>	<#Year#>	<#Year#>
<#Retailer type#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>

  - **Conditional Explorer**: Create and validate the following **String Variable** expression: **[Query1].[Year]**
    - Add the following values: **2010**, **2011**, **2012**, and **2013**.
    - Name the variable **Year**.
  - **Toolbar**: Go back to **Page 1**.

Task 2. Define the measures as conditional and set the display for each value.

- **Properties pane**: Link the Crosstab Fact Cells, Style Variable, to the Year variable.
- **Variable list**, click **Year**, and then click **OK**.
- **Condition Explorer**: Click the **2010** variable.
- **Toolbar**: For the Crosstab Fact Cells, set the background color for each conditional value, using the **Color Swatch** colors, as follows:

Year	Color	Color Code	Position
2010	Light yellow	#FFFF99	Bottom row, 3rd from right
2011	Light green	#33FF99	4th row, 3rd from right
2012	Light blue	#66FFFF	6th row, last column
2013	Light red	#FF6666	2nd last row, 4th from right

- **Explorer bar:** Turn the conditional formatting off.
- **Toolbar**: Run the report.

A section of the results appear as follows:

Quantity	Americas				Asia Pacific			
	2010	2011	2012	2013	2010	2011	2012	2013
Department Store	1,727,876	1,487,381	1,379,365	744,786	1,217,094	1,478,541	1,406,756	961,984
Direct Marketing	148,802	141,290	169,247	77,415	210,619	203,603	351,474	144,896
Equipment Rental Store	81,480	101,775	147,396	112,749	42,258	92,571	125,943	164,217
Eyewear Store	206,533	240,970	327,806	289,250	99,940	152,782	231,029	225,936
Golf Shop	271,114	313,422	404,204	285,323	272,825	509,698	614,846	457,216
Outdoors Shop	1,600,571	2,510,484	2,956,928	2,476,759	1,757,524	2,061,142	2,392,989	1,971,191
Sports Store	1,794,109	1,890,046	2,063,169	1,533,915	1,075,804	1,151,277	1,131,145	843,307
Warehouse Store	609,084	406,600	418,051	294,651	396,751	257,819	362,916	223,447

- Close **IBM Cognos Viewer**
- Close **Report Studio** without saving changes
- Close the Web browser.

You have created a report that shows the volume of sales in each region by retailer type. To make the yearly data easier to distinguish, you have formatted the report so each year column will have a different background color.

Drill-Through from One Report to Another

IBM Cognos BI

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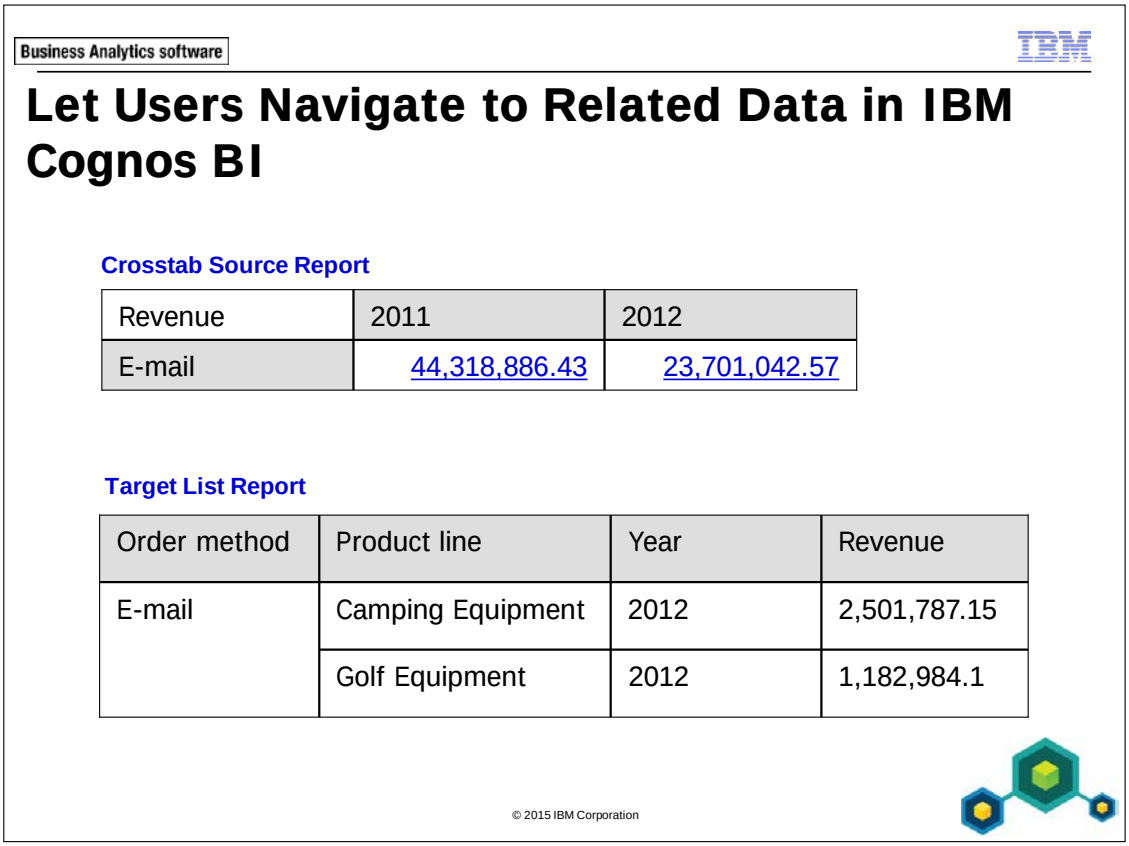
Objectives

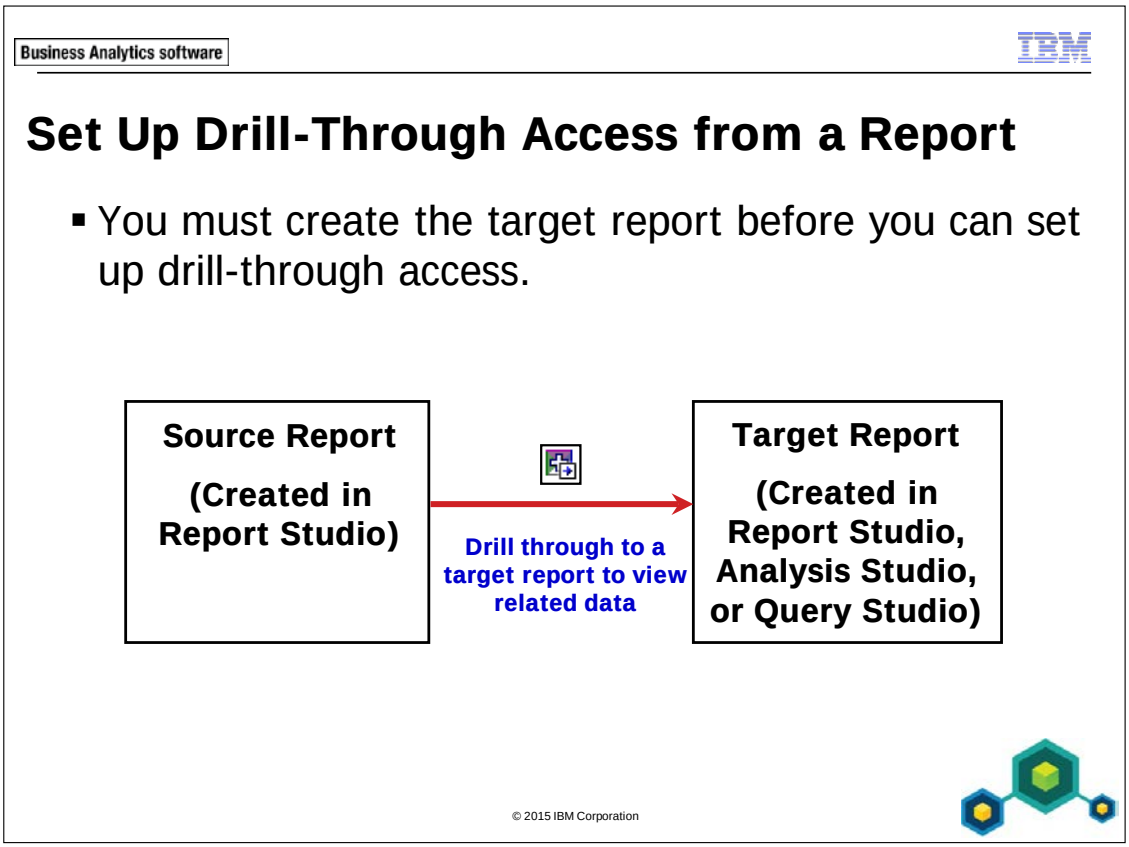
- At the end of this module, you should be able to:
  - let users navigate from a specific report to a target report
  - pass parameter values to filter the data in drill-through targets
  - navigate through multiple reports



Drill-through lets users navigate to related data in IBM Cognos BI by selecting data items: colums, rows, and intersections.

In IBM Cognos BI, report authors can set up drill-through access to and from Report Studio reports, Query Studio queries, Analysis Studio analyses, and other third party sources using dimensional and relational data sources.

It is also possible to set up drill-through access to Cognos targets from third party sources and to third party targets from Cognos sources. For example, drill-through access could be set up from an Excel spreadsheet to a Report Studio report. Setting up drill-through access to and from third-party sources and targets can be accomplished using URL requests or by using the Software Development Kit.



You can set up drill-through access from reports created using relational data sources or dimensional data sources.

You can let users navigate to target reports, queries, and analyses created from both relational and dimensional data sources.

This flexibility enables you to set up drill-through access to let users view the data necessary to answer their business questions.

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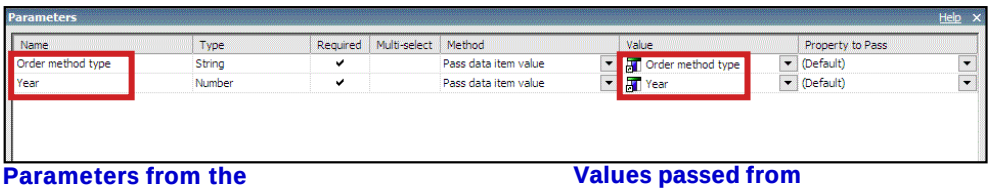
Specify the Values Passed to Target Parameters

- When you set up drill-through access, you must map the values source reports will pass to target parameters.

Parameters are specified in the source report.



Parameters from the target report

Values passed from the source report

If you do not specify which values to pass to target parameters, then when users drill-through, they will be prompted to select values for any required target parameters.

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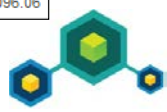
Demo 1

- Let Users Drill-Through from a Report

Revenue	2010	2011	2012	2013
E-mail	95,402,796.21	44,318,886.43	23,701,042.57	[illegible]
Fax	28,639,472.14	19,896,187.76	13,445,559.93	8,092,[illegible]22.18
Mail	22,766,850.51	16,013,779.49	6,905,730.44	404,[illegible]78.53
Sales visit	101,072,721.1	79,721,524.37	73,918,652.38	55,481,[illegible]36.15
Special	13,905,918.75	10,769,180.34	1,006,100.01	1,670,[illegible]21.15
Telephone	178,793,580.36	107,160,284.09	37,199,842.8	17,832,[illegible]73.81
Web	473,771,464.65	881,315,747.68	1,339,714,172.77	1,017,43[illegible]523.3

Order method type	Region	Product line	Year	Quantity	Revenue	Gross profit
E-mail	Americas	Camping Equipment	2012	43,757	2,501,787.15	984,878.56
		Golf Equipment	2012	3,829	1,182,984.1	596,375.12
		Mountaineering Equipment	2012	45,304	1,764,557.75	710,782.3
		Outdoor Protection	2012	12,488	80,380.53	51,151.52
		Personal Accessories	2012	66,756	3,753,588.45	1,544,096.06



Demo 1: Let Users Drill-Through from a Report

Purpose:
You have been asked to create a report that displays revenue by order method and year. Management wants to enable users to drill-through from this report to a report that has more detailed information.

Portal:	**http://localhost:88/ibmcognos**
User/Password:	**brettonf/Education1**
Studio:	**Report Studio**
Package:	**Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type:	**List**
Folder:	**Sales and Marketing (query)**
Namespace:	**Sales (query)**

Task 1. Create the detailed target report.

Before you can set up drill-through access from the high-level report, you must create the target report.

1. Open a new List template without saving any previous reports.
2. From the Source tab, add the following query items to the new list report object:
   - Order method: **Order method type**
   - Retailers: **Region**
   - Products: **Product line**
   - Time: **Year**
   - Sales fact: **Quantity**, **Revenue**, **Gross profit**

Order method type	Region	Product line	Year	Quantity	Revenue	Gross profit
<Order method type>	<Region>	<Product line>	<Year>	<Quantity>	<Revenue>	<Gross profit>

3. Click **<Order method type>** list column body, Ctrl-click **<Region>** list column body, and then on the toolbar, click **Group / Ungroup**.
4. On the toolbar, click **Run Report** to examine the results.

   This report displays data for all order method types for all years. You will add parameters so that when this report is used as a target for drill through, it displays only data for the order method type and year that users have chosen for their drill through.
5. Close **IBM Cognos Viewer**.

Task 2. Add parameters, and then save the report.

You will add a parameter for the Order method type query item.

1. On the toolbar, click **Filters**, and then click **Edit Filters**.
2. On the **Detail Filters** tab, click **Add**, click **Advanced**, and then click **OK**.
3. Create and validate the following expression:

   [Order method type]=?Order method type?

   Hint: Order method type can be found on the Data Items tab.

   Validate using E-mail.
4. Click **OK**.
5. Click **OK** to return to the **Filters** dialog box.

   You will add a parameter for the Year query item.
6. Click **Add**, click **Advanced**, and then click **OK**.
7. Create and validate the following expression:

   [Year]=?Year?

   Hint: Year can be found on the Data Items tab.

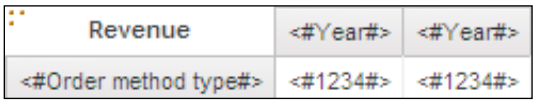
   Validate using 2012.
8. Click **OK** to close the **Prompt** dialog box, click **OK** to close the **Expression** dialog box, and then click **OK** to close the **Filters** dialog box.

9. Double-click the report header text, type **Regional Sales**, and then click **OK**.
10. Click the header block and then on the toolbar, click **Left**.
11. From the **File** menu, click **Save As**, and then in the **Save As** dialog box, navigate to **My Folders**.
12. In the **Name** box, type **Regional Sales**, and then click **Save**.

    You will now create the source report from which users will drill through.

Task 3. Create the source report and set up drill-through access.

1. Open a new **Crosstab** template.
2. From the **Source** tab, add the following query items to the new crosstab report object:
   - **Rows** area:
     - Order method**: Order method type**
   - **Columns** area:
     - Time: **Year**
   - **Measures** area:
     - Sales fact: **Revenue**



   You want to let users drill through to the Regional Sales drill through report from the fact cells in this crosstab.
3. In the crosstab report, click the fact cells, on the **Properties** pane header, click **Select Ancestor**, and then click **Crosstab Fact Cells**.

4. On the toolbar, click **Drill-Through Definitions**  .
5. Click **New Drill-Through Definition**  .
6. To the right of the **Report** box, click the **ellipsis**, and then navigate to **My Folders**.
7. Click **Regional Sales**, and then click **Open**.

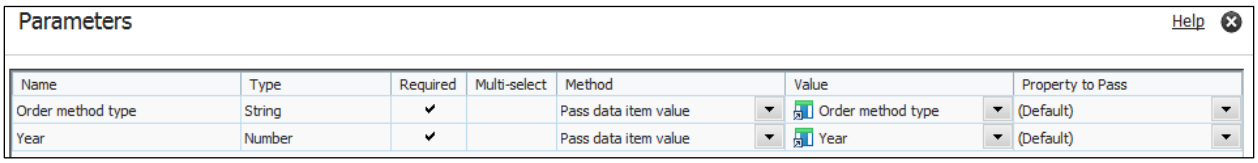
   You must now specify what values the source report will pass to the two parameters in the target report when users drill through.

8. Under **Parameters**, click **Edit**  .

   You want to pass values from the Order method type and Year data items to these parameters.

9. Beside the **Order method type** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Order method type**.
10. Beside the **Year** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Year**.

    The results appear as follows:



Name	Type	Required	Multi-select	Method	Value	Property to Pass
Order method type	String	✔		Pass data item value	Order method type	(Default)
Year	Number	✔		Pass data item value	Year	(Default)

    The data items added to the edges of the crosstab (Order method type and Year) are the items that you used to create the parameters in the target report. This means that when you drill-through from fact cells in this crosstab, the fact cells will have both Year and Order method as their context and the two target parameters will receive the required values.

11. Click **OK** to close the **Parameters** dialog box, and then click **OK** to close the **Drill-Through Definitions** dialog box.

Task 4. Test drill-through access.

1. On the toolbar, click **Run Report**.

   The results appear as follows:

Revenue	2010	2011	2012	2013
E-mail	95,402,796.21	44,318,886.43	23,701,042.57	16,420,318.95
Fax	28,639,472.14	19,896,187.76	13,445,559.93	8,092,322.18
Mail	22,766,850.51	16,013,779.49	6,905,730.44	404,978.53
Sales visit	101,072,721.1	79,721,524.37	73,918,652.38	55,481,936.15
Special	13,905,918.75	10,769,180.34	1,006,100.01	1,670,121.15
Telephone	178,793,580.36	107,160,284.09	37,199,842.8	17,832,073.81
Web	473,771,464.65	881,315,747.68	1,339,714,172.77	1,017,434,523.3

   The Revenue fact cells of the crosstab contain links, indicating that you can drill through to another report from these cells.

   You will drill through to view more details about sales made by E-mail in 2012.

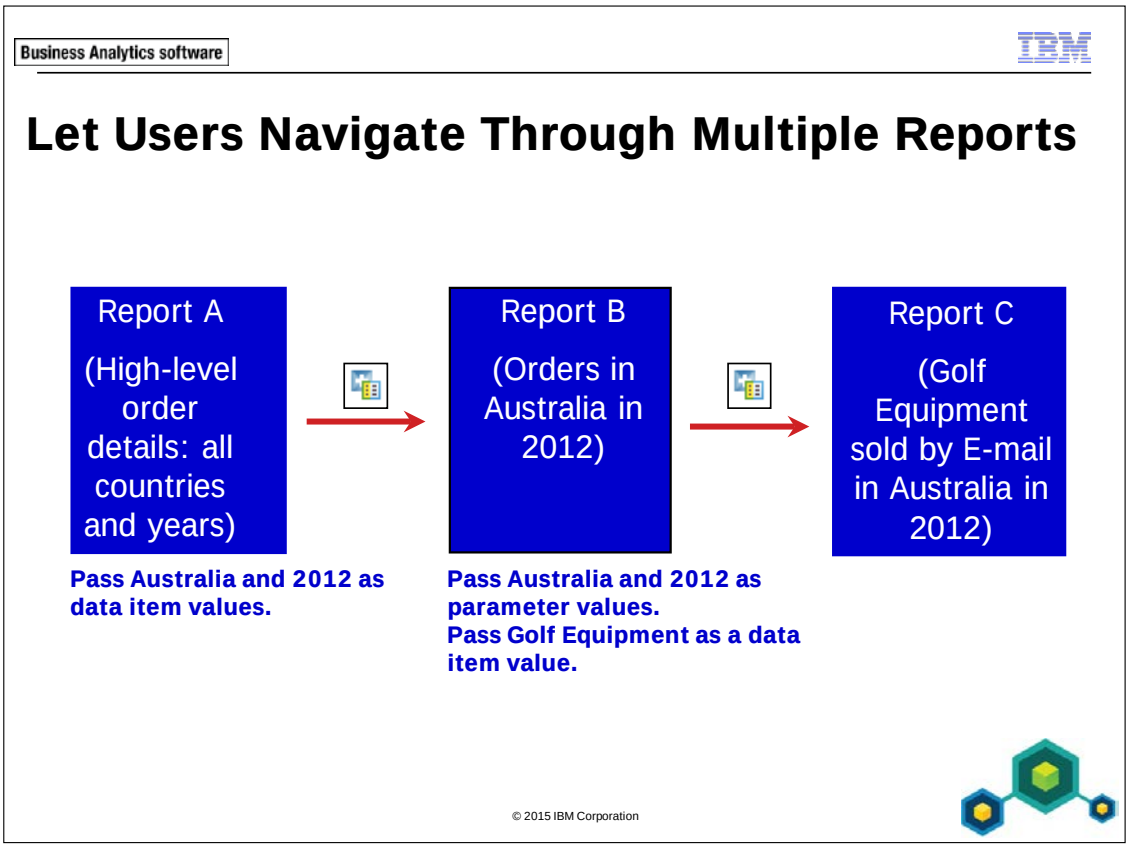
2. In the report, click the **Revenue** item at the intersection of **E-mail** and **2012**.
   IBM Cognos BI drills through to the target report.
   A section of the results appear as follows:

Regional Sales

Order method type	Region	Product line	Year	Quantity	Revenue	Gross profit
E-mail	Americas	Camping Equipment	2012	43,757	2,501,787.15	984,878.56
		Golf Equipment	2012	3,829	1,182,984.1	596,375.12
		Mountaineering Equipment	2012	45,304	1,764,557.75	710,782.3
		Outdoor Protection	2012	12,488	80,380.53	51,151.52
		Personal Accessories	2012	66,756	3,753,588.45	1,544,096.06
	Asia Pacific	Camping Equipment	2012	31,916	1,688,232.31	625,328.88
		Golf Equipment	2012	72	5,263.2	3,139.2
		Mountaineering Equipment	2012	1,357	10,638.88	6,364.33
		Outdoor Protection	2012	15,228	98,346.34	59,389.01
		Personal Accessories	2012	7,565	264,640.57	98,686.31

   This report displays only details for sales made by E-mail in 2012.
3. Click **Bottom**.
   This report contains only data for the Order method type and Year from which you drilled through.
4. Close **IBM Cognos Viewer**.
5. Leave **Report Studio** open for the next demo.

Results:
You have created a report that enables users to drill-through on revenue data from the source crosstab report to view more detailed information in the target list report.



Passing both data item values and parameter values helps you set up drill-through access from a parent report through a child report to a grandchild report.

When you set up drill-through access, for each parameter in the target report, you can select any of the following options:

- Do not use parameter
- Pass data item value
- Pass parameter value

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Demo 2

- Let Users Navigate Through Multiple Reports

High Level Order Information

Revenue	2010	2011	2012	2013
Australia		25,607,043.5	47,799,737.14	35,893,188.5
Austria	30,342,789.67	34,568,089.63	44,996,737.04	33,801,788.98
Belgium	16,073,047.72	30,396,297.49	38,375,432.68	28,186,839.74

Order Information for Australia

Year	Order method type	Product line	Revenue
2012	E-mail	Camping Equipment	418,933.56
		Mountaineering Equipment	10,638.88

Detailed Order Information

Retailer country	Year	Order method type	Product line	Product type	Product	Revenue
Australia	2012	E-mail	Camping Equipment	Cooking Gear	TrailChef Single Flame	65,269.47

Demo 2: Let Users Navigate Through Multiple Reports

Purpose:
The users need to view order method data in varying levels of detail. You will set up drill-through access to let users drill through from a report that displays high-level order details to a more detailed report. You will let the users drill through to a third report if they want to view even more details than are contained in the second report.

Portal:	**http://localhost:88/ibmcognos**
User/Password:	**brettonf/Education1**
Studio:	**Report Studio**
Package:	**Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type:	**List**
Folder:	**Sales and Marketing (query)**
Namespace:	**Sales (query)**

Task 1. Create the Detailed Order Information target report.

You will begin by creating the most detailed report, the last report, in a series of three which users would be drilling through.

1. Open a new **List** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new list report object:
   - Retailers: **Retailer country**
   - Time: **Year**
   - Order method: **Order method type**
   - Products: **Product line**, **Product type**, **Product**
   - Sales fact: **Revenue**

3. Click **<Retailer country>**, Shift+click **<Product type>**, and then on the toolbar, click **Group / Ungroup**.

Retailer country	Year	Order method type	Product line	Product type	Product	Revenue
<Retailer country>	<Year>	<Order method type>	<Product line>	<Product type>	<Product>	<Revenue>
				<Product type>	<Product>	<Revenue>
			<Product line>	<Product type>	<Product>	<Revenue>
				<Product type>	<Product>	<Revenue>

4. Double-click the report title, and then type **Detailed Order Information**, and then click **OK**.
5. Click the header block, and then on the toolbar, click **Left**.
6. On the toolbar, click **Run Report**.
7. Close **IBM Cognos Viewer**.

   You created this report first because it is the target report. It must be created before you can set up drill-through access from a source report.

Task 2. Add parameters to the Detailed Order Information report.

When users view the source report, you will want the target report to be filtered according to the items that users select for drill through in the source report, including Retailer Country, Year, Order method type, and Product line. You will create parameters for these items.

1. On the toolbar, click **Filters**, and then click **Edit Filters**.
2. Click **Add**, click **Advanced**, and then click **OK**.
3. Create and validate the following expression:

   [Retailer country]=?Cntry?

   Hint: Retailer country can be found on the Data Items tab.

   Validate using Australia.

4. Click **OK** to close the **Prompt** dialog box, and then click **OK** to close the **Expression** dialog box.
5. Repeat steps 2 through 4 to create and validate the following detail filter expressions:

   [Year]=?OY?, (Validate using 2012)

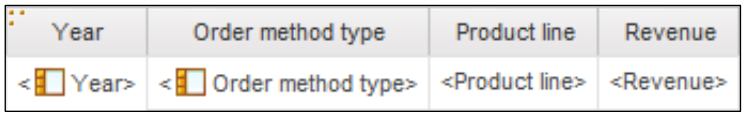
   [Order method type]=?OM?, (Validate using E-mail)

   [Product line]=?PL?, (Validate using Camping Equipment)
6. Click **OK** to close the **Filters** dialog box, and then save the report as **Detailed Order Information** in **My Folders**.

Task 3. Create the Order Information report.

You will now create the report users will drill through to from the high-level report. Users will be able to drill through from this report to the Detailed Order Information report you just created.

1. Open a new **List** template.
2. From the **Source** tab, add the following query items to the new list report object:
   - Time: **Year**
   - Order method: **Order method type**
   - Products: **Product line**
   - Sales fact: **Revenue**
3. Click **<Year>**, Ctrl-click **<Order method type>**, and then on the toolbar click **Group / Ungroup**.



You want to create parameters for the Retailer Country and Year items, so that this report will display the relevant data when users drill through from the high-level report you will create in a later task. These parameters will receive values from the high-level source report.

4. On the toolbar, click **Filters**, and then click **Edit Filters**.
5. Click **Add**, click **Advanced**, and then click **OK**.
6. Create and validate the following expression:

   Validate using Australia.

   [Sales (query)].[Retailers].[Retailer country] =?Country?
7. Click **OK** to close the **prompt** dialog box, and then click **OK** to close the **Expression** dialog box.
8. Repeat steps 4 through 6 to create and validate the following detail filter expression:

   [Year]=?Order year? (Validate using 2012)

   Hint: Drag Year from the Data Items tab.
9. Click **OK** to close the **Filters** dialog box.
10. In the page header, double-click the report title item, type **Order Information**, and then click **OK**.
11. Click the header block, and then click **Left**.
12. Save the report in **My Folders** as **Order Information**.

Task 4. Set up drill-through access from the Order Information report to the Detailed Order Information report.

You want users to be able to drill through from the Product line column of the Order Information report to the Detailed Order Information report. (Country and year will be passed from the first report to the Order Information, the second report).

1. In the list report, click the **<Product line>** list column body, and then on the toolbar, click **Drill-Through Definitions**.
2. Click **New Drill-Through Definition**, and then to the right of the **Report** box, click the **ellipsis**.
3. Navigate to **My Folders**, click **Detailed Order Information**, and then click **Open**.
4. Under **Parameters**, click **Edit**.

   The four parameters you created for the Detailed Order Information are displayed, as shown below:

Name	Type	Required	Multi-select	Method	Value	Property to Pass
Cntry	String	✔		(Default)		(Default)
OM	String	✔		(Default)		(Default)
OY	Number	✔		(Default)		(Default)
PL	String	✔		(Default)		(Default)

   You can pass data item values to two of these parameters (OM and PL). The other two parameters (Country and OY) will be passed from the High-Level Order Information report.

   Year is a data item in this report and it is also a value that will be passed from the High-Level Order Information report, therefore, it could be passed as a value or as a parameter.

   You do not have the Country data item in your source report, but you do have a parameter that expects a Country value. Therefore, you will pass a parameter value to the Cntry parameter in the Detailed Order Information report.

   When users drill through from the high-level report, the Country and Year parameters in our Order Information report will receive Country and Year values. When users drill through from the Order Information report to the Detailed Order Information report, IBM Cognos BI will pass the values received by the Country and Year parameters to the Cntry and OY parameters.

5. Beside the **Cntry** parameter, in the **Method** list, click **Pass parameter value**, and then in the **Value** list, click **Country**.

   Because Order method type appears in the report and the report also contains a parameter for Order method type values, you could pass either a data item value or a parameter value to the OM parameter. You will choose to pass a data item value as this is slightly more efficient.
6. Beside the **OM** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Order method type**.
7. Beside the **OY** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Year**.
8. Beside the **PL** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Product line**.
9. Click **OK** to close the **Parameters** dialog box, and then click **OK** to close the **Drill-Through Definitions** dialog box.

   Because country data does not appear in the report, you will add information to the report title to identify which country the report displays data for.

Task 5. Add a calculation to indicate for which Country the report displays data.

1. Click the **Order Information** report title, and then in the **Properties** pane under **Text Source**, double-click **Text**.
2. After **Order Information**, press the space bar, type **for**, and then press the space bar again.
3. Click **OK**.
4. From the **Toolbox** tab, drag a **Layout Calculation** object to the right of the report title.
5. Create and validate the following expression:

   ParamDisplayValue('Country')

   Hint: Drag Country from the Parameters tab.
6. Click **OK**.
7. Click the report title if not already selected, and then from the toolbar, click **Pick up style**  .
8. Click **<%ParamDisplayValue()%>** layout calculation, and then from the toolbar, click **Apply style**  .

   To test the drill-through access, you will run this report, and then drill through to the Detailed Order Information report.

Task 6. Test the drill through from Order Information to Detailed Order Information.

1. On the toolbar, click **Run Report**.
2. On the **Prompt** page, in the **Retailer country** list, click **Australia**, in the **Year** box, type **2012**, and then click **OK**.

   The results appear as follows:

Order Information for Australia

Year	Order method type	Product line	Revenue
2012	E-mail	Camping Equipment	418,933.56
		Mountaineering Equipment	10,638.88
	Sales visit	Camping Equipment	1,755,716.43
		Golf Equipment	1,487,319.09
		Mountaineering Equipment	420,293.36

   You will drill through to the Detailed Order Information report to view information about Camping Equipment products sold by E-mail.

3. In the **E-mail** row, click **Camping Equipment**.

   IBM Cognos BI drills through to the Detailed Order Information report.

   A section of the results appear as follows:

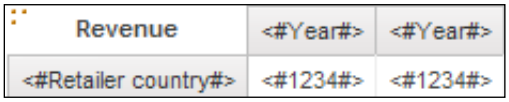
Detailed Order Information

Retailer country	Year	Order method type	Product line	Product type	Product	Revenue
Australia	2012	E-mail	Camping Equipment	Cooking Gear	TrailChef Single Flame	65,269.47
				Lanterns	Firefly 4	9,774.08
					Firefly Extreme	9,636.92

4. Close **IBM Cognos Viewer**, and then save the report.

Task 7. Create the High Level Order Information report.

1. Open a new **Crosstab** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new crosstab report object:
   - **Rows** area:
     - Retailers: **Retailer country**
   - **Columns** area:
     - Time: **Year**
   - **Measure** area:
     - Sales fact: **Revenue**



Revenue	<#Year#>	<#Year#>
<#Retailer country#>	<#1234#>	<#1234#>

   You want users to be able to drill through to the Order Information report from the fact cells of the crosstab.
3. In the crosstab, click the fact cells, on the **Properties** title header, click **Select Ancestor**, and then click **Crosstab Fact Cells**.
4. On the toolbar, click **Drill-Through Definitions**, and then click **New Drill-Through Definition**.
5. Next to the **Report** box, click the ellipsis, and then navigate to **My Folders**.
6. Click **Order Information**, click **Open**, and then under **Parameters**, click **Edit**.

   Report Studio displays the Country and Order year parameter definitions you created for the Order Details report. You will pass data item values to these two parameters.
7. Beside the **Country** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Retailer country**.
8. Beside the **Order year** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Year**.
9. Click **OK** to close the **Parameters** dialog box, and then click **OK** to close the **Drill-Through Definitions** dialog box.

10. Double-click the report title, type **High Level Order Information**, and then click **OK**.
11. Click the header block, and then on the toolbar, click **Left**.
12. In the crosstab, click **<#Retailer Country#>**, on the toolbar, click **Sort**, and then click **Ascending**.
13. In the crosstab, click **<#Year#>**, on the toolbar, click **Sort**, and then click **Ascending**.
14. Save the report as **High Level Order Information** in the **My Folders**.

Task 8. Drill through the three reports.

1. On the toolbar, click **Run Report**.

   A section of the results appear as shown below:

High Level Order Information

Revenue	2010	2011	2012	2013
Australia		25,607,043.5	47,799,737.14	35,893,188.5
Austria	30,342,789.67	34,568,089.63	44,996,737.04	33,801,788.98
Belgium	16,073,047.72	30,396,297.49	38,375,432.68	28,186,839.74
Brazil	29,211,007.61	34,234,876.3	43,389,953.66	31,440,841.48
Canada	59,271,676.52	75,428,386.09	98,134,069.39	73,325,209.39
China	68,421,694.23	79,080,487.8	99,109,351.67	70,633,377.06
Denmark	14,114,491.58	15,893,266.56	20,050,465.71	11,954,799.66
Finland	36,353,326.76	47,826,647.4	59,648,620.03	44,746,715.94
France	67,045,859.97	72,237,824.99	83,075,921.12	64,209,896.07
Germany	61,539,365.41	65,238,045.33	78,113,786.54	57,421,831.51

   You want to examine more details about orders in Australia in 2012.

2. Click the intersection of **Australia** and **2012** (**$47,799,737.14**).
IBM Cognos BI drills through to the Order Information report.
A section of the results appear as follows:

Order Information for Australia

Year	Order method type	Product line	Revenue
2012	E-mail	Camping Equipment	418,933.56
		Mountaineering Equipment	10,638.88
	Sales visit	Camping Equipment	1,755,716.43
		Golf Equipment	1,487,319.09
		Mountaineering Equipment	420,293.36
		Outdoor Protection	156,471.43
		Personal Accessories	244,332.43
	Telephone	Camping Equipment	2,522,218.73
		Golf Equipment	454,709.06
		Mountaineering Equipment	405,739.54
		Outdoor Protection	18,818.26
		Personal Accessories	417,495.46

The report displays data for orders in Australia in 2012. You want to see more information about Camping Equipment sold by E-mail in Australia in 2012.

3. In the **E-mail** row, click **Camping Equipment**.
   The result appears as shown below:

Detailed Order Information

Retailer country	Year	Order method type	Product line	Product type	Product	Revenue
Australia	2012	E-mail	Camping Equipment	Cooking Gear	TrailChef Single Flame	65,269.47
				Lanterns	Firefly 4	9,774.08
					Firefly Extreme	9,636.92
				Packs	Canyon Mule Extreme Backpack	74,373.3
				Sleeping Bags	Hibernator Extreme	85,639.2
					Hibernator Lite	63,251.01
				Tents	Star Gazer 3	110,989.58

   The report shows data for Camping Equipment sold by E-mail in Australia in 2012.
4. Close **IBM Cognos Viewer**.
5. Leave **Report Studio** open for the workshop.

Results:
Users can now drill through from a report displaying high-level information to a more detailed report. You have let users who required more data than was shown in this second report drill through to a third report. When users drill through from the second report to the most detailed report, both parameter values and data item values are passed to parameters in the target report.

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Summary

- At the end of this module, you should be able to:
  - let users navigate from a specific report to a target report
  - pass parameter values to filter the data in drill-through targets
  - navigate through multiple reports

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Workshop 1

- Drill-Through from One Report to Another

2010 Training Details for Adelaide Wiesinger

Employee name	Course code	Course name	Course days	Course cost
Adelaide Wiesinger	13501	Safety Procedures	1	250
Adelaide Wiesinger	14501	Time Management	1	250
Adelaide Wiesinger	15001	First Aid and CPR	1	200
Adelaide Wiesinger	15501	GO Orientation	1	250
Adelaide Wiesinger	18501	GO Communication	1	500
Adelaide Wiesinger	19501	GO Communication 2	1	500
Adelaide Wiesinger	20001	GO Ethics	0.5	250
Adelaide Wiesinger	23001	First Aid and CPR Refresher	0.5	100

Workshop 1: Drill-Through from One Report to Another

HR would like a report that outlines the courses each employee has completed. They want to see the number of course days that each employee has accumulated to date and the cost of those courses. They would also like to be able to drill-through to specific information on each employee for each year.

To accomplish this:

- Open a new List template (target report), using the GO Data Warehouse (query) package, without saving the previous report.
- From HR (query)\Employee training (query), add the following query items to the list report object:
  - Time: Year
  - Employee by manager: Employee name
  - Employee training: Course code (from the Codes folder)
  - Employee training: Course name
  - Employee training fact: Course days and Course cost
- Add the parameters:
  - [Year]=?Year?
  - [Employee name]=?Employee name?
- Add the title 'Employee Training Details for'.
- Add the following Layout Calculations to the header:
  - ParamDisplayValue('Employee name')
  - ParamDisplayValue('Year')
- Format the title.
- Save the report as Employee Training Details in My Folders.

- Open a new List template (source).
- From HR (query)\Employee training (query), add the following query items to the list report object:
  - Time: Year
  - Employee by manager: Employee name
  - Employee training fact: Course cost
  - Employee training fact: Course days
- Group on Year.
- Create a new Drill Through Definition based on Employee name.
  - Use the Employee Training Details report as the target.
- Run the report.
- Drill-Through on Adelaide Wiesinger.

For more information about where to work and the workshop results, refer to the Tasks and Results section that follows. If you need more information to complete a task, refer to earlier demos for detailed steps.

Workshop 1: Tasks and Results

Task 1. Create the Employee Training Details report.

- **Toolbar**: Open a new List template (target report), using the **GO Data Warehouse (query)** package, without saving the previous report.
- **Source tab**: Navigate to **HR (query)\Employee training (query)**.
  - Add Time: **Year** to the list report object.
  - Add Employee by manager: **Employee name** to the list report object.
- **Source tab**: Navigate to **HR (query)\Employee training (query)**.
  - Add Employee training: **Course code** (from the Codes folder) to the list report object.
  - Add Employee training: **Course name** to the list report object.
- **Source tab**: Navigate to **HR (query) folder\Employee training (query)**.
  - Add Employee training fact: **Course days** to the list report object.
  - Add Employee training fact: **Course cost** to the list report object.

The results appear as follows:

Year	Employee name	Course code	Course name	Course days	Course cost
<Year>	<Employee name>	<Course code>	<Course name>	<Course days>	<Course cost>

Task 2. Add parameters to the Employee Training Details report.

- **Toolbar**: Create and validate the following advanced filter expression: **[Year] =?Year?**.
  - Validate using 2012
  - Create and validate the following advanced filter expression: **[Employee name]=?Employee name?**.
    - Validate using Adelaide Wiesinger.

Task 3. Add a calculation to indicate for which year and employee name the report displays data.

- **Work area**: Create the following title: **Training Details for**
  - Add a space before and after the title.
- **Toolbox tab**: Add a **Layout Calculation** object to the right of the report title.
- **Work Area**: Create and validate the following expression:

  ParamDisplayValue('Employee name')
- **Toolbox tab**: Add a **Layout Calculation** object to the left of the report title.
- **Work Area**: Create and validate the following expression: **ParamDisplayValue('Year')**
- **Toolbar**: Apply the title style to the layout calculations.
  - Left justify the header block.
  - Cut **<Year>**, and then cut **<Employee name>** from the list report object.
- **My Folders**: Save the report as **Employee Training Details**.

Task 4. Create the Employee Training Summary report and set up drill-through access to the Employee Training Details report.

- **Toolbar**: Open a new list template.
- **Source tab**: Navigate to **HR (query)** folder**\Employee training (query)**.
  - Add Time: **Year** to the list report object.
  - Add Employee by manager: **Employee name** the list report object.
  - Add Employee training fact: **Course days** and **Course cost** the list report object.

  The results appear as follows:

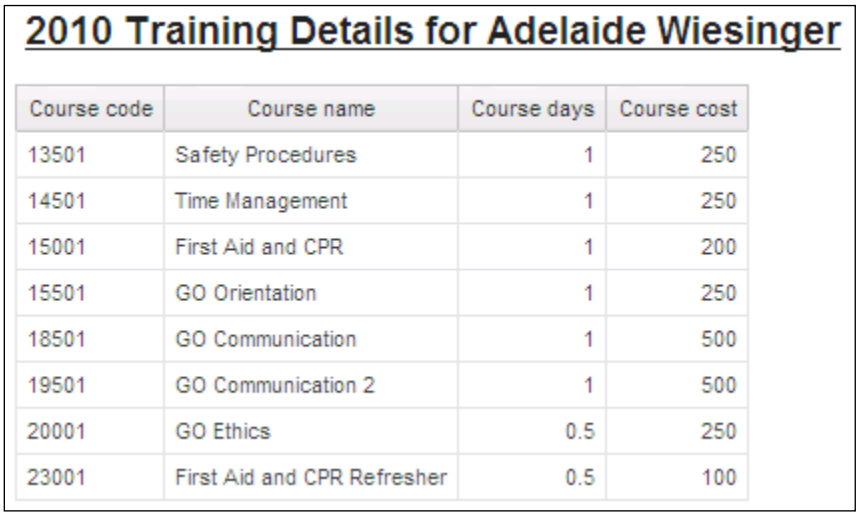
Year	Employee name	Course days	Course cost
<Year>	<Employee name>	<Course days>	<Course cost>

- **List** report: Click **<Employee name>**.
- **Toolbar**: click **Drill-Through Definitions**.
- **Drill-Through** Definitions: Click **New Drill-Through Definition**.
  - **Report**: **Employee Training Details**
- **Parameters**: Click **Edit**.
  - **Method**: **Employee name** - **Pass data item value**; **Value**: **Employee name**
  - **Method**: **Year** - **Pass data item value**; **Value**: **Year**
- Click **OK** to close the **Parameters** dialog box, and then click **OK** to close the **Drill-Through Definitions** dialog box.
- **Report title**: **Employee Training Summary**.
- **Toolbar**: Justify the title left.

Task 5. Test the drill-through from Employee Training Summary report to Employee Training Details Order Information report.

- On the toolbar, click **Run Report**.
- In the **Employee name** column, click **Adelaide Wiesinger**.

  The results appear as follows:



2010 Training Details for Adelaide Wiesinger

Course code	Course name	Course days	Course cost
13501	Safety Procedures	1	250
14501	Time Management	1	250
15001	First Aid and CPR	1	200
15501	GO Orientation	1	250
18501	GO Communication	1	500
19501	GO Communication 2	1	500
20001	GO Ethics	0.5	250
23001	First Aid and CPR Refresher	0.5	100

- Close **IBM Cognos Viewer**.
- Close **Report Studio**.
- Close the Web browser.

You have created a report that outlines the courses each employee has completed. HR can now see the number of course days that each employee has accumulated to date and the cost of those courses. They are now able to drill-through to specific information on each employee for each year.

Drill-Through Definitions

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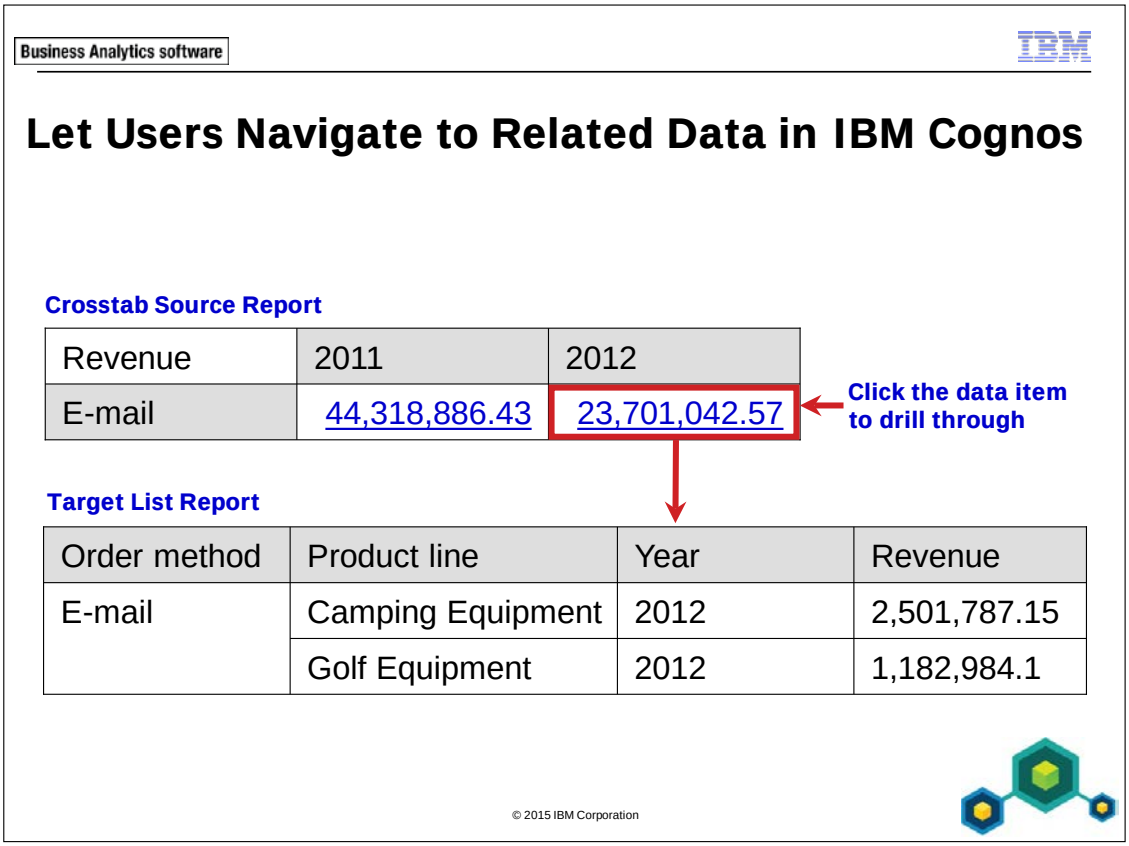
Objectives

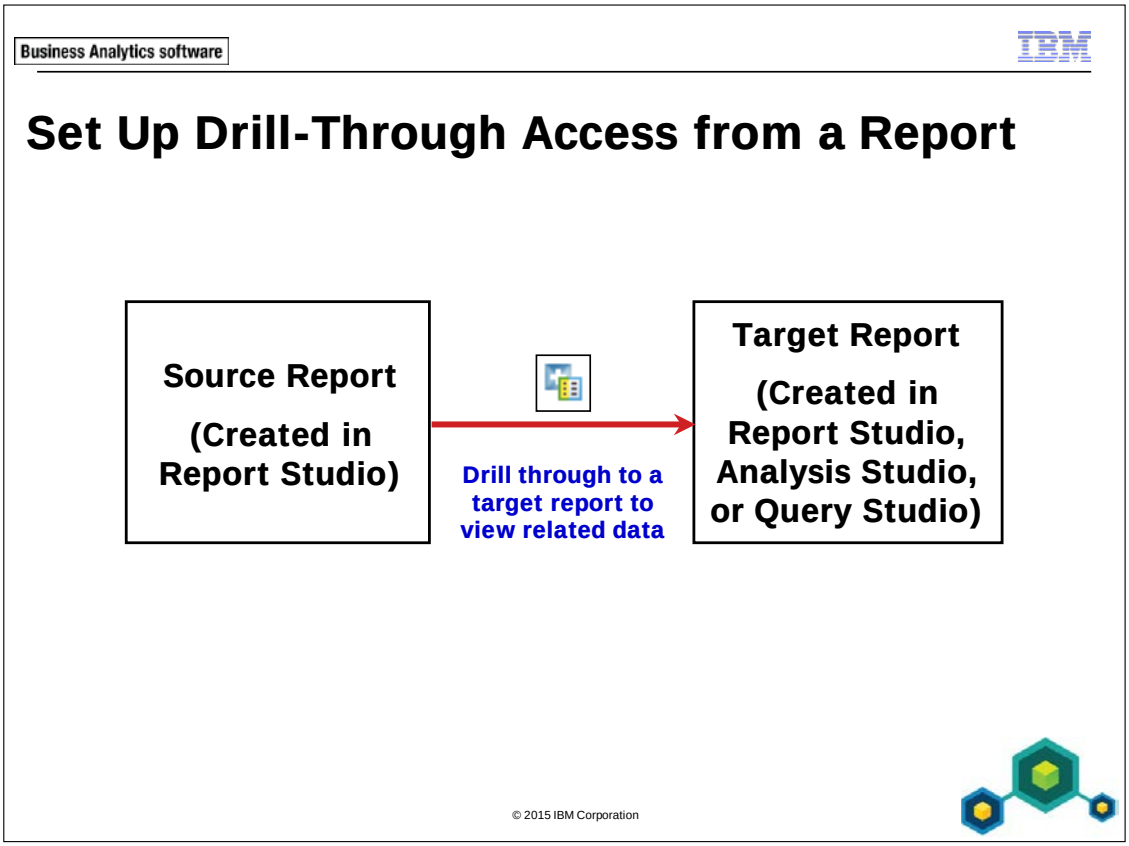
- At the end of this module, you should be able to:
  - discuss parameter-driven drill through
  - discuss dynamic drill through
  - set up package-based drill-through definitions
  - set scope
  - use the Drill Through Assistant



Drill-through access lets users navigate between reports to view related data to help them answer business questions.

In IBM Cognos, report authors can set up drill-through access to and from Report Studio reports, Query Studio queries, Workspace Advanced queries, and Analysis Studio analyses using dimensional and relational data sources.

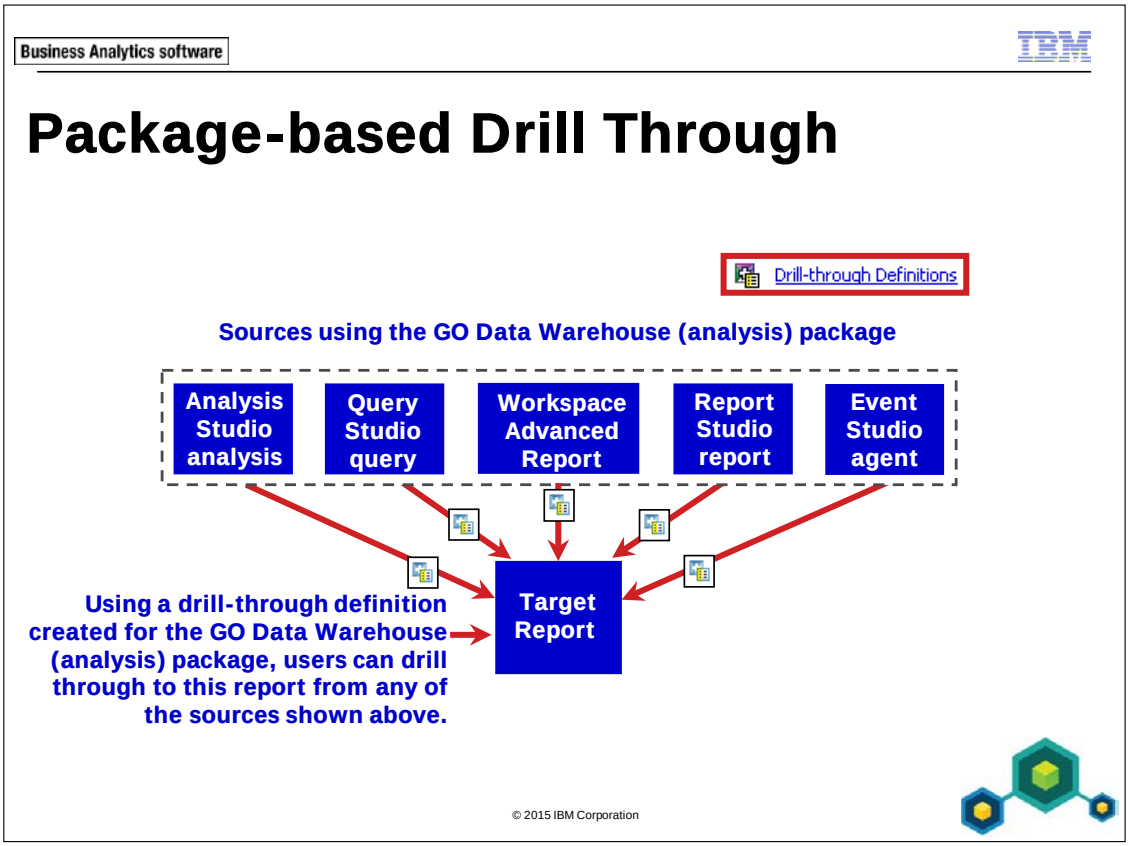
It is also possible to set up drill-through access to IBM Cognos targets from third party sources and to third party targets from Cognos sources. Setting up drill-through access to and from third-party sources and targets can be accomplished using URL requests or by using the Software Development Kit.



You can set up drill-through access from reports that are created from relational data sources or dimensional data sources.

You can let users navigate to target reports, queries, and analyses created from both relational and dimensional data sources.

You must create the target report before you can set up drill-through access.



To let users navigate to a specific target report from reports, analyses, and queries created using a package, you can create a drill-through definition for the package.

The source reports do not need to be created when you create the drill-through definition. This lets you set up drill-through access to the target report, and then later, report authors can create as many source reports as required.

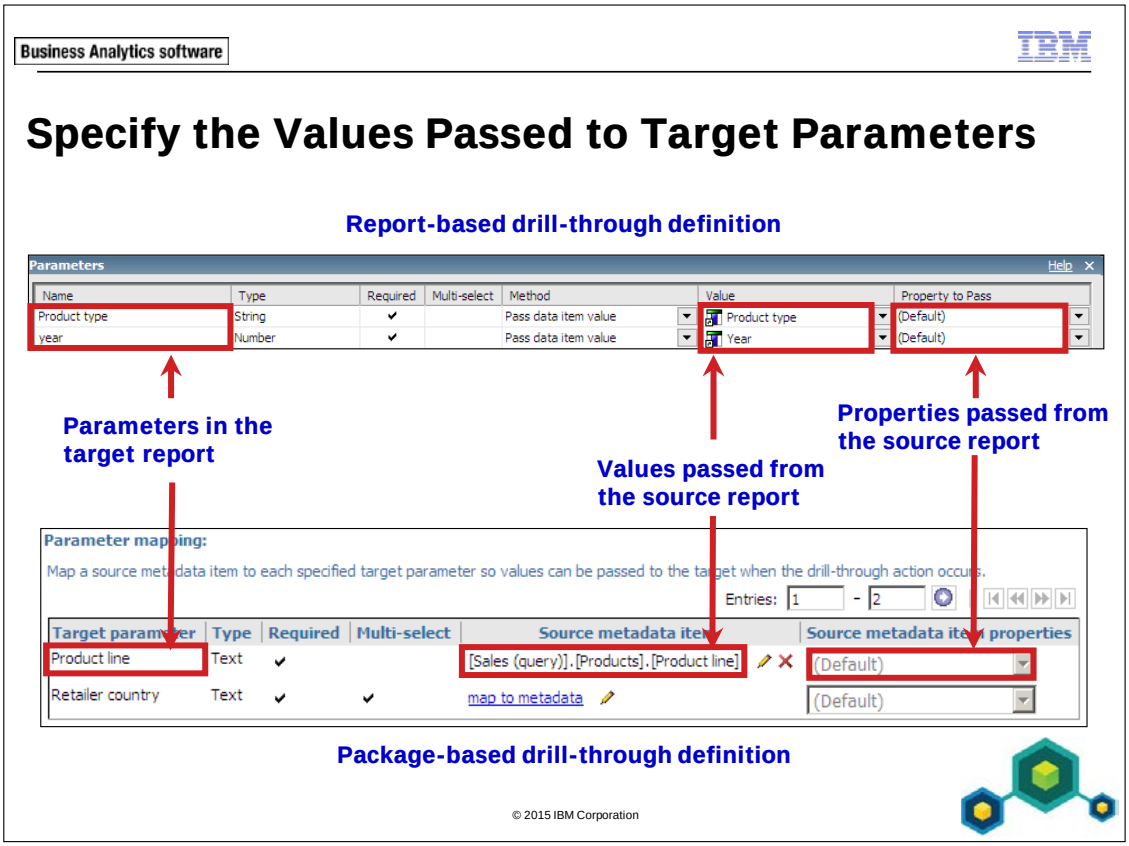
Each package drill-through definition can have only one target. You can create multiple drill-through definitions for a package.

In the slide example, a drill-through definition has been created for the GO Data Warehouse (analysis) package. Users can drill through to the target report from a variety of sources created using the same package.

A model in Framework Manager is a business presentation of the structure of the data from one or more data sources (such as IBM Cognos PowerCubes and relational databases). A model describes the metadata objects, structure, and grouping, as well as relationships and security.

You can set permissions properties for target reports to determine which users will be able to open them when they attempt to drill through. You can also set permissions properties for drill-through definitions to determine which users have access to these drill-through definitions.

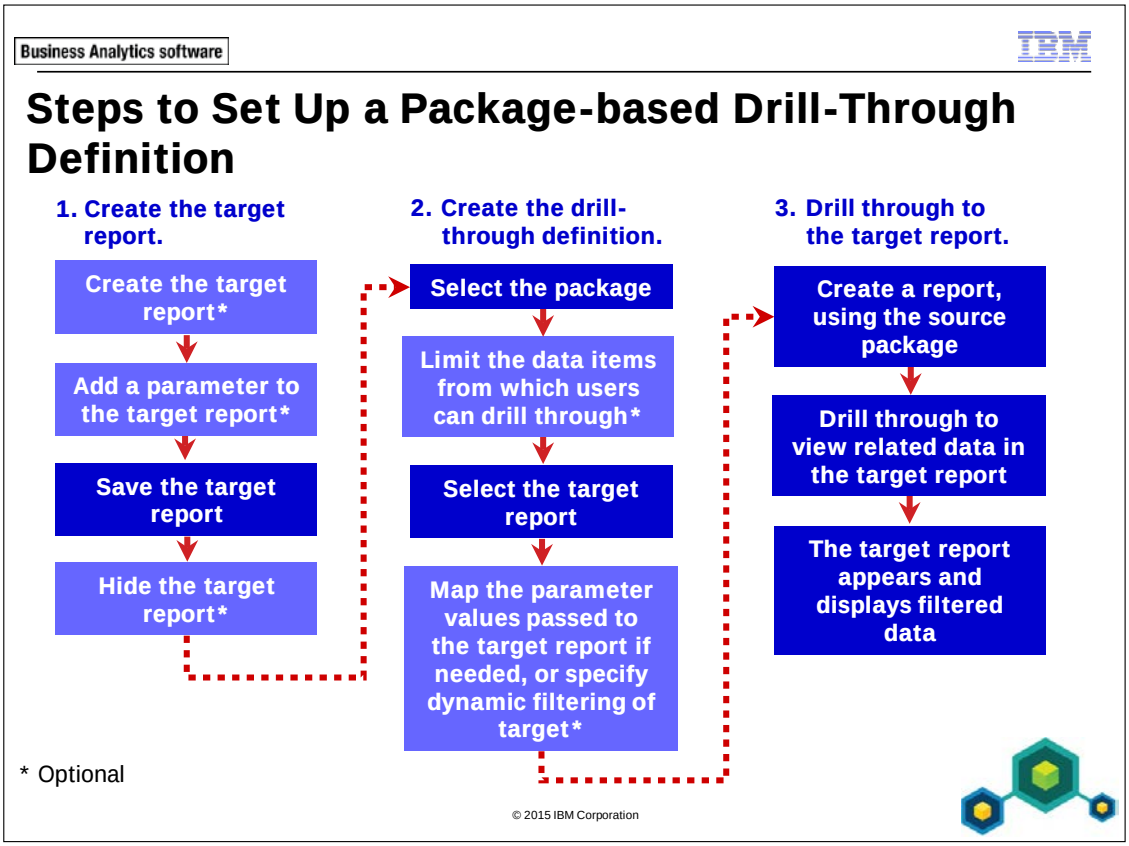
In IBM Cognos (v10.2), targets can be reports or packages.



When you set up drill-through access, you must map the values that the source report will pass to the target parameters.

If you do not specify which values to pass to target parameters, then when users drill through they will be prompted to select values for any required target parameters.

When dealing with dimensional sources, you can also select which property of the member you would like to pass to the target report (for example: Member Unique Name, Member Caption, or Business Key). It is important to know which values are conformed between the source report and the target report data sources.



Before you can set up drill-through access for a package, you must have a target report created.

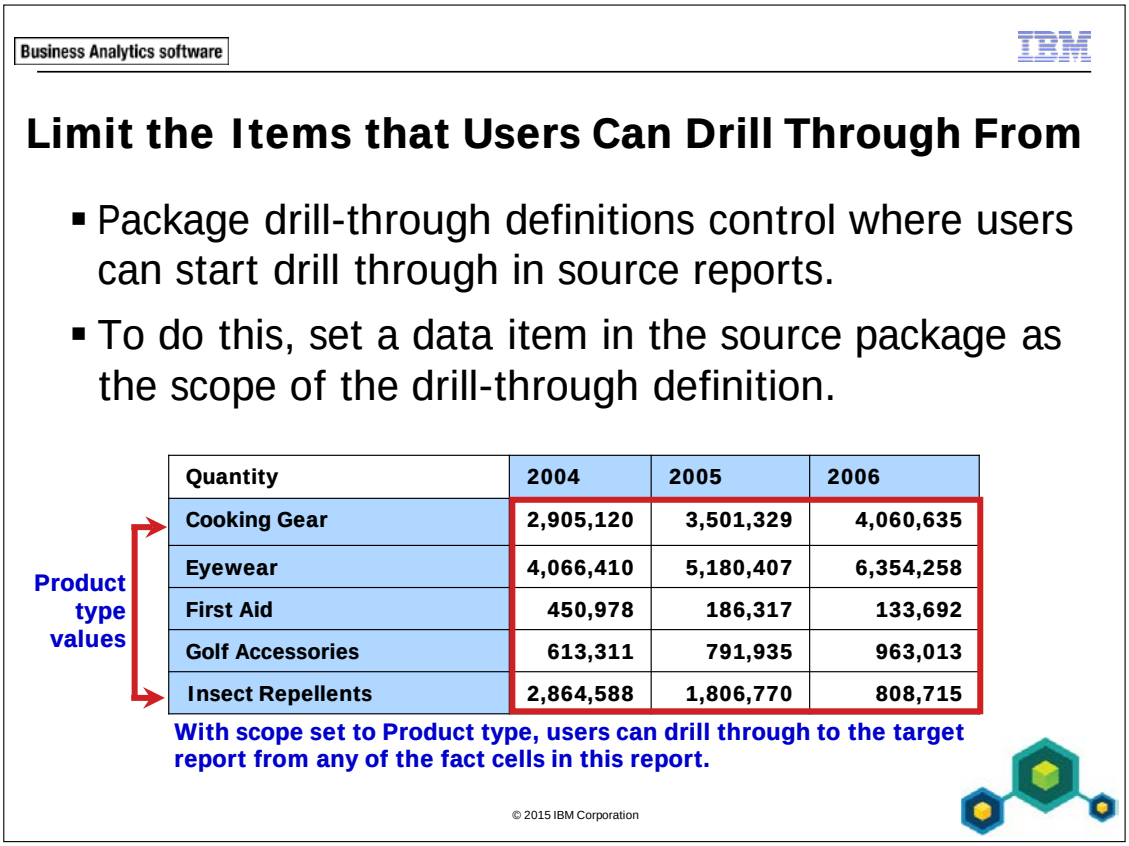
Next, create a drill-through definition that lets users navigate to the target report from reports created using the package.

To let users drill through from a Report Studio report using a package drill-through definition, you must enable this drill behavior in the source report.

You can create the target report in any studio.

When you set up drill through for a package, the following steps are optional:

- Create the target report (may be done by a different report author)
- Add a parameter to the target report.
- Limit the data items from which users can drill through.
- Map the parameter values passed to the target report.



If a target report contains one parameter, it makes sense to limit the scope of the drill-through definition to the item that must be passed to this parameter. This ensures that users will not be prompted to select a parameter value when they drill through.

Once you have set the scope of a drill-through definition to a particular data item, users can drill through from a cell in source reports only if its context includes this item.

If you do not set the scope of a drill-through definition for a package, users can drill through from any cell in any report created using the package.

It is useful to set the scope of drill-through access to limit the number of possible target reports users see when they drill through. If you have created many drill-through definitions for a package and you do not set the scope, users may be presented with an overwhelming number of possible target reports when they drill through.

When you create a drill-through definition for a relational package, set the scope to a specific fact/measure or query item, such as the Revenue fact from the Sales fact query subject or the Product type query item from the Products query subject.

When you create drill-through definitions for OLAP or dimensionally modeled relational (DMR) packages, you can set the scope to a dimension, a level in the dimension, or a measure.

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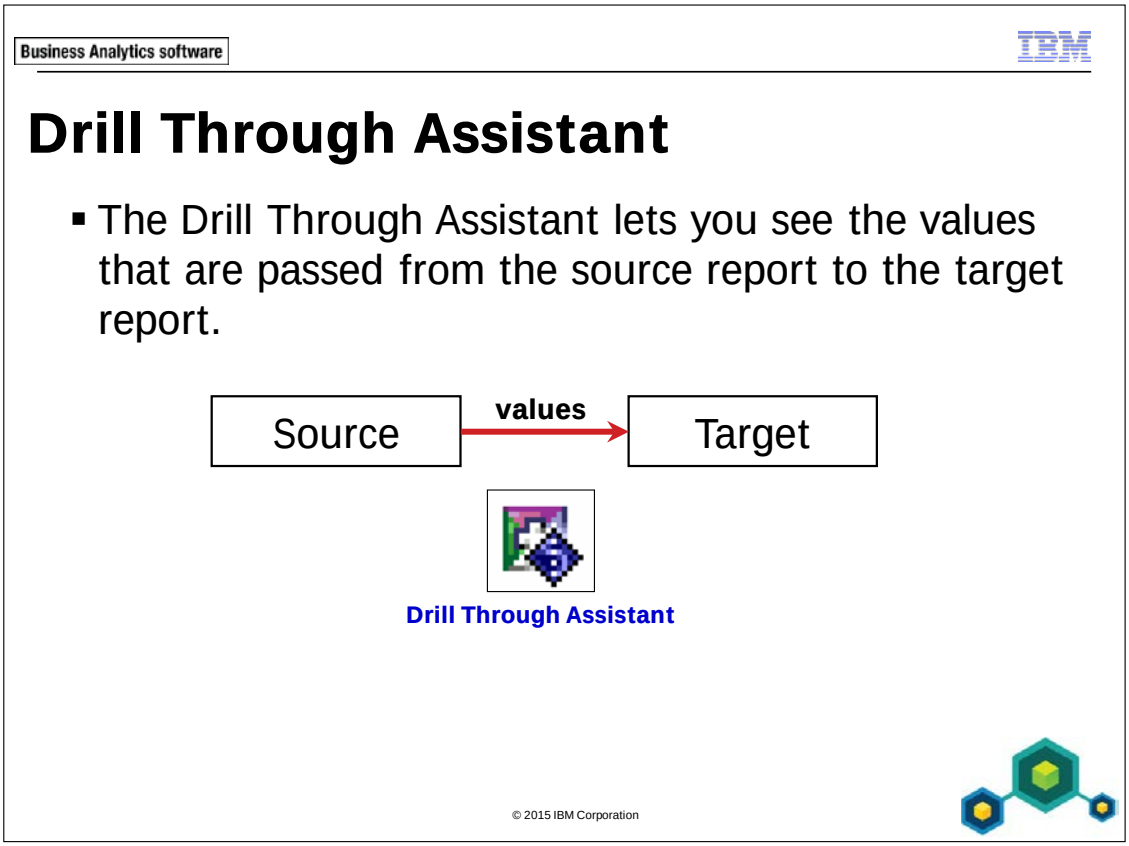
Measure-based Scope

- Set scope based on a measure in a drill-through definition.
- The source report must use the selected measure in order to drill through to target report.

When defining a drill-through definition, the user has a choice to set the scope on the target report.

If you base scope on a measure, then the target report that is specified in the drill-through definition will only appear on the Related Links list of a source report if the selected measure is in the source report.



IBM Cognos includes a debugging functionality, called the Drill Through Assistant, which you can use to troubleshoot your drill-through definitions created in IBM Cognos Connection. It can also help you understand how the drill-through functionality works, especially across different types of data sources.

The Drill Through Assistant is especially useful for Report Authors and Report Administrators. By default, no user, group, or role can use the Drill Through Assistant until the capability is granted.

For more information about the Drill Through Assistant see the *Administration and Security* guide.

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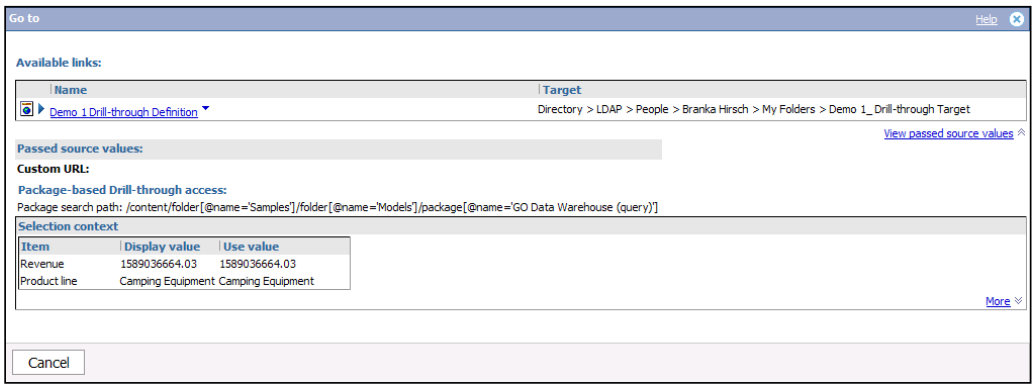
Demo 1

- Set up Drill-Through Access for a Package



Demo 1: Set Up Drill-Through Access for a Package

Purpose:
You have been asked to create a drill-through definition to let users navigate to a detailed product line sales report that is created from reports using the GO Data Warehouse (query) package. To let users focus on specific areas of interest, the target report will only display data for the product line from which users drill through. Finally, you will enable the Drill Through Assistant and view the values that are passed.

Portal: **http://localhost:88/ibmcognos**
User/Password: **hirschb/Education1** (Branka Hirsch is a Report Administrator)

Task 1. Create the target report.

In this task you will open and run an existing report.

1. In **IBM Cognos Connection**, navigate to **Public Folders**\ **Samples_Drillthrough**\ **Models**\ **GO Data Warehouse (query)****Report Studio Report Samples**.
2. For the **Total Revenue by Country** entry, in the **Actions** column, click **Open with Report Studio**  .

   This is a method to open a report in Report Studio, if Report Studio is not currently open.
3. On the toolbar, click **Run Report**.

   This is a report based on a relational model that provides information on region, country, retailer name, and revenue for product lines.

A section of the results appear as follows:

Revenue			Golf Equipment	Outdoor Protection	Personal Accessories	Camping Equipment	Mountaineering Equipment	Total(Product line)
Asia Pacific	Australia	4 Golf only	3,186,790.6	1,551.16	1,827,033.78			**5,015,375.54**
		Beach Beds Pty Ltd.	4,137,155.17	293,119.01	5,330,905.74	15,788,255.05		**25,549,434.97**
		Black Stump Camping Supplies		7,719	2,464,224.32	1,262,948.49	462,817.16	**4,197,708.97**
		Blue Mountains Golfing Company	8,257,037.18	69	1,797,644.23			**10,054,750.41**
		Can't Beat The Bush Supplies		44,577.27		1,049,058.84		**1,093,636.11**
		Gone Bush Supplies	318,232.24	38,649.38	210,786.47	1,107,959.92	479,606.83	**2,155,234.84**
		Harbour Pty Ltd.		69,407.26	471,913.2	1,352,640.02		**1,893,960.48**
		Jackos Enviro Shop		114,725.39	673,004.88	5,731,660.31		**6,519,390.58**
		Kanga Kampers		233,156.42	7,765,870.22	11,352,544.63	8,959,397.64	**28,310,968.91**
		OutBack Pty		122,841.24	3,032,847.57	2,598,252.2	4,031,298.43	**9,785,239.44**
		Southern Cross Pty.			7,589,488.86	13,681.08		**7,603,169.94**
		Top End Equipment	24,586.64	211,234.47	238,314.07	1,678,931.65		**2,153,066.83**
		Watson's Golf Supplies	3,155,754.6	3,293.96	1,808,983.56			**4,968,032.12**

4. Close **IBM Cognos Viewer**.

Task 2. Add parameters and save the report.

You will add parameters so that this report will only display data for the Country or Countries and the Product line from which the users drill through.

1. On the toolbar, click **Filters**, click **Edit Filters**, and then click **Add**.
2. Create and then validate the following expression:

   [Retailer country]in?Retailer country?

   Hint: Drag Retailer country from the Data Items tab.

   Validate using Australia.
3. Click **OK** to close the validation dialog box, and then click **OK** to close the **Detail Filter Expression** dialog box.
4. Click **Add**.
5. Create and validate the following expression:

   [Product line]=?Product line?

   Hint: Drag Product line from the Data Items tab.

   Validate using Camping Equipment.
6. Click **OK** to close the **Prompt** dialog box, click **OK** to close the **Detail Filter Expression** dialog box, and then click **OK** to close the **Filters** dialog box.
7. On the toolbar, click **Run Report**.

8. In the **Product line** prompt, click **Camping Equipment**, in the **Retailer country** prompt, click **Australia**, and then click **OK**.

   A section of the results appear as follows:

Revenue			Camping Equipment	Total(Product line)
Asia Pacific	Australia	Beach Beds Pty Ltd.	15,788,255.05	**15,788,255.05**
		Black Stump Camping Supplies	1,262,948.49	**1,262,948.49**
		Can't Beat The Bush Supplies	1,049,058.84	**1,049,058.84**
		Gone Bush Supplies	1,107,959.92	**1,107,959.92**
		Harbour Pty Ltd.	1,352,640.02	**1,352,640.02**
		Jackos Enviro Shop	5,731,660.31	**5,731,660.31**
		Kanga Kampers	11,352,544.63	**11,352,544.63**
		OutBack Pty	2,598,252.2	**2,598,252.2**
		Southern Cross Pty.	13,681.08	**13,681.08**
		Top End Equipment	1,678,931.65	**1,678,931.65**
	Total(Retailer country)		**41,935,932.19**	**41,935,932.19**

9. Close the **IBM Cognos Viewer**.
10. From the **File** menu, click **Save As**, and then click **My Folders**.
11. In the **Name** box, type **Total Revenue by Country and Product line** click **Save**, and then minimize **Report Studio**.

Task 3. Create a drill-through definition for the GO Data Warehouse (query) package.

You will create a drill-through definition so that users can drill through to this report from reports that were created with the GO Data Warehouse (query) package.

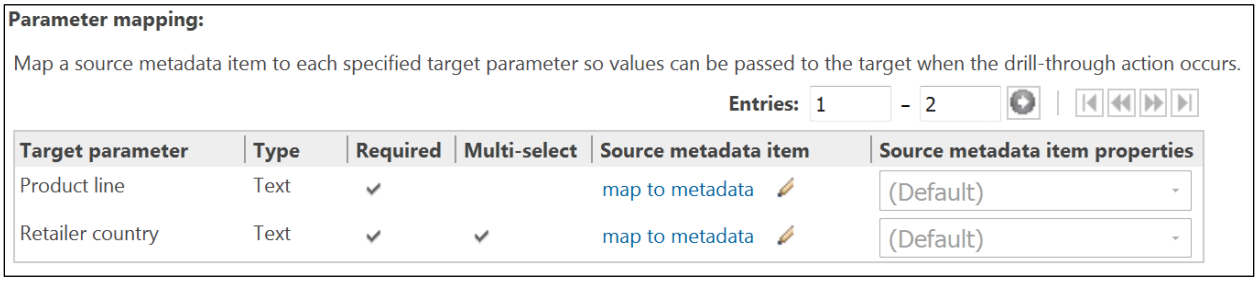
1. In **IBM Cognos Connection**, click **Home**.
2. On the toolbar, click **Launch**, and then click **Drill-through Definitions**.
3. Click **Samples_Drillthrough\Models**, and then click **GO Data Warehouse (query)**.
4. On the toolbar, click **New Drill-through Definition**  .

5. In the **Name** box, type **Total Revenue by Country Definition** and then click **Next**.

   It is important to create a logical name for each drill-through definition that describes the contents of the drill-through target report. This helps organize drill-through definitions.

   Your target report has a Product line parameter; therefore, you want to limit the scope of this drill-through definition so that users can drill through only from cells in source reports that have Product line as their context.
6. Click **Set the scope**, and then navigate to **Sales and Marketing (query)\Sales(query)\Products**.
7. Click **Product line**, and then click **OK**.
8. Click **Set the target**, in the navigation path, click **Cognos**, and then click **My Folders**.
9. Click the **Total Revenue by Country and Product line** radio button, click **OK**, and then click **Next**.

   The Specify the target details page appears and displays the Product line and Retailer country parameters from the Total Revenue by Country and Product line report as follows:



10. For the **Product line** parameter, in the **Source metadata item** column, click **Set the value**  .
11. Navigate to **Sales and Marketing (query)\ Sales (query)\Products**, click the **Product line** query item, and then click **OK**.
12. For the **Retailer country** parameter, in the **Source metadata item** column, click **Set the value**  .
13. Navigate to **Sales and Marketing (query)\ Sales (query)\Retailers**, click the **Retailer country** query item, and then click **OK**.
14. Click **Finish**.

Task 4. Test the drill-through definition.

You will test this drill-through definition by drilling through from a report created in IBM Cognos Workspace Advanced using the GO Data Warehouse (query) package.

1. From the **Launch** menu, click **Cognos Workspace Advanced**, navigate to **Public Folders**\ **Samples_Drillthrough**\ **Models**, and then click **GO Data Warehouse (query)**.
2. Click **Create new**, click **List**, and then click **OK**.
3. In the right-pane, expand **Sales and Marketing (query)**\ **Sales (query)****Retailers**, right-click **Retailer country**, and then click **Insert**.
4. Expand **Sales fact**, right-click **Revenue**, and then click **Insert**.
5. On the toolbar, click **Run Report**.

   You will attempt to drill through to view more data about revenue in Australia.
6. In the report, in the **Australia** row, right-click the revenue cell **109,299,969.14**, point to **Go To**, and then click **Related Links**.

   The drill-through definition that you created does not appear in the list of available links. This is because you limited the scope of this drill-through definition to the Product line data item. The Australia row does not have a specific product line as its context.
7. Close the **Go to** window and **IBM Cognos Viewer**.
8. Click **Retailer country**, and then on the toolbar, click **Delete**  .

   You will add product line data to this report, and then drill through to view more data about revenue generated by the camping equipment product line.

9. In the right pane, expand the **Products** query subject, and then drag **Product line** to the left of the **Revenue** column.
10. On the toolbar, click **Run Report**.
11. In the report, in the **Camping Equipment** row, right-click the revenue cell **1,589,036,664.03**, point to **Go To**, and then click **Related Links**.
12. Under **Available links**, click **Total Revenue by Country Definition**.
13. In the **Retailer country** prompt, click **Australia** and then click **OK**.

    IBM Cognos drills through to the Total Revenue by Country target report.

    The report contains data for only Australia and the Camping Equipment product line.

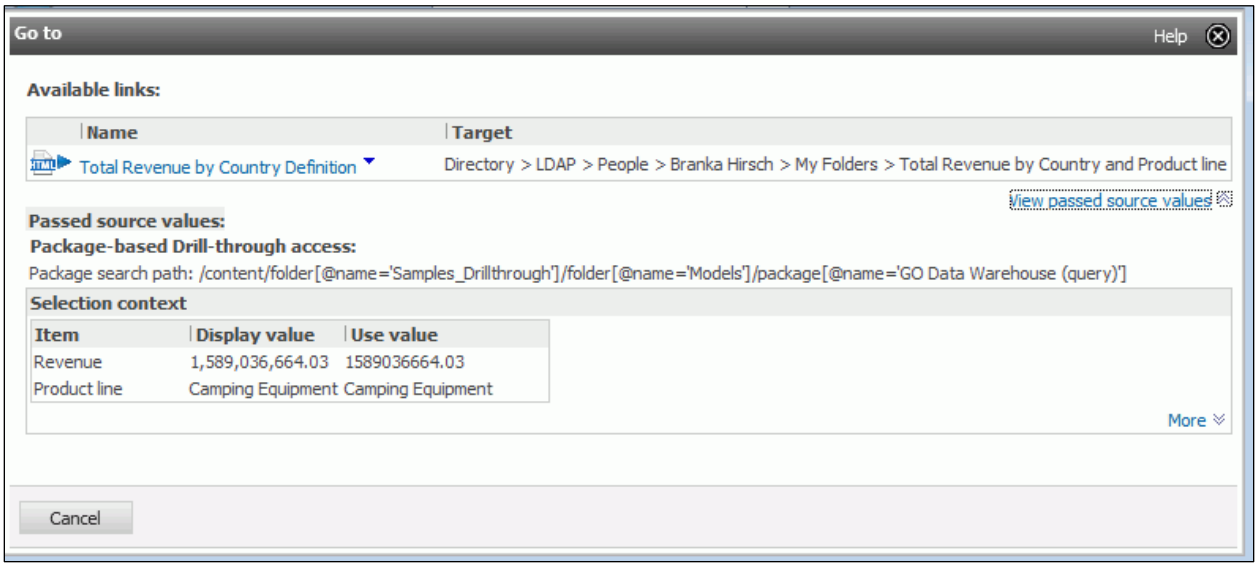
    A section of the results appear as follows:

Revenue			Camping Equipment	Total(Product line)
Asia Pacific	Australia	Beach Beds Pty Ltd.	15,788,255.05	**15,788,255.05**
		Black Stump Camping Supplies	1,262,948.49	**1,262,948.49**
		Can't Beat The Bush Supplies	1,049,058.84	**1,049,058.84**
		Gone Bush Supplies	1,107,959.92	**1,107,959.92**
		Harbour Pty Ltd.	1,352,640.02	**1,352,640.02**
		Jackos Enviro Shop	5,731,660.31	**5,731,660.31**
		Kanga Kampers	11,352,544.63	**11,352,544.63**
		OutBack Pty	2,598,252.2	**2,598,252.2**
		Southern Cross Pty.	13,681.08	**13,681.08**
		Top End Equipment	1,678,931.65	**1,678,931.65**
	Total(Retailer country)		**41,935,932.19**	**41,935,932.19**

    The drill-through definition works as expected.
14. Close the instance of **IBM Cognos Viewer** that contains the target report (the **Total Revenue by Country …** window).
15. In the report, in the **Camping Equipment** row, right-click the revenue cell **1,589,036,664.03**, point to **Go To**, and then click **Related Links**.

16. **Maximize** the window, and then click **View passed source values**.

    The results appear as follows:



    You can see the items and values that are passed. If you want, you can click Total Revenue by Country Definition, to view the target report.

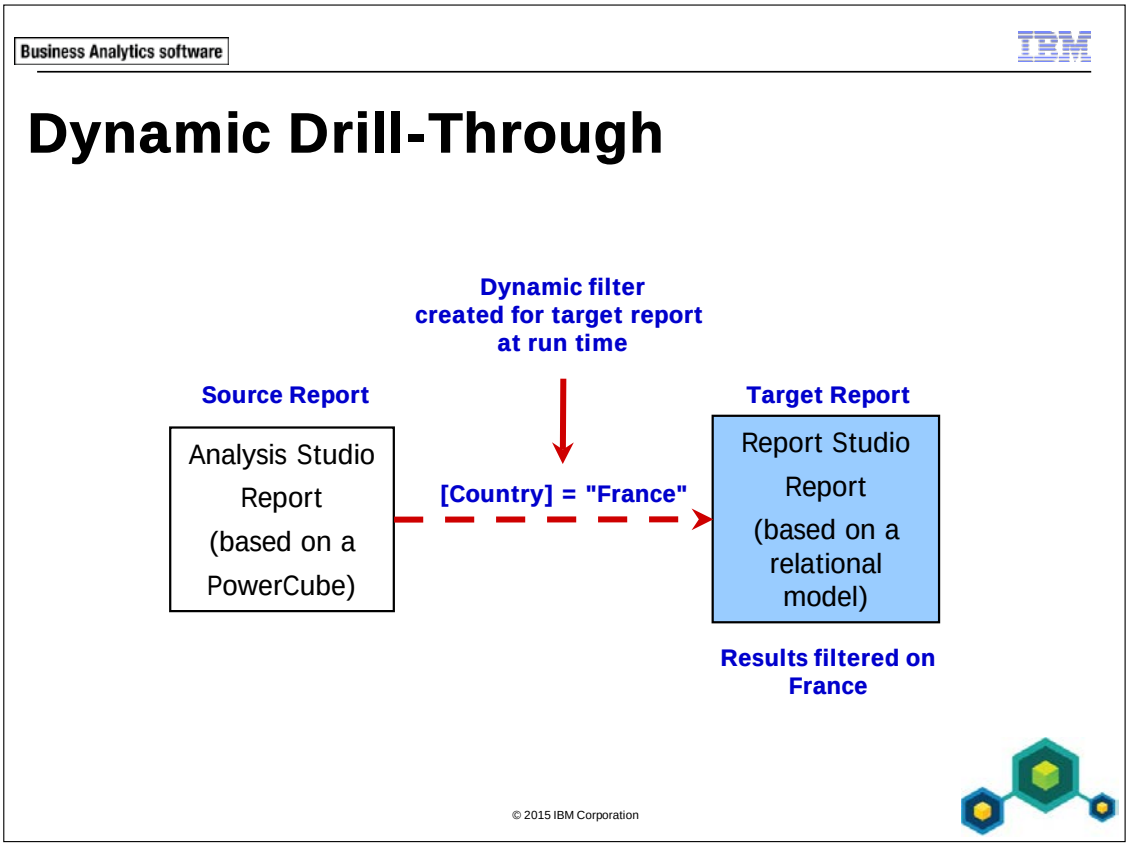
    For further troubleshooting, you can click the More link. The information found there is typically sent to customer support for investigation.

17. Click **Cancel**, and then close **IBM Cognos Viewer**.
18. On the toolbar, click **Save**, and then navigate to **My Folders**.
19. In the **Name** box, type **Revenue by Product line - Source**, and then click **Save**.

    This report will be used in the next demo.

20. Close **IBM Cognos Workspace Advanced**, and then close **Report Studio**.

Results:
You created a drill-through definition for the GO Data Warehouse (query) package to let users drill through to a target report containing detailed information about sales of each product line. To let users focus on specific areas of interest, you set up drill-through access so that when users drill through, they will see details for only the product line they are interested in. Finally, you enabled the Drill Through Assistant and viewed the values that were passed.



Dynamic filtering eliminates the need for pre-authored drill-through prompts and parameters previously required for drill-through reports.

Dynamic drill through simplifies the process of authoring reports for drill through and allows administrators to create reliable drill-through definitions between any reports provided they have common items with conformed values.

You can use dynamic drill through alone, or combine with parameterized drill through when reports expect parameters. Non-parameterized items would be filtered dynamically, whereas the parameterized items would be predefined.

In the example, the source Analysis Studio report, based on a PowerCube, is configured to drill through to a Report Studio report, based on a relational model. Both the source and the target contain an item called Country. The value from the PowerCube is converted into a string value (based on caption) which matches the string value found in the relational target, in this case, France.

Drill-through functionality also applies to PowerPlay Studio.

Note: In this release, if the drill-through target is a PowerCube, it will always open in PowerPlay Studio (not Analysis Studio). If PPS is not installed, you cannot select a PowerCube as a target for dynamic drill-through. In short PowerCubes, not just reports, can be targets when PPS is installed.

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Dynamic Drill Through – Matching Criteria

- Dynamic drill through matches source model item names to either:
  - target model item name
  - target report data item name
- No match, source item is ignored.

First, IBM Cognos tries to match model item names. This is the most reliable match since column names may be renamed during the authoring process of potential target reports.

For example, if both the source and target reports had items called Product line, renaming Product line in the target report to something else would still work since the model names match.

When the model names do not match, then the target report data item name must match that of the source report.

If no match is found for the model or data item name, then the item is ignored for the drill-through.

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Demo 2

- Configure Dynamic Drill Through and Set Measure Scope

Total Revenue by Country
For Product Line

Revenue			Golf Equipment	Outdoor Protection	Personal Accessories	Camping Equipment	Mountaineering Equipment	Total(Product line)
Asia Pacific	Australia	4 Golf only	3,186,790.6	1,551.16	1,827,033.78			5,015,375.54
		Beach Beds Pty Ltd.	4,137,155.17	293,119.01	5,330,905.74	15,788,255.05		25,549,434.97
		Black Stump Camping Supplies		7,719	2,464,224.32	1,262,948.49	462,817.16	4,197,708.97
		Blue Mountains Golfing Company	8,257,037.18	69	1,797,644.23			10,054,750.41
		Can't Beat The Bush Supplies		44,577.27		1,049,058.84		1,093,636.11
		Gone Bush Supplies	318,232.24	38,649.38	210,786.47	1,107,959.92	479,606.83	2,155,234.84
		Harbour Pty Ltd.		69,407.26	471,913.2	1,352,640.02		1,893,960.48
		Jackos Enviro Shop		114,725.39	673,004.88	5,731,660.31		6,519,390.58
		Kanga Kampers		233,156.42	7,765,870.22	11,352,544.63	8,959,397.64	28,310,968.91
		Outback Pty		122,841.24	3,032,847.57	2,598,252.2	4,031,298.43	9,785,239.44
		Southern Cross Pty.			7,589,488.86	13,681.08		7,603,169.94
		Top End Equipment	24,586.64	211,234.47	238,314.07	1,678,931.65		2,153,066.83
		Watson's Golf Supplies	3,155,754.6	3,293.96	1,808,983.56			4,968,032.12
	China	COMLINRK 国际实业有限公司		70,015.85	5,668,139.98	5,152,698.57	359,268.54	11,250,122.94
		ORDER 集团		176,349.03	4,900,904.78	627,723.56	1,074,171.74	6,779,149.11
		W&S 格洛里亚运动中心		182,183.86	310,065.61	3,056,556.42		3,548,805.89
		上海德华探索用品店		303,137.08	3,888,404.59	5,589,902.82	574,016.06	10,355,460.55
		上海国际户外用品专卖店		626,236.92	7,677,546.74	6,715,767.86	3,763,966.48	18,783,518
		上海骑宇健身休闲用品有限公司		316,501.05	3,202,563.91	3,973,931.38		7,492,996.34
		上海第一体育用品营销		164,453.52	3,166,931.19	5,274,434.77		8,605,819.48

Demo 2: Configure Dynamic Drill Through and Set Measure Scope

Purpose:
You have been asked to configure a package to enable dynamic drill-through from source reports based on a package to a target report that provides revenue details.

In addition, you will also set the scope of the target report to be available only if the source report contains the Revenue measure.

Note: Demo 1 needs to be completed before starting this demo.

Portal: **http://localhost:88/ibmcognos**
User/Password: **hirschb/Education1**

Task 1. Examine the target report.

You will open an existing report in Report Studio, remove existing filters, and then save the report with a different name.

1. In **IBM Cognos Connection**, navigate to **My Folders**, and then open the **Total Revenue by Country and Product line** report in **Report Studio**.
   This is the crosstab report created in the previous demo.
2. On the toolbar, click **Filters**, and then click **Remove all Filters**.
3. On the toolbar, click **Run Report**.
   A section of the report appears as follows:

		Revenue	Golf Equipment	Outdoor Protection	Personal Accessories	Camping Equipment	Mountaineering Equipment	Total(Product line)
Asia Pacific	Australia	4 Golf only	3,186,790.6	1,551.16	1,827,033.78			**5,015,375.54**
		Beach Beds Pty Ltd.	4,137,155.17	293,119.01	5,330,905.74	15,788,255.05		**25,549,434.97**
		Black Stump Camping Supplies		7,719	2,464,224.32	1,262,948.49	462,817.16	**4,197,708.97**
		Blue Mountains Golfing Company	8,257,037.18	69	1,797,644.23			**10,054,750.41**

Notice that all data is returned for each of the data items on the report (region country, retailer name, and product line).

4. Click **Page down** to advance through the report.
5. Close **IBM Cognos Viewer**.
6. From the **File** menu, click **Save as**, navigate to **My Folders**, and then save the report as **Demo 2_Total Revenue by Country**.
7. Minimize **Report Studio**.

Task 2. Create a drill-through definition.

You will create a drill-through definition with dynamic filtering, and use it to drill through to the target report, and then you will identify a filter error.

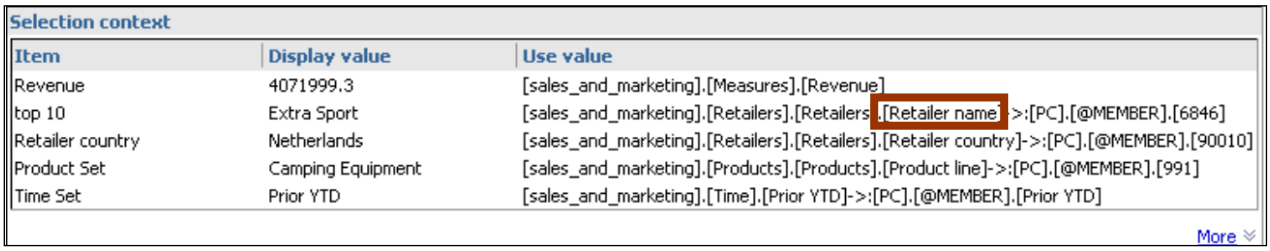
1. In **IBM Cognos Connection**, from the **Launch** menu, click **Drill-through Definitions**.
2. Navigate to **Public Folders\Samples_Drillthrough\Cubes**, and then click **Sales and Marketing (cube)**.
3. In the top right corner, click **New Drill-through Definition**, in the **Name** box, type **Revenue Details Drill-through Definition** and then click **Next**.

   For now, you will not set any scope on this drill-through definition. Users will be allowed to drill through on any level in any dimension. Later you will restrict the scope based on a measure.
4. Click **Set the target**, navigate to **My Folders**.
5. Click the **Demo 2_Total Revenue by Country** report radio button, and then click **OK**.
6. Click **Next**, and then in the **Action** list, click **Run the report using dynamic filtering**.

   Notice that there are no parameters under Parameter mapping because the target report has no parameters. If the target report did have parameters, you would need to map those parameters, but could still leverage dynamic filtering on other common, non-parameterized items. In other words, you can combine the two methods if required.

7. Click **Finish**, and then click **Home**.
8. Navigate to **PublicFolders\Samples_Drillthrough\Cubes**, click the **Sales and Marketing (cube)\Report Studio Report Samples**, and then open the **Top Retailers by Country** report in **Report Studio**.
9. On the toolbar, click **Run Report**, when prompted to make a selection of retailers click **Select all**, and then click **Finish**.
10. In **IBM Cognos Viewer**, right-click the intersection of **Netherlands/Extra Sport** (rows) and **Prior YTD/Camping Equipment** (columns), point to **Go To**, and then click **Related Links**.
11. Maximize the window, and then click **View passed source values**.

    A section of the results appear as follows:



Selection context

Item	Display value	Use value
Revenue	4071999.3	[sales_and_marketing].[Measures].[Revenue]
top 10	Extra Sport	[sales_and_marketing].[Retailers].[Retailers].[Retailer name]->:[PC].[@MEMBER].[6846]
Retailer country	Netherlands	[sales_and_marketing].[Retailers].[Retailers].[Retailer country]->:[PC].[@MEMBER].[90010]
Product Set	Camping Equipment	[sales_and_marketing].[Products].[Products].[Product line]->:[PC].[@MEMBER].[991]
Time Set	Prior YTD	[sales_and_marketing].[Time].[Prior YTD]->:[PC].[@MEMBER].[Prior YTD]

More

You can see the data items used, their display values, and the values that are used to filter the target report. The Use value may be converted at run time depending on the source and target report data sources. For example, if the source report is based on a PowerCube and the target report is based on a relational model, then the member unique name (MUN) value from the source report may be converted to a string representation of the member caption in order to conform to the relational data value. Be aware that one of the use values being passed is Retailer name.

12. Under **Available links**, click the **Revenue Details Drill-through Definition** link.

    A section of the report appears as follows:

Revenue			Camping Equipment	Total(Product line)
Northern Europe	Netherlands	Beter Buitenleven	12,289,976.23	12,289,976.23
		Cornelius' buitensport	1,251,721.79	1,251,721.79
		Eurobal	1,185,078.65	1,185,078.65
		Extra Sport	15,734,395.66	15,734,395.66

    The source and target reports have country, retailer name and product line in common, yet the report is only filtered on country and product line.

    The item names must match. In this case the source item name does not match the target item name. The use value for the item from the source report is Retailer name, as seen with the View passed source values feature. The value for the item from the target report is Retailer name (multiscript).

13. Close all **IBM Cognos Viewer** windows, and leave both instances of **Report Studio** open.

Task 3. Fix target report and retest.

You will need to verify the item name in the target report, and retest the drill-through.

1. In **Report Studio**, in the **Demo 2_Total Revenue by Country** report, in the crosstab, click **<#Retailer name (multiscript)#>** to highlight it.

   Notice that the name does not match the item name in the cube. In the relational source it is called Retailer name (multiscript); in the cube source it is called Retailer name.

2. In the **Properties** pane, under **Data Item**, change the **Name** property to **Retailer name**, and then save the report.

3. In **Report Studio**, in the **Top Retailers by Country** source report, on the toolbar, click **Run Report**, when prompted to make a selection of retailers click **Select all**, and then click **Finish**.
4. In **IBM Cognos Viewer**, right-click the intersection of **Netherlands/Extra Sport** (rows) and **Prior YTD/Camping Equipment** (columns), point to **Go To**, and then click **Related Links**.
5. Under **Available links**, click the **Revenue Details Drill-through Definition** link.

   A section of the report appears as follows:

Revenue			Camping Equipment	Total(Product line)
Northern Europe	Netherlands	Extra Sport	15,734,395.66	**15,734,395.66**
	Total(Retailer country)		**15,734,395.66**	**15,734,395.66**

   The report is now filtered on country, retailer name and product line.
6. Close the instance of **IBM Cognos Viewer** that contains the **Demo 2_Total Revenue by Country** report.

Task 4. Set measure scope.

You will now only permit drill through for this definition when the source report includes the Planned revenue measure.

1. In **IBM Cognos Connection**, from the **Launch** menu, click **Drill-through Definitions**.
2. In the navigation path, click **Public Folders**, and then navigate to **Samples_Drillthrough\Cubes\Sales and Marketing (cube)**.
3. In the **Actions** column, beside **Revenue Details Drill-through Definition**, click **Set properties**.

4. Click the **Target** tab, and then click **Set the scope**.
5. Expand **Measures**, and then click **Planned revenue**.
6. Click **OK** to close the **Set the scope** dialog box, and then click **OK** to close the **Set properties** dialog box.
7. In **IBM Cognos Viewer**, right-click the intersection of **Netherlands/Extra Sport** (rows) and **Prior YTD/Camping Equipment** (columns), point to **Go To**, and then click **Related Links**.

   The Revenue Details link does not appear any longer because Planned revenue is not in the analysis.
8. Click **Cancel**, and then close all open applications.
9. Close **Internet Explorer**.

Results:
By configuring a dynamic drill-through definition and ensuring that the common item names in the source and target reports matched, you were able to achieve a dynamic drill-through.

You also ensured that the target report would only be available if the source report contained the Revenue measure.

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Summary

- At the end of this module, you should be able to:
  - discuss parameter-driven drill through
  - discuss dynamic drill through
  - set up package-based drill-through definitions
  - set scope
  - use the Drill Through Assistant

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Workshop 1

- Configure Dynamic Drill Through

Returns by Product Type

Product type	Product	Quantity	Return quantity	% Returned	Lost revenue
Binoculars	Seeker 50	159,701	2,282	1.43%	$211,267.56
Overall Total		**159,701**	**2,282**		**211,267.56**
Overall Calculated				**0.0142892**	

Workshop 1: Configure Dynamic Drill Through

Consumers using the Sales and Marketing (cube) package for analysis would like to review actual and planned revenue for order methods, using the Actual vs. Planned Revenue report, and be able to get details on lost revenue for specific products displayed in the report. The GO Data Warehouse (analysis) package has lost revenue information and can be used to provide the details consumers require.

A list report has been created based on the GO Data Warehouse (analysis) package that retrieves the following items: Product type, Product, Quantity, Return quantity, % Returned, and Lost revenue. The report is called Returns by Product Type and is located in the Public Folders\Samples\Models\GO Data Warehouse (analysis)\Query Studio Report Samples folder. This will provide a starting point for your target report.

As Branka Hirsch, the Report Studio administrator, you will create a drill-through definition called Workshop 1_Returns by Product Type Definition that allows consumers to drill through from the Sales and Marketing (cube) package to the target report. Consumers should be able to drill through any report in the package only if the Product type level is available. To accomplish this, you will need to:

- set the scope in the drill-through definition at the Product type level
- ensure that all item names match between the source report and the target report
- create parameterized drill through that will dynamically filter the target report

You will save the target report as Workshop 1_Returns by Product Type Target report, to keep the original sample report unchanged.

You will save the source report as Workshop 1_Drill-through Source_Actual vs. Planned Revenue, to keep the original sample report unchanged.

For more information about where to work and the workshop results, refer to the Tasks and Results section that follows. If you need more information to complete a task, refer to earlier demos for detailed steps.

Workshop 1: Tasks and Results

Task 1. Examine the target report.

- **Internet Browser**: Log on to **IBM Cognos BI** using the following credentials: **hirschb/Education1**.
- **My Actions**: Click **Author business reports**
- **Select a package (Navigate)**: Navigate to **Samples\Models**, and then click G**O Data Warehouse (analysis)**.
- **IBM Cognos Workspace Advanced:** Open the **Returns by Product Type** report from **Query Studio Report Samples.**

  A section of the results appear as follows:

Product type	Base product	Quantity	Return quantity	% Returned	Lost revenue
Insect Repellents	BugShield Lotion	773,324	81,189	10.50%	$189,170.37
Navigation	Trail Star	65,146	5,461	8.38%	$483,691.20
Insect Repellents	BugShield Lotion Lite	384,513	14,171	3.69%	$26,641.48
Sunscreen	Sun Shield	991,486	32,382	3.27%	$89,374.32
Lanterns	EverGlow Lamp	965,019	29,434	3.05%	$434,454.32
Insect Repellents	BugShield Extreme	2,666,714	72,255	2.71%	$174,857.10

  Notice the first two columns are Product type and Base Product.

  This report provides information about product returns and lost revenue.

- **Toolbar**: Save the report, in **My Folders**, as **Workshop 1_Returns by Product Type Target**.

Task 2. Add parameters to the report.

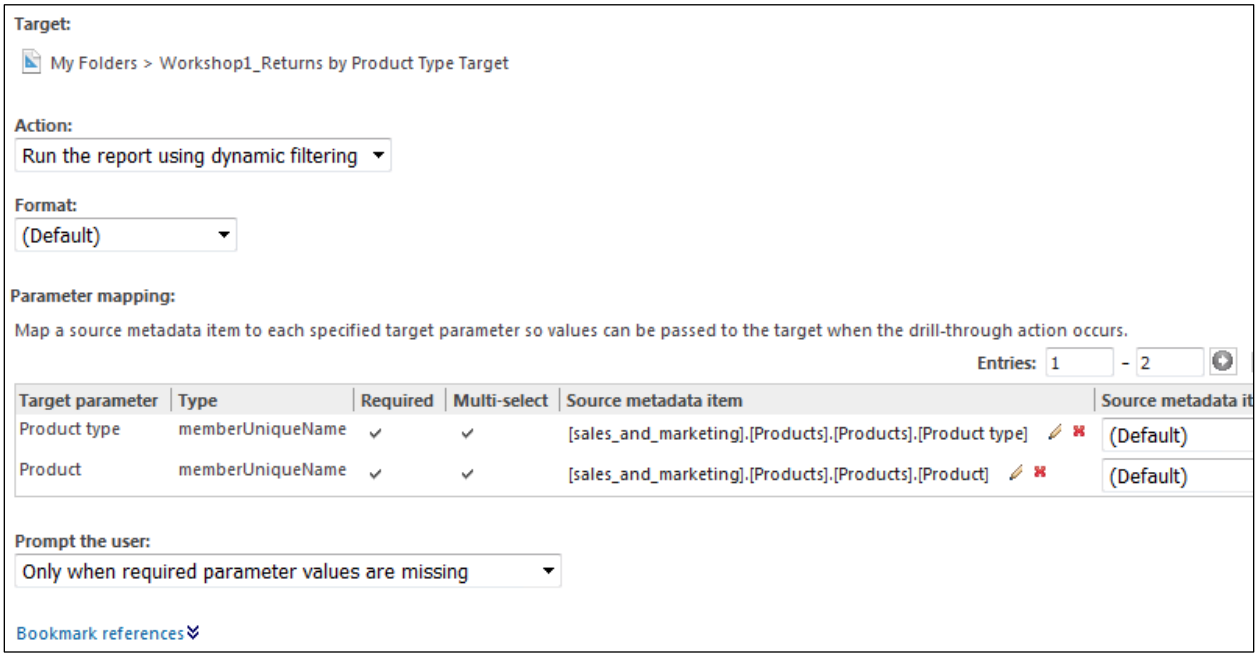
- **Toolbar**: Create a custom filter based on **Product type**.
- **Filter Condition** dialog box: Select the **Prompt for values when report is run in viewer** check box.
  - Add all values to the **Selected values** pane.

- **Filters** dialog box: Add a combined filter based on **Product**.
- **Filter Condition** dialog box: Select the **Prompt for values when report is run in viewer** check box.
  - Add all values to the **Selected values** pane.
- **Toolbar**: Save the report, and then close **IBM Cognos Workspace Advanced**.

Task 3. Create the drill-through definition.

- **Welcome window**: click **IBM Cognos content**.
- **Public Folders**: Navigate to **Public Folders\Samples_Drillthrough\Cubes\Sales and Marketing (cube)**.
- **Launch menu**: Click **Drill-through Definitions**.
- **Toolbar**: Click **New Drill-through Definition**.
- Name box: Type **Workshop 1_Returns by Product Type Definition**, and then click **Next**.
- **Specify a scope and target**: Set the scope to **Product** from **Products**.
  - Set the target to **Workshop 1_Returns by Product Type Target** (located in **My Folders**).
- **Specify the target details**: From the **Action** list, click **Run the report using dynamic filtering**.
  - Under **Parameter mapping** click **map to metadata** for the target parameter **Product type**, expand **Products**, and then click the **Product type**.
  - Under **Parameter mapping** click **map to metadata** for the target parameter **Product**, expand **Products**, and then click the **Product**.

The results appear as follows:



- Click **Finish**.

- **Toolbar**: Return to **IBM Cognos Connection**.

Task 4. View the passed source values.

- **IBM Cognos Connection**: navigate to **Public Folders\Samples_Drillthrough\Cubes\Sales and Marketing (cube)\Report Studio Report Samples**.
  - Run **Actual vs. Planned Revenue** report.
- **Prompt page**: From the **pMethod** list, click **Web**.
  - From the **Year** list: Click **2012**.

A section of the results appear as follows:

Americas

2012

Order method type	Product type	Product	Revenue	Planned revenue	Difference
Web	Binoculars	Seeker 35	2,364,509.14	2,488,845.02	124,335.88
		Seeker 50	1,484,847.00	1,563,052.05	78,205.05
		Seeker Extreme	1,516,179.00	1,759,842.78	243,663.78
		Seeker Mini	1,024,541.66	1,129,220.88	104,679.22
		Opera Vision	963,270.00	1,054,240.00	90,970.00
		Ranger Vision	3,107,622.50	3,107,622.50	0.00
	Binoculars		**10,460,969.30**	**11,102,823.23**	

- **Product column**: Go to **Related Links** for **Seeker 50**.
- **Go to window**: Click **View passed source values**.

The results appear as follows:

Selection context

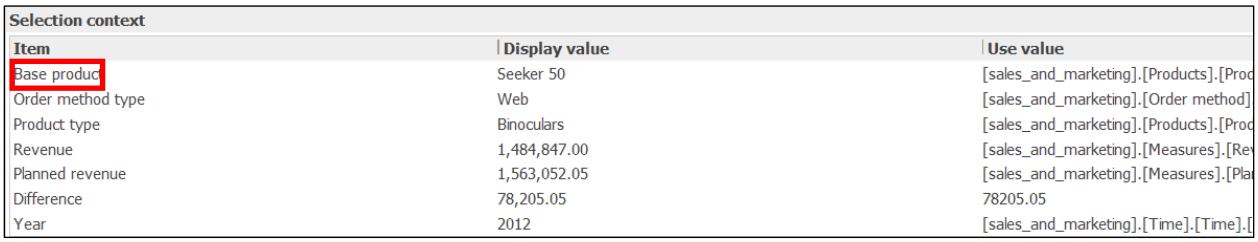
Item	Display value	Use value
Product	Seeker 50	[sales_and_marketing].[Products].
Order method type	Web	[sales_and_marketing].[Order meth
Product type	Binoculars	[sales_and_marketing].[Products].
Revenue	1,484,847.00	[sales_and_marketing].[Measures].
Planned revenue	1,563,052.05	[sales_and_marketing].[Measures].
Difference	78,205.05	78205.05
Year	2012	[sales_and_marketing].[Time].[Time

Task 5. Fix and test source report.

- **IBM Cognos Connection**: Open the **Actual vs. Planned Revenue** report (located in **Public Folders\Samples_Drillthrough\Cubes\Sales and Marketing (cube)\Report Studio Report Samples**). with **Report Studio**.
- **File menu**: In **My Folders**, save the report as **Workshop 1_Drill-through Source_Actual vs. Planned Revenue**.
- **Work area**: Change the **Name** property of the **Product** column header to **Base product**.
- **Toolbar**: Run the report.
- **Prompt page**: From the **pMethod** list, click **Web**.
  - From the **Year** list: Click **2012**.

- **Product column**: Go to **Related Links** for **Seeker 50**.
- **Go to window**: Click **View passed source values**.

  The results appear as follows:

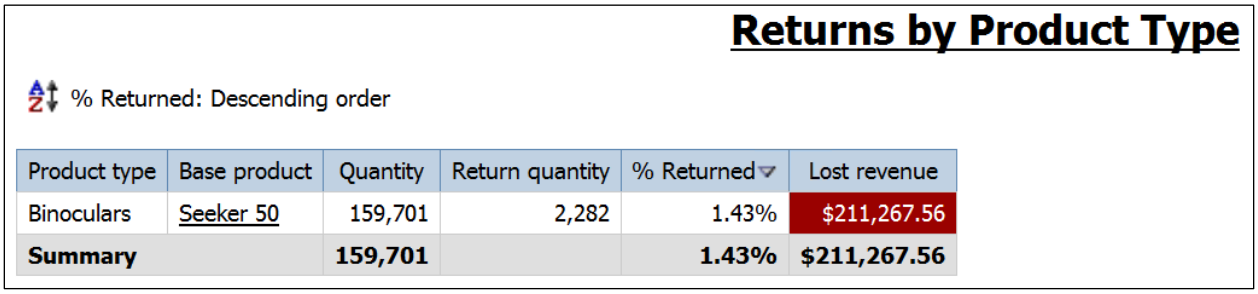


Selection context

Item	Display value	Use value
Base product	Seeker 50	[sales_and_marketing].[Products].[Proc
Order method type	Web	[sales_and_marketing].[Order method]
Product type	Binoculars	[sales_and_marketing].[Products].[Proc
Revenue	1,484,847.00	[sales_and_marketing].[Measures].[Re
Planned revenue	1,563,052.05	[sales_and_marketing].[Measures].[Pla
Difference	78,205.05	78205.05
Year	2012	[sales_and_marketing].[Time].[Time].[

- **Available links**: click **Workshop 1_Returns by Product Type Definition**.

  The results appear as follows:



Returns by Product Type

% Returned: Descending order

Product type	Base product	Quantity	Return quantity	% Returned	Lost revenue
Binoculars	Seeker 50	159,701	2,282	1.43%	$211,267.56
Summary		**159,701**		**1.43%**	**$211,267.56**

  Because the item names now match at the Product level, the report filters as expected, and the lost revenue details are displayed for the product you selected.

  - Close IBM Cognos Viewer.
  - Close Report Studio.
  - Close the Web browser.

You have created a drill-through definition called Workshop 1_Returns by Product Type Definition that allows consumers to drill through from the Sales and Marketing (cube) package to the target report. Consumers can now drill through any report in the package only if the Product type level is available.

Enhance Report Layout

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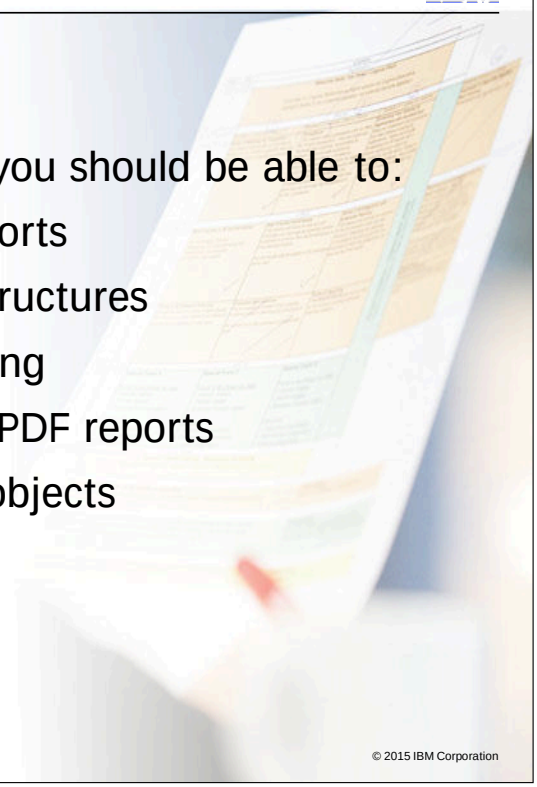
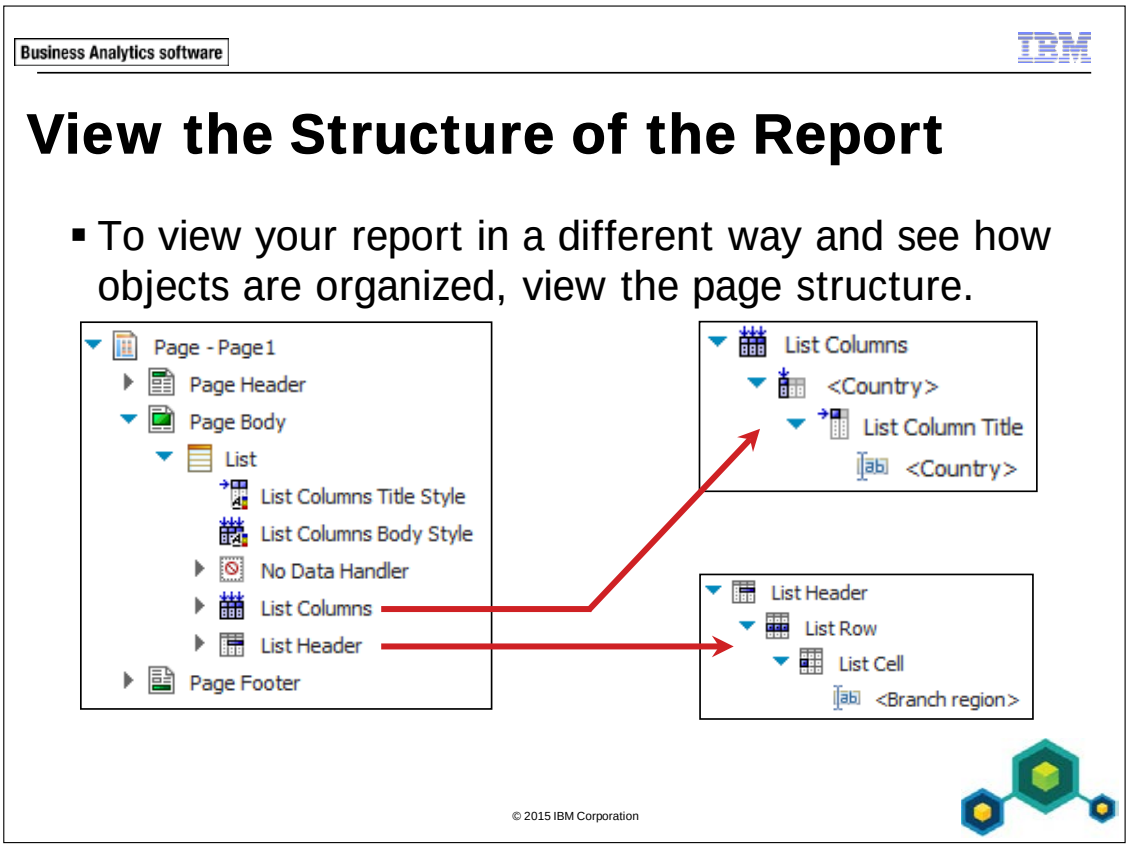
Objectives

- At the end of this module, you should be able to:
  - force page breaks in reports
  - modify existing report structures
  - apply horizontal formatting
  - specify print options for PDF reports
  - format data and report objects





View the page structure to:

- view the entire contents of a report page in a tree structure
- move objects quickly from one area of a page to another
- modify object properties
- view the page structure, on the toolbar, click View, and then click Page Structure. A tree structure is useful for locating the objects in a page and troubleshooting problems with nested objects.
- view a complex layout, it may be difficult to select, cut, and paste objects in the layout view. Objects are easier to locate in the page structure view. This view can also be helpful if you want to modify an object but are not sure where the object is located within the report structure. Once you know where an object it placed, you can select it and modify its properties.

Objects can be changed in either view, depending on your preference. For example, you can group and sort list columns in the page structure view. Any changes made in the page structure view will also be visible in the page design view.

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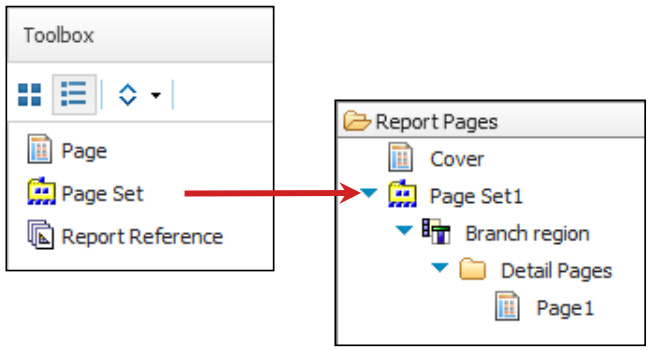
Force Page Breaks in Reports

- Page sets let you associate report pages with a query structure to force page breaks.



To force page breaks based on a data item, you must associate the page set with a query and then define a grouping structure for the page set.

You can add multiple detail pages to a page set.

You can also create nested page sets, and can define a master-detail relationship between them to see data in the nested page set that is related to the data in the parent page set. For example, you have a page set that shows pages of product line information. The page set contains a nested page set that shows pages of product type information.

You can use a page set to create a report that contains detail pages displaying data for each order method. Each order method type will begin on a new page.

In the slide example, Page Set1 has been grouped by Region. This page set will begin a new list for each region.

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Demo 1

Create a Report Structured on Data Items

Country	Employee name	Revenue
Americas		
Brazil	Alexandre Pereira	34,720,977.7
	Beatriz Couto	3,842,910.29
	Eduardo Guimarães	48,839,028.63
	Morela Castro	3,131,988.79
Canada	Brendon Pike	24,827,214.69
	Carole Claudel	15,728,893.35

Demo 1: Create a Report Structured on Data Items

Purpose:
You have been asked to create a report showing sales rep revenues generated in each region with each sales region on a separate page. You will need to design a title page for the report and make changes to the report using the structure view.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type: **List**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the list.

1. Open a new **List** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new list report object:
   - Employee by region: **Branch region**, **Country**, **Employee name**
   - Sales fact: **Revenue**

Branch region	Country	Employee name	Revenue
<Branch region>	<Country>	<Employee name>	<Revenue>

3. Click **<Branch region>**, Ctrl-click **<Country>**, and then on the toolbar, click **Group / Ungroup**.
4. Click **<Branch region>**, on the toolbar, click **Headers & Footers**, and then click **Create Header**.

5. With **<Branch region>**column selected, on the toolbar, click **Delete** to remove the redundant column.
6. On the toolbar, click **Run Report**.

   A section of the results appear as follows:

Country	Employee name	Revenue
Americas		
Brazil	Alexandre Pereira	34,720,977.7
	Beatriz Couto	3,842,910.29
	Eduardo Guimarães	48,839,028.63
	Morela Castro	3,131,988.79
Canada	Brendon Pike	24,827,214.69

7. Click **Page down**.

   Multiple sales regions are displayed on the same page. You want each sales region to display on a different page.
8. Close **IBM Cognos Viewer**.

Task 2. Add page sets to the report.

1. On the **Explorer** bar, point to **Page Explorer**, and then click **Report Pages**.
2. From the **Toolbox** tab, double-click **Page Set** to add it to the **Report Pages** pane.
3. In the **Properties** pane, under **Data**, in the **Query** list, click **Query1**.

   This will associate the query to the page set.

Task 3. Define the grouping structure for the page set.

1. In the **Properties** pane, under **Data**, double-click the **Grouping and Sorting** property.
2. From the **Data items** pane, drag **Branch region** to the **Groups** folder, and then click **OK**.
3. In the **Report Pages** pane, drag **Page1** on to the **Detail Pages** folder under **Branch region**.
4. On the toolbar click **Run report**, and then click **Page down** to examine multiple pages.

   The different sales regions are now on separate pages.
5. Close **IBM Cognos Viewer**.

Task 4. Add a cover page titles to the report.

1. In **Report Pages**, from the **Toolbox** tab, drag a **Page** to **Report Pages**.
2. In the **Properties** pane, under **Miscellaneous**, in the **Name** property, type **Cover**, and then press **Enter**.
3. In the **Report Pages** pane, drag **Cover** above **Page Set1**.
4. In the **Report Pages** pane, double-click **Cover**.
5. From the **Toolbox** tab, drag a **Table** onto the work area with **1 column** and **3 rows**.
6. Click the table **Container Selector**, and then from the toolbar, click **Center**.
7. Drag a **Text Item** into the top table cell, in the **Text** box, type **Total Revenue by Sales Representatives** and then click **OK**.
8. Drag a **Text Item** into the bottom table cell, and then in the **Text box**, type **Sales Report** and then click **OK**.
9. Click **Total Revenue by Sales Representative**, and then Ctrl+click **Sales Report** text items (not the entire cells).
10. On the toolbar, change the font to **Arial Black**, the font size to **20pt**, and the foreground color to **Navy**.

Task 5. Add an image to the cover page.

1. From the **Toolbox** tab, drag an **Image** to the middle table cell, click the **Image**, and then in the **Properties** pane, under **URL Source**, double-click the **URL** property.
2. In the **Image URL** dialog box, click **Browse**, click **cover1.jpg**, and then click **OK** to close the **Image Brower** dialog box.
3. Click **OK** to close the **Image URL** dialog box.
4. Click anywhere on the page outside of the table, and then from the toolbar click **Middle**.
5. From the toolbar click **Run Report**.

   The results appear as follows:

6. Page down to see the report.
7. Close **IBM Cognos Viewer**.

Task 6. View the report structure and make changes to the report using the structure view.

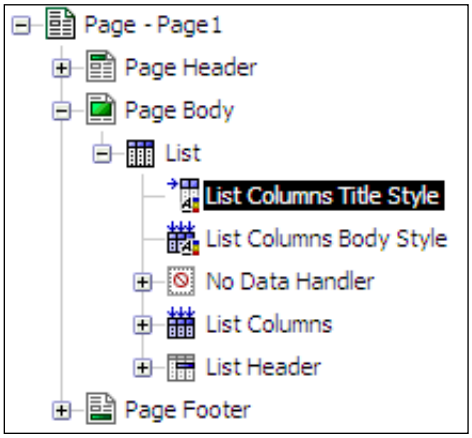
1. On the **Explorer** bar, point to **Page Explorer**, and then click **Page 1**.
2. From the **Explorer** bar, click **Page Structure**  .

   All the objects of the report are displayed in a tree structure. Here you can quickly move and modify objects within the page of the report.
3. Expand **Page - Page1**.

The page header, page body, and page footer of the report page are displayed. You want to view the structure of your list and quickly modify the format of all the list column titles in the report.

4. Expand **Page Body**, and then expand **List**.
5. Click **List Columns Title Style**.

   The results appear as follows:



6. In the **Properties** pane, under **Font & Text**, double-click the **Font** property.
7. Change the font to **Arial Black**, **12pt**, **Italic**, and then click **OK**.
8. From the **Explorer** bar, click **Page Design**.

   The list column titles are changed to reflect the modifications you made to the page structure.
9. On the toolbar click **Run Report**.

   The title page you created appears on page 1.

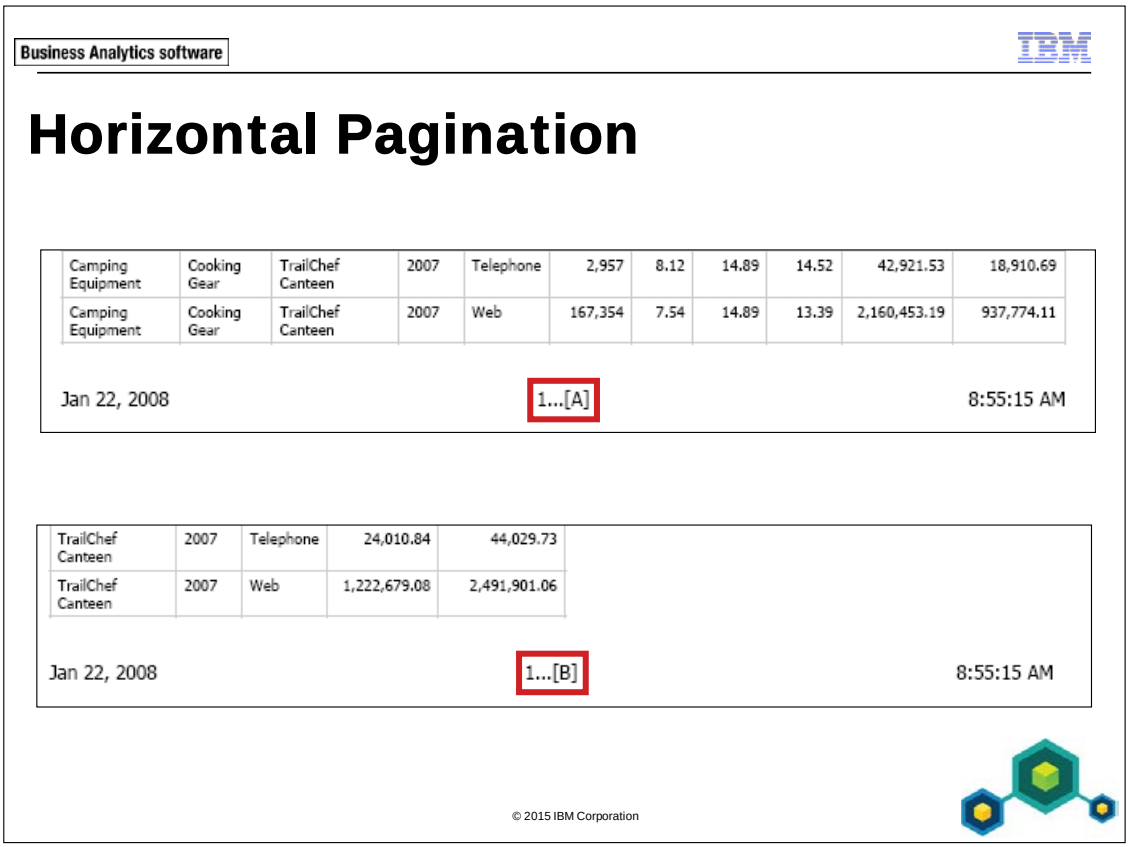
10. Click **Page down** to view the other pages of the report with the formatting you created.

    A section of the results appear as follows:

Country	Employee name	Revenue
Americas		
Brazil	Alexandre Pereira	34,720,977.7
	Beatriz Couto	3,842,910.29
	Eduardo Guimarães	48,839,028.63
	Morela Castro	3,131,988.79
Canada	Brendon Pike	24,827,214.69
	Carole Claudel	15,728,893.35

11. Close **IBM Cognos Viewer**.
12. Leave **Report Studio** open for the next demo.

Results:
You created a report showing sales rep revenues generated in each region with each sales region on a separate page. You created and designed a title page for the report. You also made changes to the report using the structure view.



Horizontal Pagination enables you to span wide reports across multiple PDF pages with the appropriate page number.

You can only use horizontal pagination with list and crosstab reports.

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Add Horizontal Page Numbers

- There are three options for adding horizontal page numbers:
  - Preset (using Number Style)
  - Custom Number Style
  - Report Layout Functions

Add an existing page number from the preset list of styles.

By using the custom style option, you can create your own page number style.

Use a Layout Calculation from the toolbox tab to create an expression that determines a page number style.

Business Analytics software

Demo 2

Format a Report for Horizontal Viewing

Outdoor Protection	First Aid	Aloe Relief	2012	Telephone	900	1.92	5.23	3,875.43	2,147.43
Outdoor Protection	First Aid	Aloe Relief	2012	Web	26,927	1.92	5.23	85,839.99	34,140.15
Outdoor Protection	First Aid	Aloe Relief	2013	E-mail	208	1.92	5.23	1,087.84	688.48
Outdoor Protection	First Aid	Aloe Relief	2013	Fax	7	1.92	5.23	36.61	23.17
Outdoor Protection	First Aid	Aloe Relief	2013	Sales visit	311	1.92	5.23	1,626.53	1,029.41
Outdoor Protection	First Aid	Aloe Relief	2013	Telephone	157	1.92	5.23	821.11	519.67
Outdoor Protection	First Aid	Aloe Relief	2013	Web	9,228	1.92	5.23	48,262.44	30,544.68

Mar 5, 2012 1...(A) 10:51:03 AM

Demo 2: Format a Report for Horizontal Viewing

Purpose:
Management has asked you to create a list report that fits on one page. They have also asked to create a report with certain columns that repeat on each page. You will also need to apply different page numbering formats using horizontal page numbering and report layout functions.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type: **List**
Folder: **Sales and Marketing (query)**
Namespace: **Sales (query)**

Task 1. Create the list.

1. Open a new **List** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new list report object:
   - Products: **Product line**, **Product type**, and **Product**
   - Time: **Year**
   - Order method: **Order method type**
   - Sales fact: **Quantity**, **Unit cost**, **Unit price**, **Revenue**, **Gross profit**, **Product cost**, **Planned revenue**
   - Sales (query): **Gross margin**

Product line	Product type	Product	Year	Order method type	Quantity	Unit cost
<Product line>	<Product type>	<Product>	<Year>	<Order method type>	<Quantity>	<Unit cost>

Unit price	Revenue	Gross profit	Product cost	Planned revenue	Gross margin
<Unit price>	<Revenue>	<Gross profit>	<Product cost>	<Planned revenue>	<Gross margin>

3. On the toolbar, in the **Run Report** dropdown list, click **Run Options**.
4. Change the format to **PDF** and then click **OK**.
5. On the toolbar, click **Run Report**.

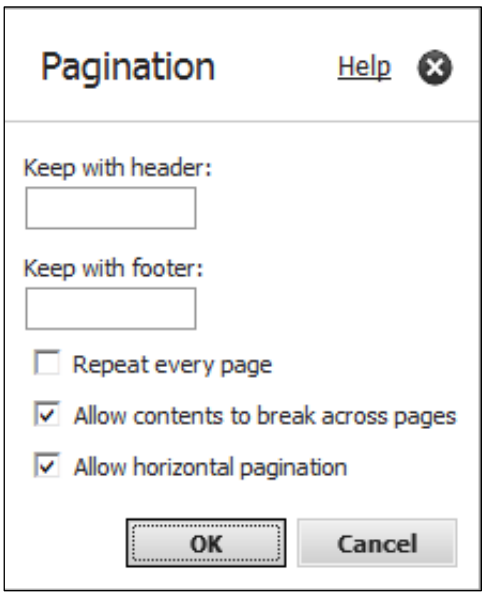
   Notice that the list is too wide for one page, so it is split across two pages.
6. Close **IBM Cognos Viewer**.

Task 2. Fit the list to the page width.

1. Click the list **Container Selector**.
2. In the **Properties** pane, under **General**, click **Pagination**, and then click the **ellipsis**.

   Notice that the Allow horizontal pagination is selected. This ensures that new reports allow horizontal pagination.

   The results appear as follows:



3. Clear the **Allow horizontal pagination** check box, and then click **OK**.
4. On the toolbar click **Run Report**, and then click **Run Report - PDF**.

   The report still runs in PDF format. Notice that the entire list displays across the width of the page.
5. Close **IBM Cognos Viewer**.
6. On the toolbar, click **Undo** to re-enable the **Allow horizontal pagination** property.

Task 3. Repeat columns on multiple pages.

When a report is split across pages, it is useful to repeat columns to carry context across. The author determines which list columns repeat. In this report, you will repeat Product name, Year, and Order method.

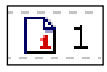
1. From the **Explorer** bar, click **Page Structure**.
2. Expand **Page - Page1**, expand **Page Body**, expand **List**, and then expand **List Columns**.
3. Click **Product**, Ctrl-click **Year**, and **Order method type**.
4. In the **Properties** pane, under **General**, click **Pagination**, and then click the **ellipsis**.
5. Select the **Repeat every page** check box, and then click **OK**.

   This can only be set in the Page Structure view.
6. On the toolbar click **Run Report**.
7. Scroll down to page 2.

   The report still runs in PDF format. The Product name, Year, and Order method columns repeat on each page and provide the reader with sufficient content to understand the report. In a list, you can repeat any column.
8. Close **IBM Cognos Viewer**.
9. From the **Explorer** bar, click **Page Design**.

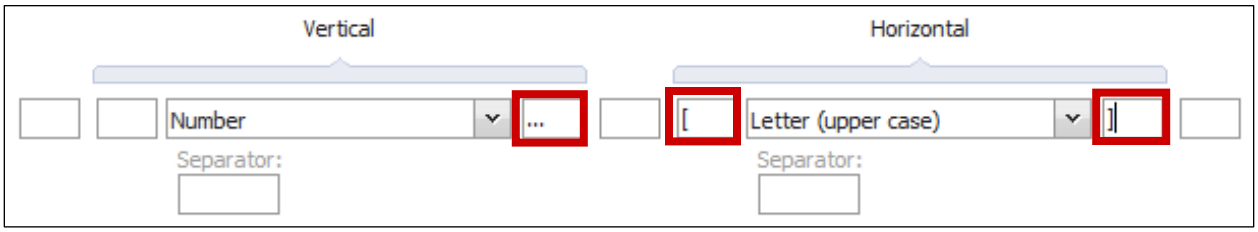
Task 4. Add horizontal page numbering.

Currently, the page numbering in your report is 1, 2, 3, and so on. Report Studio provides three methods to create the page numbering: preset, report layout functions, and custom number style.

1. To use a preset number, locate the **Page Number** object  in the page footer.
2. Double-click the **Page Number** object, click **1A**, then click **OK**, and then run the report.

   The pages are now numbered 1A, 1B, 2A, 2B and so on.
3. Close **IBM Cognos Viewer**.
4. To create a number using **Custom Number Style**, double-click the **Page Number** object in the footer, and then click the **Edit** icon  .
5. In the **Custom Number Style** window, add the following formatting:
   - Under Vertical add an **ellipsis** (**…**) to the right of the number box.
   - Under Horizontal, add a **left bracket** (**[**) to the left of **Letter (upper case)**, and then add a **right bracket** (**]**) to the right of **Letter (upper case)**.

   The results appear as follows:



6. Click **OK** to close each dialog box.
7. On the toolbar click **Run Report**.

   The custom page number style is applied.
8. Close **IBM Cognos Viewer**.

Task 5. Create numbers using report layout functions (Optional).

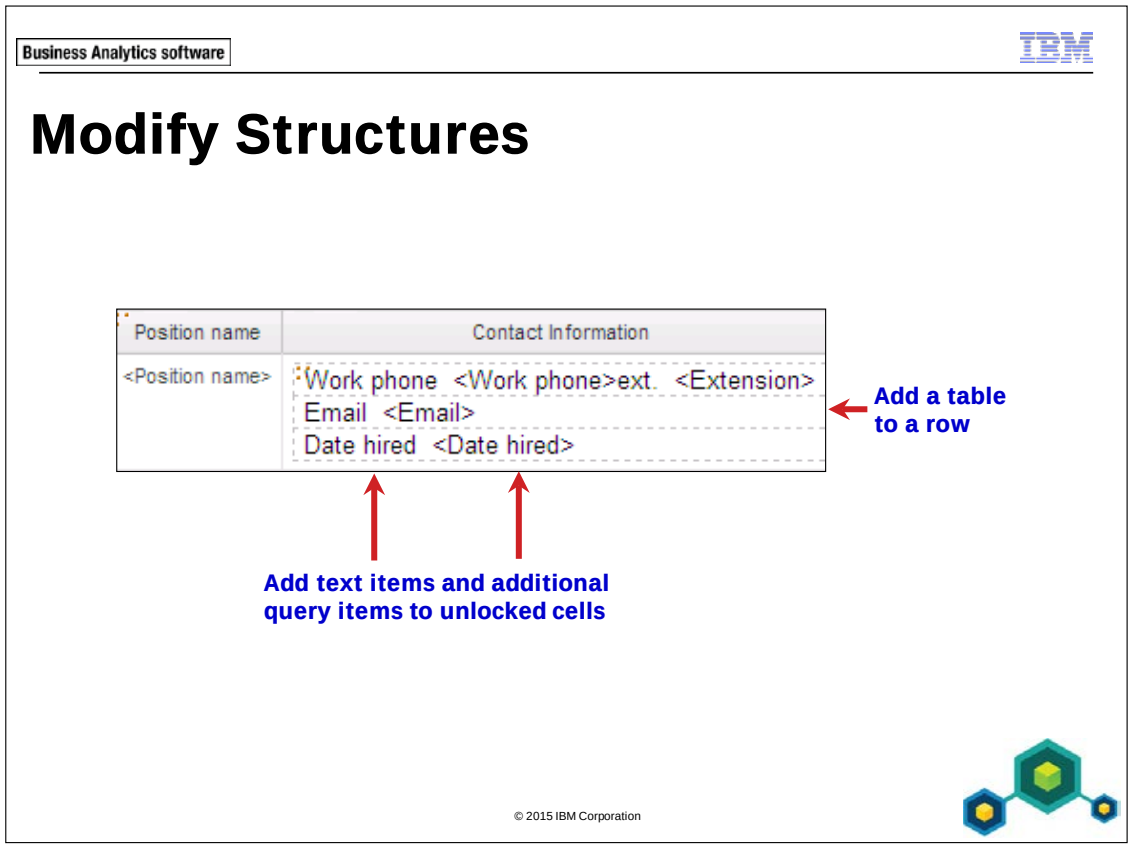
1. To create a number using report layout functions, right-click the **Page Number** object in the footer, and then click **Delete**.
2. From the **Toolbox** tab, and drag a **Layout Calculation** to the middle cell of the footer.
3. Create and validate the following expression:

   if (HorizontalPageCount() = 1) then (number2string(PageNumber())) else (number2string(PageNumber()) + '...(' +mapNumberToLetter('A', HorizontalPageNumber()-1)+ ')')

   Hint: HorizontalPageCount(), PageNumber(), and mapNumberToLetter are found under the Functions tab/Report Functions folder and number2string is found in the Data Type Casting Functions under the Report Functions folder
4. Click **OK**, and then on the toolbar, click **Run Report**.

   The page numbers are now 1…(A), 1…(B), 2…(A), 2…(B), and so on.
5. Close **IBM Cognos Viewer**.
6. Leave **Report Studio** open for the next demo.

Results:
You created a list report with columns too wide for one page and then modified it to fit on one page. You modified a report so that certain columns repeated on each page. You also applied different page numbering formats using horizontal page numbering and report layout functions.



By unlocking the cells, you can add multiple items to a single column to tailor a report to your needs.

Unlock cells to manipulate an object's contents. Once they are unlocked, you can change the text and add objects inside existing objects. This feature is useful for displaying related information in a single column, or for renaming a column. You can add additional rows to a list report to add extra information. You can add additional rows to a list report using the Structure menu.

Once a new row is added you can merge the cells by selecting one or more cells and then click the Merge cells button.

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Demo 3

Create a Condensed List Report

City	Employee name	Position name	Contact Information
Australia			
Please contact regional manager to make changes.			
Melbourne	Alice Walter	Branch Sales Manager	Work phone: +(61) 03 2982 4242 ext. 8910 Email: AWalter@grtd123.com Date hired: Feb 25, 2011
Melbourne	Alice Walter	Level 3 Sales Representative	Work phone: +(61) 03 2982 4242 ext. 8910 Email: AWalter@grtd123.com Date hired: Feb 25, 2011
Melbourne	Andrea Samuel	Payroll Clerk	Work phone: +(61) 03 2982 4242 ext. 8224 Email: ASamuel@grtd123.com Date hired: Apr 25, 2011

Demo 3: Create a Condensed List Report

Purpose:
The Human Resources department has requested a list of detailed sales rep information for each city. To reduce the number of columns in the report, you will combine information into one column.

Portal:	**http://localhost:88/ibmcognos**
User/Password:	**brettonf/Education1**
Studio:	**Report Studio**
Package:	**Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type:	**List**
Folder:	**Sales and Marketing (query)**
Namespace:	**Sales (query)**

Task 1. Create the list.

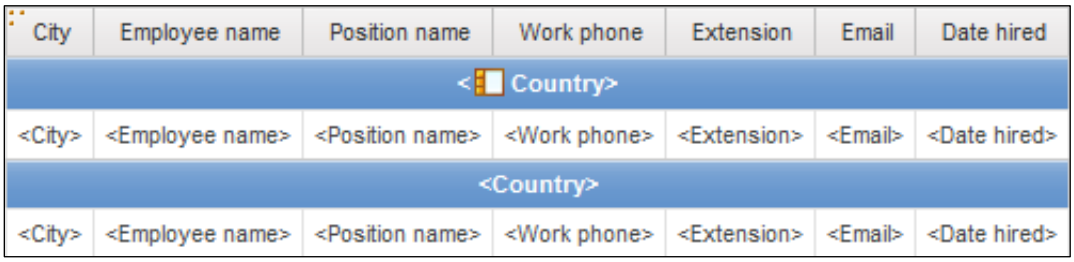
1. Open a new **List** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new list report object:
   - Employee by region: **Country**, **City**, **Employee name**, **Position name**, **Work phone**, **Extension**, **Email**, **Date hired**.

Country	City	Employee name	Position name	Work phone	Extension	Email	Date hired
<Country>	<City>	<Employee name>	<Position name>	<Work phone>	<Extension>	<Email>	<Date hired>

3. Click **<Country>**, and then on the toolbar, click **Group / Ungroup**.

4. With **<Country>** selected, on the toolbar click **Headers and Footers**, click **Create Header**, and then on the toolbar click **Delete** to remove the redundant **<County>** list column body.
5. Click the **<Country>** header, click **Center**.

   The results appear as follows:



6. On the toolbar click the run list, and then click **Run Report - HTML**.

   The report data spreads out across the page. You want to condense it so that some of the data appears in a single column.
7. Close **IBM Cognos Viewer**.

Task 2. Unlock cells and condense report data.

1. On the toolbar, click **Unlock (Currently Locked)**  to unlock the cells of the report.

   Once cells are unlocked, query items can be added directly from the Content tabs.
2. From the **Toolbox** tab, drag a **Table** to the **Work phone** column, to the right of **<Work phone>**.

3. Set the table with **1** column and **3** rows, and then click **OK**.
   The results appear as follows:

4. From the list, drag **<Work phone>** into the first row of the table, drag **<Email>** into the second row, and then **<Date hired>** into the third row.
5. Drag **<Extension>** into the top table cell, to the right of **<Work phone>**.
   The results appear as follows:

   You can add text in front of the data items to identify them.
6. From the **Toolbox** tab, drag a **Text Item** to the left of the **<Work phone>** object in the table.
7. In the **Text** box type **Work phone:** press the spacebar, and then click **OK**.

8. Repeat steps 6 and 7 to add the following text items to the left of **<Email>** and **<Date hired>** respectively **Email:** and **Date hired:**.
9. Drag a **Text Item** between **<Work phone>** and **<Extension>**, press the spacebar, type **ext.**, press the spacebar, and then click **OK**.
10. Click **Lock (Currently Unlocked)** to lock the cells of the report, click the **Extension** column header, Ctrl-click the **Email** and **Date hired** column headers, and then on the toolbar, click **Delete**.
11. In the list column, click the **Work phone** list column title, in the **Properties** pane, under **Data Item**, in the **Label** box, type **Contact Information**, and then press **Enter**.

Task 3. Add rows and merge cells.

1. Click the **Country** header, from the **Structure** menu, point to **Headers & Footers**, click **Insert List Row Cells Below**, and then click **OK**.

   A row appears with a number of cells equal to the number of columns currently in the report.
2. Press **Esc** to deselect all currently selected items.
3. In the new row, click the first cell, Shift-click the last cell, from the **Structure** menu, point to **Headers & Footers**, and then click **Merge List Row Cells**.
4. On the toolbar, click **Unlock (Currently Locked)** to unlock the cells of the report.
5. From the **Toolbox** tab, insert a **Text Item** into the newly merged row, in the **Text** box type **Please contact regional manager to make changes**, and then click **OK**.
6. With the new row selected, on the toolbar click **Center**.
7. Press **Esc** to deselect all currently selected items.
8. On the toolbar, click **Lock (Currently Unlocked)** to lock the cells of the report.

9. From the toolbar click **Run Report**.

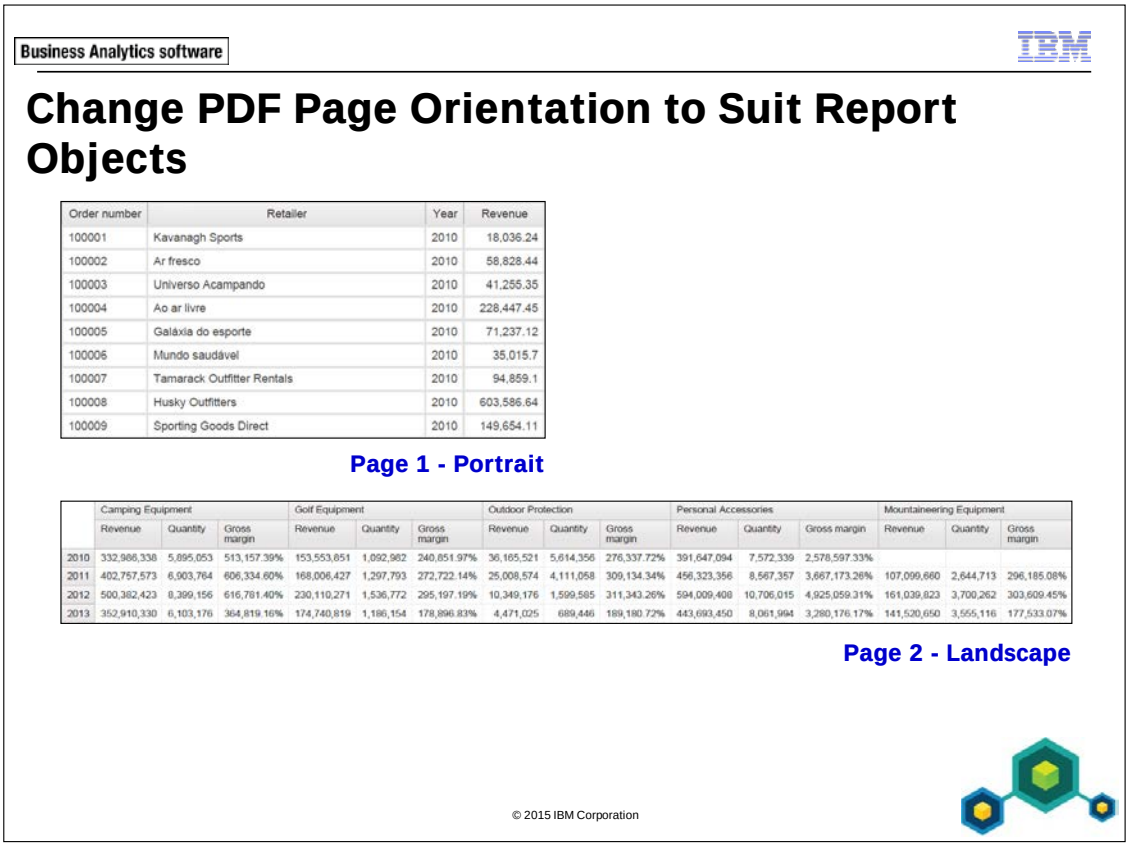
   A section of the results appear as follows:

City	Employee name	Position name	Contact Information
Australia			
Please contact regional manager to make changes.			
Melbourne	Alice Walter	Branch Sales Manager	Work phone: +(61) 03 2982 4242 ext. 8910 Email: AWalter@grtd123.com Date hired: Feb 25, 2011
Melbourne	Alice Walter	Level 3 Sales Representative	Work phone: +(61) 03 2982 4242 ext. 8910 Email: AWalter@grtd123.com Date hired: Feb 25, 2011
Melbourne	Andrea Samuel	Payroll Clerk	Work phone: +(61) 03 2982 4242 ext. 8224 Email: ASamuel@grtd123.com Date hired: Apr 25, 2011

   The condensed report is now easier to read.

10. Close **IBM Cognos Viewer**.
11. Leave **Report Studio** open for the next demo.

Results:
You created a list of detailed sales rep information in each city. To reduce the number of columns in the report, you combined information in one column. You also added additional information by adding a row, merging the cells within the row, and adding a text item with a message.



You can set the page orientation and size for each page in the report independently.

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Set PDF Security Options

- You can secure PDF reports when you run the report with options.
- You can set a password to secure the document.

Business Analytics software

Demo 4

- Change a PDF Page from Portrait to Landscape Orientation

Order number	Retailer	Year	Revenue
100001	Kavanagh Sports	2010	18,036.24
100002	Ar fresco	2010	58,828.44
100003	Universo Acampando	2010	41,255.35
100004	Ao ar livre	2010	228,447.45
100005	Galáxia do esporte	2010	71,237.12
100006	Mundo saudável	2010	35,015.7
100007	Tamarack Outfitter Rentals	2010	94,859.1
100008	Husky Outfitters	2010	603,586.64
100009	Sporting Goods Direct	2010	149,654.11

	Camping Equipment			Golf Equipment			Outdoor Protection			Personal Accessories			Mountaineering Equipment		
	Revenue	Quantity	Gross margin	Revenue	Quantity	Gross margin	Revenue	Quantity	Gross margin	Revenue	Quantity	Gross margin	Revenue	Quantity	Gross margin
2010	332,986,338	5,895,053	513,157.39%	153,553,851	1,092,982	240,851.97%	36,165,521	5,614,356	276,337.72%	391,647,094	7,572,339	2,578,597.33%			
2011	402,757,573	6,903,764	606,334.60%	168,006,427	1,297,793	272,722.14%	25,008,574	4,111,058	309,134.34%	456,323,356	8,567,357	3,667,173.26%	107,099,660	2,644,713	296,185.08%
2012	500,382,423	8,399,156	616,781.40%	230,110,271	1,536,772	295,197.19%	10,349,176	1,599,585	311,343.26%	594,009,408	10,706,015	4,925,059.31%	161,039,823	3,700,262	303,609.45%
2013	352,910,330	6,103,176	364,819.16%	174,740,819	1,186,154	178,896.83%	4,471,025	689,446	189,180.72%	443,693,450	8,061,994	3,280,176.17%	141,520,650	3,555,116	177,533.07%

Demo 4: Change a PDF Page from Portrait to Landscape Orientation

Purpose:
You have been asked to build a PDF report that contains a list report and a crosstab report. You will use PDF Page Setup properties to display individual report pages as portrait or landscape. You will then create a secured version of the report.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**
Package: **Public Folders\Samples\Models\GO Data Warehouse (query)**
Report Type: **List**
Folder: **Sales and Marketing (query)**

Task 1. Create the list.

1. Open a new **List** template without saving any previous report.
2. From the **Source** tab, add the following query items to the new list report object:
   - Sales order: **Order number**
   - Retailers: **Retailer name**
   - Time: **Year**
   - Sales fact: **Revenue**

Order number	Retailer name	Year	Revenue
<Order number>	<Retailer name>	<Year>	<Revenue>

3. In the header block, double-click the header title, and then in the **Text** box, type **Revenue by Order Number**, and then click **OK**.
4. Click the header block, and then click **Left**.

   You will make a copy of this page so that you have a page header and footer on the second page.
5. On the **Explorer** bar, point to **Page Explorer**, and then click **Report Pages**.
6. On the **Report Pages** pane, Ctrl-click and drag **Page1** below **Page1**, and then double-click the new **Page2**.
7. On the list, click the list **Container Selector**, and then click **Delete**.

Task 2. Create the crosstab.

1. From the **Toolbox** tab, drag a **Crosstab** object into the report, and then click **OK** to close the **Object and Query Name** dialog box.
2. From the **Source** tab, add the following query items to the new crosstab:

   - **Rows** area:
     - Time: **Year**
   - **Columns** area:
     - Products: **Product line**

   Nested under Product line
     - Sales fact: **Revenue**, **Quantity**
     - **Gross margin**

	<#Product line#>			<#Product line#>		
	<#Revenue#>	<#Quantity#>	<#Gross margin#>	<#Revenue#>	<#Quantity#>	<#Gross margin#>
<#Year#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>

3. Click the **<#Gross margin#>** fact cells and then in the **Properties** pane, under **Data**, double click **Data Format**.
4. In the **Format type** list, click **Percent**, in the **Properties** pane, click **No. of Decimal Places**, and then type **2**.
5. Click **OK**.
6. Click the **<#Revenue #>** fact cells, and then in the **Properties** pane, under **Data**, double click **Data Format**.
7. In the **Format type** list, click **Number**, in the **Properties** pane, click **No. of Decimal Places**, and then type **0**.
8. Click **OK**.
9. From the **File** menu, click **PDF Page Setup**.

   The Orientation is set to Portrait by default. This is the setting for the entire report
10. Click **OK**, on the toolbar, expand the **Run Report** list, and then click **Run Report - PDF**.
11. Scroll down to the last two pages.

    The crosstab gets split across two pages because the page is not wide enough when portrait page orientation is used.
12. Close **IBM Cognos Viewer**.

Task 3. Change the page orientation from portrait to landscape.

1. On **Page2**, click anywhere below the crosstab to select the page.
2. On the **Properties** pane header, click **Select Ancestor**, and then click the **Page** object.
3. In the **Properties** pane, under **General**, double-click the **PDF Page Setup** property.
4. Select **Override the page setup for this page** check box, click **Landscape**, and then click **OK**.
5. From the **Explorer** bar, click **Page Structure**.
6. Expand **Page - Page 2**, expand **Page Body**, and then click **Crosstab**.
7. From the **Properties** pane, under **General**, double-click **Pagination.**
8. Clear the **Allow horizontal pagination** check box, and then click **OK**.
9. On the toolbar, click **Run Report**.
   The report runs in PDF, as set in the previous task.
10. Scroll down to the last page.
    The crosstab now fits on a single page. You can vary the orientation by page.
11. Close **IBM Cognos Viewer**.
12. Save the report to **My Folders** and name it **Demo 4_Enhance Report Layout**.
    This report will be used in the next tasks as well as in Demo 5.
13. Minimize **Report Studio**.

Task 4. Explore an unsecured PDF version of the report.

In this task, you will open and copy some text from a PDF report and paste it into a Notepad document to prove that there is no security on the PDF document. In the next task, you will create a PDF output which will require a password to open.

1. From **IBM Cognos Connection**, navigate to **My Folders**.
2. Under the **Actions** column for **Demo 4_ Enhance Report Layout**, click **Run with options**  to run the report.
3. In the **Format** list, click **PDF**, under **Delivery**, click **Save the report**, click **Run**, and then click **OK**.
4. On the toolbar, click **Refresh**  .

   If necessary, repeat this step until you have saved output for Demo 4_Enhance Report Layout.
5. Click **Demo 4_Enhance Report Layout** to open the report.
6. Click and drag the cursor over the list to highlight some of the text, right-click the highlighted text, and then click **Copy** to copy the text to the clipboard.
7. From the **Start** menu, click **All Programs**, click **Accessories**, and then click **Notepad**.
8. Paste the text into the **Notepad** document.

   This proves that you can copy the content from the PDF document into another document.
9. Close **Notepad** without saving the document.
10. On the toolbar, click **Return** to go back to **IBM Cognos Connection**.

Task 5. Secure a PDF report.

1. In **My Folders**, under the **Actions** column for **Demo 4_Enhance Report Layout**, click **Run with options**.
2. In the **Format** list, click **PDF**, under **Delivery**, click **Save the report**, and then click **advanced options**.
3. In the **Options** section, under **Formats**, ensure **PDF** is selected, and then click **Set**.
4. In the **Access control** section, select the **Requires a password to open the report** check box, type **Education1** in the **Password** and the **Confirm Password** text boxes, and then click **OK**.
5. On the **Run with advanced options** window, click **Run**, and then click **OK**.
6. On the toolbar, click **Refresh** and verify the time to ensure this version is the one you just ran. g
7. Click **View output versions for this report - Demo 4_Enhance Report Layout**  , and then click **PDF**.
   You are prompted to type a password because you secured this version of the report.
8. Type the password **Education1**, and then click **OK**.
9. Close **IBM Cognos Viewer**.
10. Click **Return** to return to **IBM Cognos Connection**.
    Leave **IBM Cognos Connection**, and **Report Studio** open for the next demo.

Results:
You created a PDF report that contains a list report and a crosstab report. You used PDF Page Setup properties to display individual report pages as portrait or landscape. You then created a secured version of the report that required a password to access.

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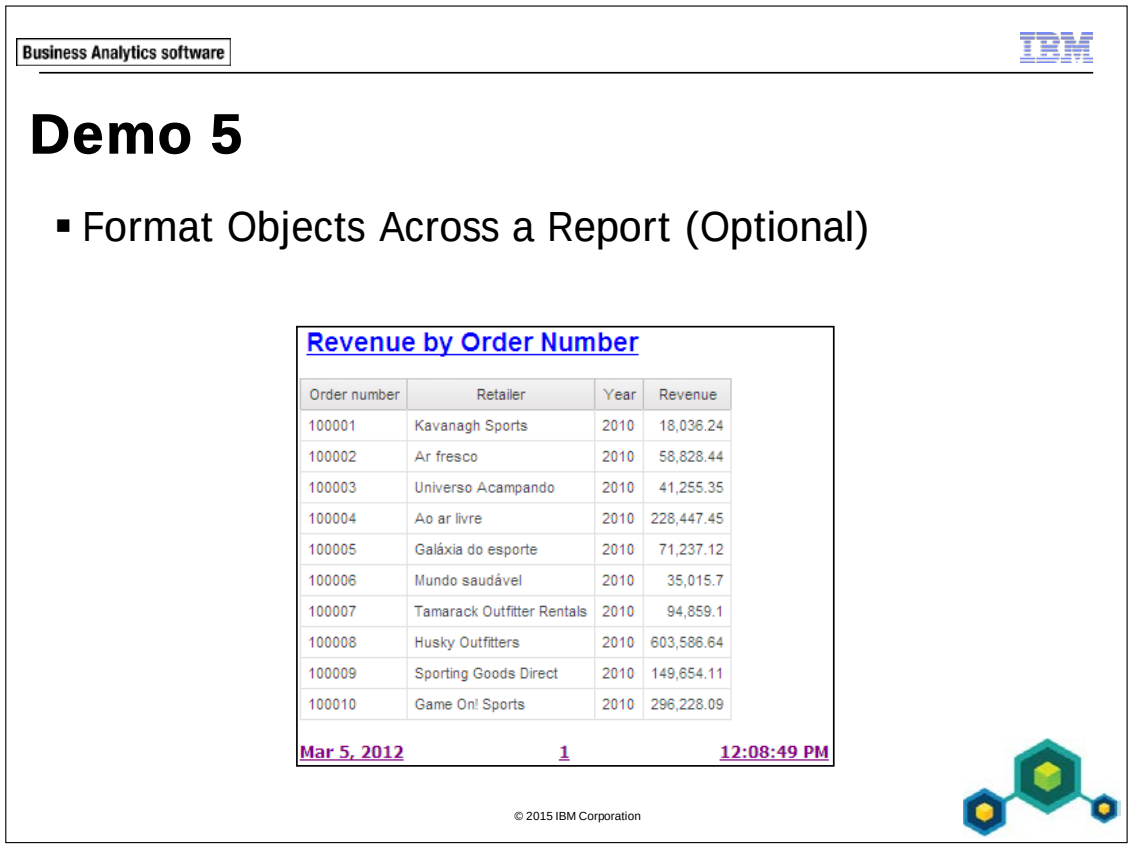
Format Objects Across a Report

- Format reports quickly and consistently using Cascading Style Sheet (CSS) classes.

CSS classes are used in reports and templates.

To determine what class an object uses, select the object and view the Classes property. An object also inherits the classes set for its parent objects.



This is an optional demo, however if you will complete it, you must first complete Demo 4.

Demo 5: Format Objects Across a Report (Optional)

Purpose:
In Report Studio, you will override a global style to modify the way report title objects appear in the report. You will also add a local style and will use it to format the report footer text. You will then create a report and observe how these style changes affect it.

You will need to complete Demo 4 before starting this demo.

Portal: **http://localhost:88/ibmcognos**
User/Password: **brettonf/Education1**
Studio: **Report Studio**

Task 1. Explore Global Class Extensions.

1. Maximize **Report Studio**, with **Demo 4_Enhance Report Layout** still open, from the **Explorer** bar, click **Page Design**.
2. Click the report title text in the page header, and then in the **Properties** pane, under **Miscellaneous**, observe that the **Classes** property is **Report title text**.
3. In the **Properties** pane, click **Select Ancestor**, click **Block**, and then observe that the **Classes** property is **Report title area**.
4. On the **Explorer** bar, point to the **Page Explorer**, and then click **Classes**.
5. In the **Global Class Extensions** list, click **Report title text**.

   Report title text class corresponds with the class name you observed on Page1. In the Preview pane, the sample text is underlined. You can explore the Report title area class to preview its style.

Task 2. Override a class style definition and then add a new class.

You will now change the report title text style. The changes you make will apply only to instances of the style in this report.

1. With the **Report title text** style selected, in the **Properties** pane, double-click the **Font** property.
2. Click **Foreground Color**, click **Blue**, and then click **OK**.
3. Click **OK** to close the **Font** dialog box, on the **Explorer** bar, point to **Page Explorer**, and then click **Page1**.

   The change you made to the report title text style has been applied. You will now format the text in the footer of the report.
4. On the **Explorer** bar, point to **Page Explorer**, and then click **Classes**.
5. From the **Toolbox** pane, drag a **Class** to the **Local Classes** pane.
6. In the **Properties** pane, under **General**, in the **Label** property, delete the existing label if necessary, type **Report footer text**, and then press **Enter**.
7. In the **Properties** pane, under **Font & Text**, double-click **Font** and change it to **Tahoma**, **10pt**, **Bold**, **Underline**, from **Foreground**, click **Purple**, and then click **OK**.
8. Click **OK** to close the **Font** dialog box.

   Notice that the preview window shows the changes that have been made.
9. In the **Properties** pane, under **Font & Text**, click the **Horizontal Alignment** property, and then in the list, click **Left**.

Task 3. Apply the new class to the report, add details, and run the report.

1. On the **Explorer** bar, point to **Page Explorer**, and then click **Page1**.
2. In the page footer, click the first table cell, and then Ctrl+click the two remaining cells.
3. In the **Properties** pane, under **Miscellaneous**, double-click the **Classes** property.
4. Click **cls1:Report footer text**, click the **right arrow**, to copy it to the **Selected classes** pane, and then click **OK**.

   The style from the Report footer text class you created has been applied.
5. On the toolbar, expand the **Run Report** list, and then click **Run Report - HTML**.

   A section of the results appear as follows:

Revenue by Order Number

Order number	Retailer	Year	Revenue
100001	Kavanagh Sports	2010	18,036.24
100002	Ar fresco	2010	58,828.44
100003	Universo Acampando	2010	41,255.35
100004	Ao ar livre	2010	228,447.45
100005	Galáxia do esporte	2010	71,237.12
100006	Mundo saudável	2010	35,015.7
100007	Tamarack Outfitter Rentals	2010	94,859.1
100008	Husky Outfitters	2010	603,586.64
100009	Sporting Goods Direct	2010	149,654.11
100010	Game On! Sports	2010	296,228.09

Mar 5, 2012 1 12:08:49 PM

   The formatting that you applied using the named styles appears in the report.
6. Close **IBM Cognos Viewer**.
7. Leave **Report Studio** open for the workshop.

Results:
In Report Studio, you overrode a global class style and added a new local class style to the report.

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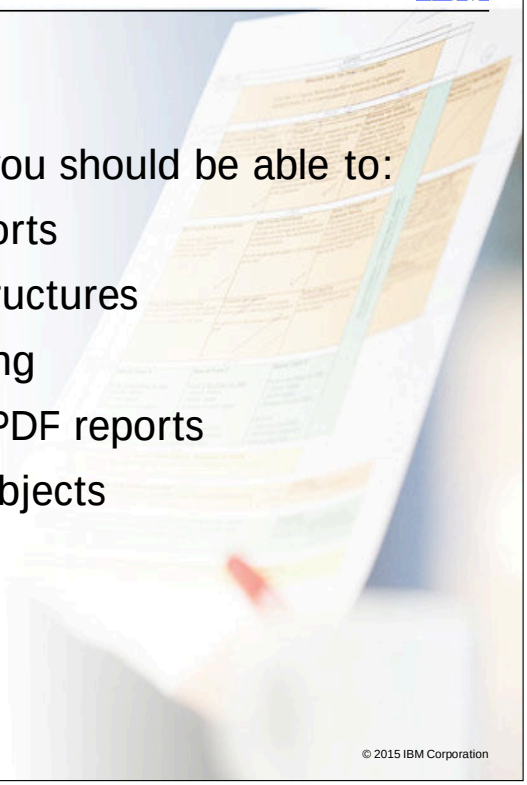
Summary

- At the end of this module, you should be able to:
  - force page breaks in reports
  - modify existing report structures
  - apply horizontal formatting
  - specify print options for PDF reports
  - format data and report objects



Business Analytics software

Workshop 1

Analyze Retailer Contacts by Country

Country: Australia

City	Retailer	Contact first name	Contact last name	Contact phone number	Contact extension
Melbourne	4 Golf only	Paul	Gasper	61-39-6599874	557
	Beach Beds Pty Ltd.	Jake	Jenkins	+(61) 03 7210 3237	
	Beach Beds Pty Ltd.	Paul	Balesrieri	+(61) 02 5138 2922	
	Beach Beds Pty Ltd.	Scott	Crawford	+(61) 09 9321 3237	
	Beach Beds Pty Ltd.	Steve	Girvan	+(61) 03 9556 4876	
	Black Stump Camping Supplies	Emily	Goddard	61-70-2366548	877
	Blue Mountains Golfing Company	Adam	Balla	+(61) 03 7210 8227	
	Can't Beat The Bush Supplies	Tony	Merrett	61-2-6550088	6558
	Gone Bush Supplies	Kenneth	Gartner	61-52-5488779	8787
	Harbour Pty Ltd.	Karen	Jakobson	61-9-6559033	741
	Jackos Enviro Shop	Laurie	James	61-2-5488773	147
	Kanga Kampers	David	Giddey	+(61) 02 9437 5764	
	Kanga Kampers	Doug	Crease	+(61) 07 7238 1065	

Workshop 1: Analyze Retailer Contacts by Country

You have been asked to prepare a report that contains retailer contact information for each retailer for every country. The report must be broken into separate sections for each country so that the country appears as a section at the top and only the contacts for one country are displayed per page.

To create the report, you must perform the following high-level tasks:

- Add the following query items to a new list using GO Data Warehouse (query)\Sales (query):
  - Employee by region: Country
  - Employee by region: City
  - Retailers: Retailer name
  - Retailers: Contact first name
  - Retailers: Contact last name
  - Retailers: Contact phone number
  - Retailers: Contact extension
- Section on Country; group on City.
- Apply page sets to display all contacts per Country per page.

For more information about where to work and the workshop results, refer to the Tasks and Results section that follows. If you need more information to complete a task, refer to earlier demos for detailed steps.

Workshop 1: Tasks and Results

Task 1. Create the list.

- **Toolbar**: Open a new **List** template, using the **GO Data Warehouse (query)** package, without saving the previous report.
- **Source tab**: Navigate to **Sales and Marketing (query)/Sales (query)/Employee by region**.
  - Add **Country** and **City** to the list report object.
- **Source tab**: Navigate to **Sales and Marketing (query)/Sales (query)/Retailers**.
  - Add **Retailer name**, **Contact first name**, **Contact last name**, **Contact phone number**, **Contact extension**.

  The results appear as follows:

Country	City	Retailer name	Contact first name	Contact last name	Contact phone number	Contact extension
<Country>	<City>	<Retailer name>	<Contact first name>	<Contact last name>	<Contact phone number>	<Contact extension>

- **Toolbar**: Section **<Country>**.
  - Group **<City>**.
  - Run the report.

  The results appear as follows:

Country: Australia

City	Retailer name	Contact first name	Contact last name	Contact phone number	Contact extension
Melbourne	4 Golf only	Paul	Gasper	61-39-6599874	557
	Beach Beds Pty Ltd.	Jake	Jenkins	+(61) 03 7210 3237	
	Beach Beds Pty Ltd.	Paul	Balesrieri	+(61) 02 5138 2922	
	Beach Beds Pty Ltd.	Scott	Crawford	+(61) 09 9321 3237	
	Beach Beds Pty Ltd.	Steve	Girvan	+(61) 03 9556 4876	
	Black Stump Camping Supplies	Emily	Goddard	61-70-2366548	877
	Blue Mountains Golfing Company	Adam	Balla	+(61) 03 7210 8227	
	Can't Beat The Bush Supplies	Tony	Merrett	61-2-6550088	6558
	Gone Bush Supplies	Kenneth	Gartner	61-52-5488779	8787
	Harbour Pty Ltd.	Karen	Jakobson	61-9-6559033	741

- Close **IBM Cognos Viewer**.

Task 2. Add page sets to the report.

- **Explorer bar**: Open Report Pages.
- **Toolbox pane**: Add a **Page Set** to the **Report Pages** pane.
- **Properties pane**: Associate the **Page Set** to **Query1**.

Task 3. Define the grouping structure for the page set.

- **Properties pane**: Add **Country** to the **Groups** folder under **Groupings and Sorting**.
- **Report Pages pane**: Drag **Page 1** into the **Detail Pages** folder.
- **Toolbar**: click **Run Report**.

The results appear as follows:

Country: Australia

City	Retailer name	Contact first name	Contact last name	Contact phone number	Contact extension
Melbourne	4 Golf only	Paul	Gasper	61-39-6599874	557
	Beach Beds Pty Ltd.	Jake	Jenkins	+(61) 03 7210 3237	
	Beach Beds Pty Ltd.	Paul	Balesrieri	+(61) 02 5138 2922	
	Beach Beds Pty Ltd.	Scott	Crawford	+(61) 09 9321 3237	
	Beach Beds Pty Ltd.	Steve	Girvan	+(61) 03 9556 4876	
	Black Stump Camping Supplies	Emily	Goddard	61-70-2366548	877
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	Jackos Enviro Shop	Laurie	James	61-2-5488773	147
	Kanga Kampers	David	Giddey	+(61) 02 9437 5764	
	Kanga Kampers	Doug	Crease	+(61) 07 7238 1065	
	Kanga Kampers	Linda	Balfe	+(61) 02 9437 1967	
	Kanga Kampers	Norman	Janac	+(61) 03 9321 4650	
	OutBack Pty	William	Horne	61-7-2355489	1223
	Southern Cross Pty.	Ernest	Jackson	61-9-8799544	125
	Top End Equipment	Cynthia	Garland	61-7-5444557	3225
	Watson's Golf Supplies	Julie	Mercer	61-3-9877889	8777

- Close **IBM Cognos Viewer**.
- Close **Report Studio**.
- Close the **Web Browser**.

You have created a report that contains retailer contact information for each retailer for each country. The report has been sectioned for each country so that the country appears as a section header at the top and the contacts for each country are displayed on a separate page.

Overview of IBM Cognos BI

IBM Cognos BI

Business Analytics software

Business Analytics software

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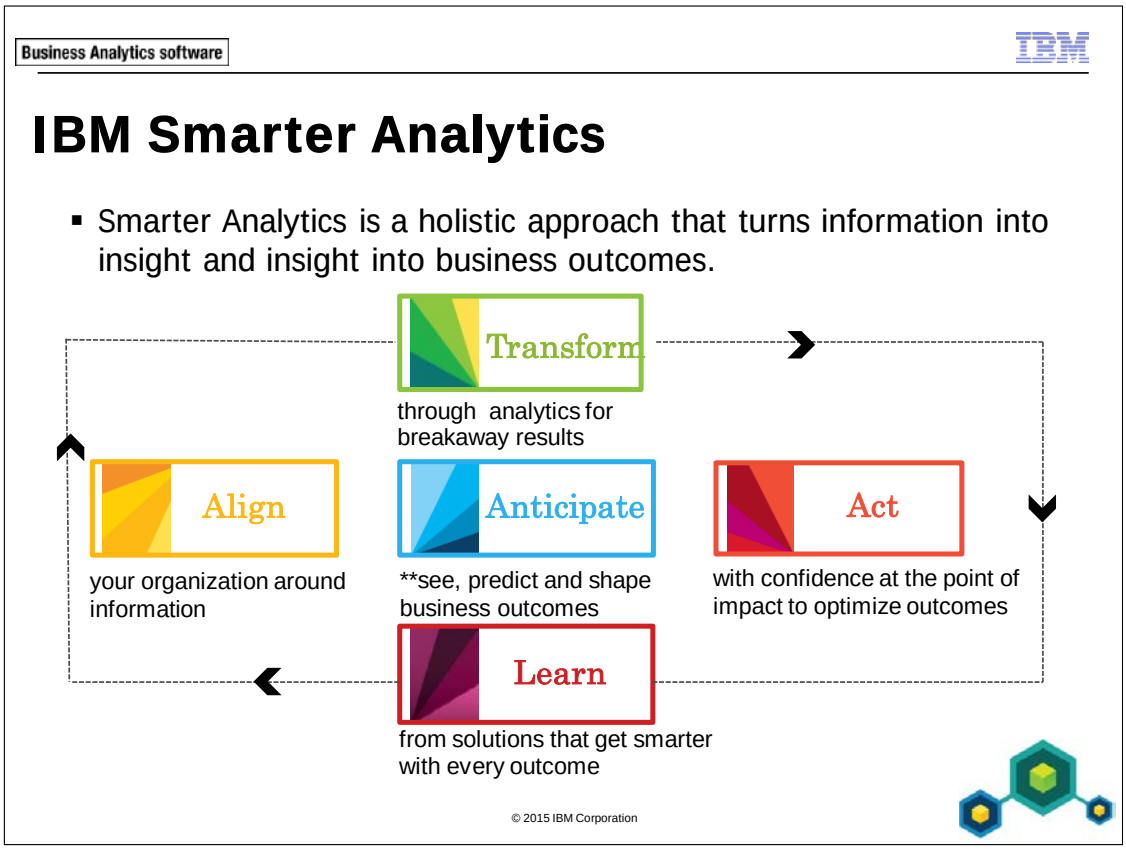
Objectives

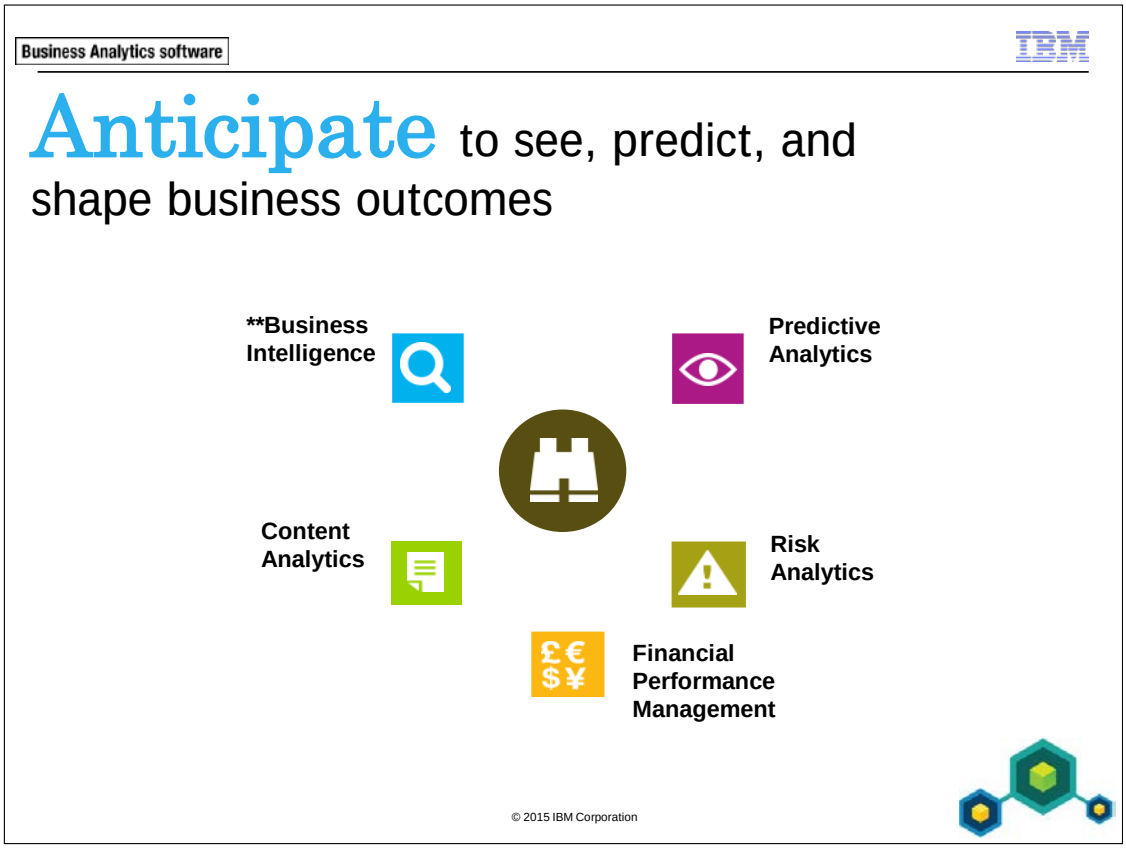
- At the end of this module, you should be able to:
  - describe IBM Cognos Business Intelligence (BI) and its position within the IBM Smarter Analytics approach and offerings
  - describe the IBM Cognos 10 Family of offerings
  - describe IBM Cognos BI enterprise components
  - describe IBM Cognos architecture at a high level
  - describe IBM Cognos BI security at a high level
  - explain how to extend IBM Cognos BI



Organizations across industries face tough new challenges created by the information age. A hyper-connected, global community of empowered individuals and consumers is generating an unprecedented amount of big data from billions of diverse sources. Amidst these new complexities, successful organizations are using analytics to acquire, grow and retain customers, transform their financial processes, improve operational efficiency and manage and reduce risk and fraud. Analytics has evolved from a business initiative to a business imperative. Organizations are adopting analytics at a fast rate and those leaders are already transforming entire industries.

From a study conducted by IBM Institute of Business Value and MIT Sloan Management Review, the number of enterprises using analytics to create a competitive advantage jumped almost 60 percent in just one year. Nearly 6 out of 10 organizations now differentiate through analytics. The overall increase in advantage went almost exclusively to organizations who were already experienced users of analytics, so the early adopters are extending their leadership, and those organizations are more than twice as likely to substantially outperform their peers.

The implications of this pattern are clear, and a major transformation is underway. This transformation is fundamentally changing how organizations are structured, how daily operations are managed and where new investments are made to create value. It is being powered by the onset of big data, which in turn is being instrumented and analyzed by new computing systems with deep analytic capabilities. Analytics has grown beyond enterprise data to big, largely unstructured data from billions and billions of diverse sources: . . . there are 200 million tweets sent each day, or roughly 12 TB data. . . every second of high-definition video creates 2,000 times as many bytes as a single page of printed text . . . all told, there are 1.8 trillion gigabytes of information available in today's digital world . . . a truly remarkable figure that continues to grow at an alarming rate. Yet, it is through the complexities caused by big data that we can start to recognize new patterns that we simply couldn't before: 1) insurance companies are identifying fraud patterns by combing different data sources in real time to analyze massive transactional databases 2) financial institutions that are trading based on trending social content 3) energy companies that are analyzing 350 billion meter readings each year to predict power consumption. With every new challenge created by big data comes an equal opportunity; for those who are truly prepared to leverage it; to significantly improve organizational decision making.



Leverage business analytics to deliver actionable insights.

- Spot and analyze trends and anomalies
- Predict potential threats and opportunities
- Plan, budget, and forecast resources
- Assess and manage risk
- Compare "what-if" scenarios
- Measure and monitor business performance
- Automate decisions
- Align strategic and operational decisions

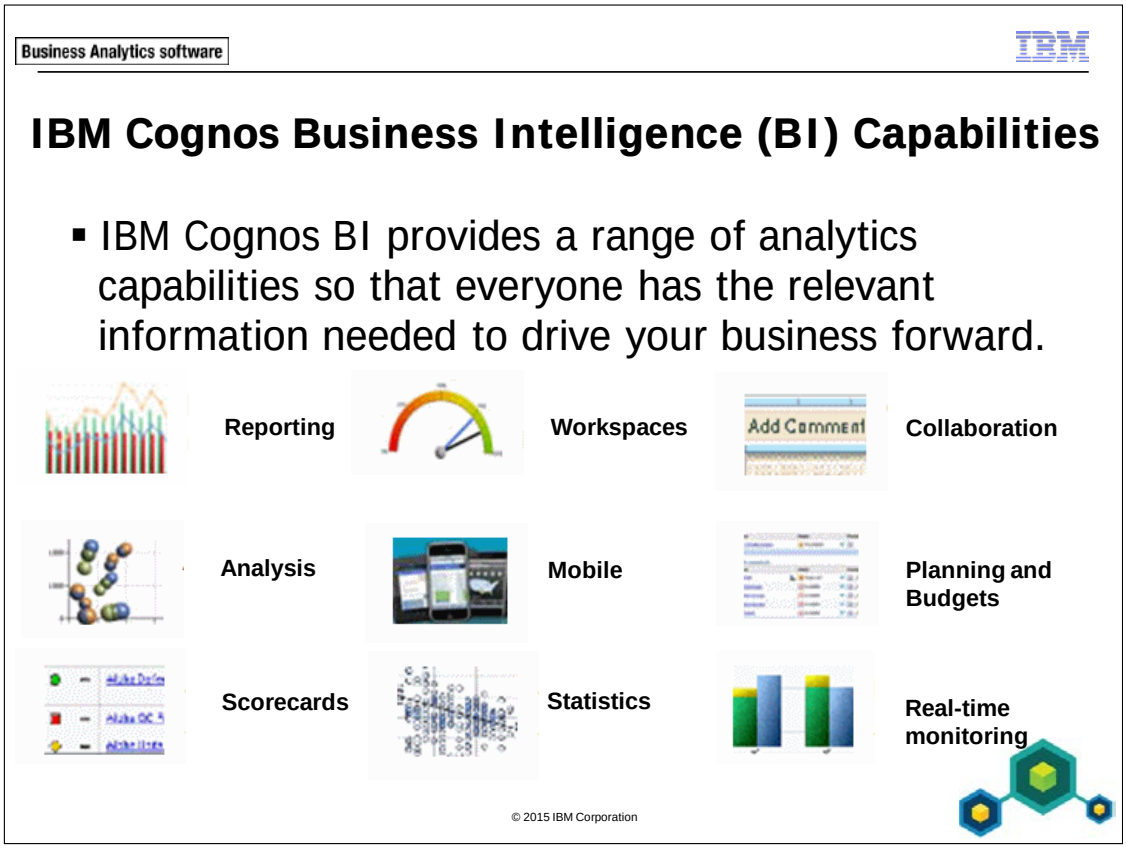
Business Intelligence - capabilities offered by IBM Cognos BI suite of products

Predictive Analytics - capabilities offered by IBM SPSS suite of products

Risk Analytics - capabilities offered by Open Pages and Algorithmics suite of products

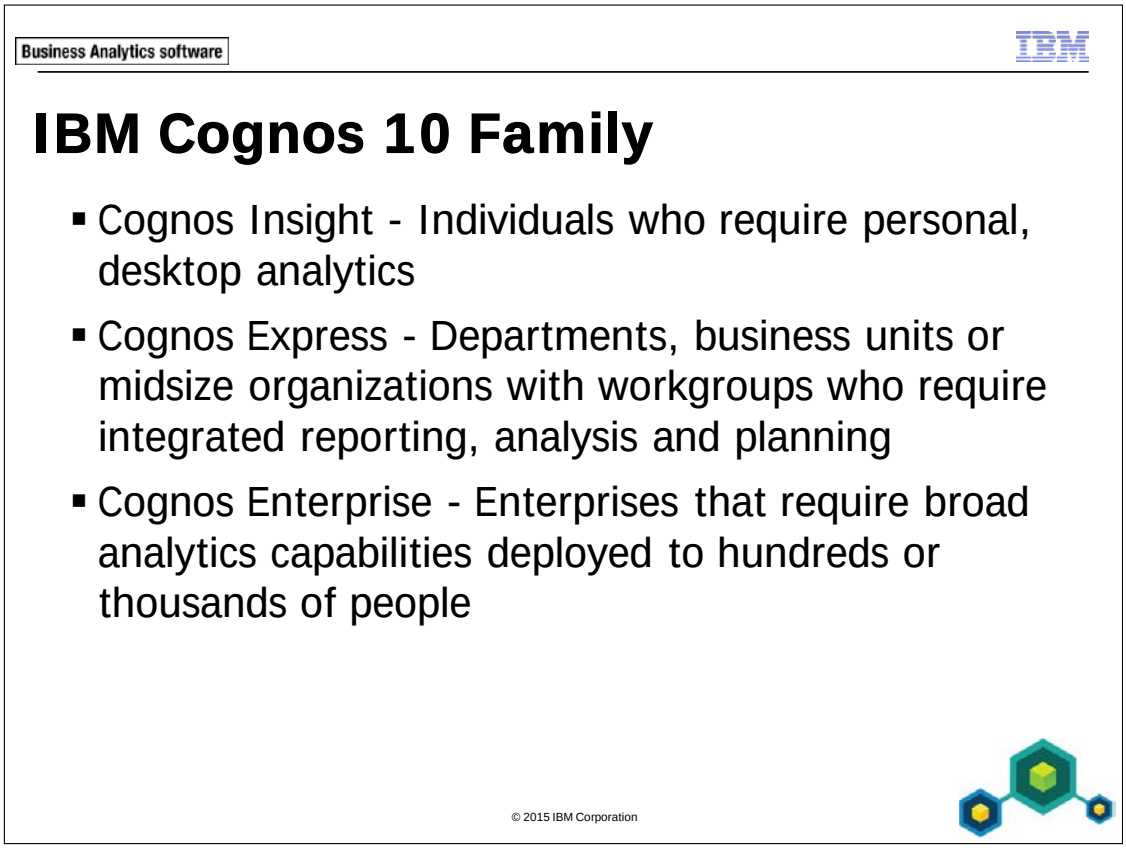
Financial Performance Management - capabilities offered by IBM Clarity, IBM Cognos Controller, IBM Cognos Planning, and IBM Cognos TM1

Content Analytics - capabilities offered by IBM Cognos Content Analytics



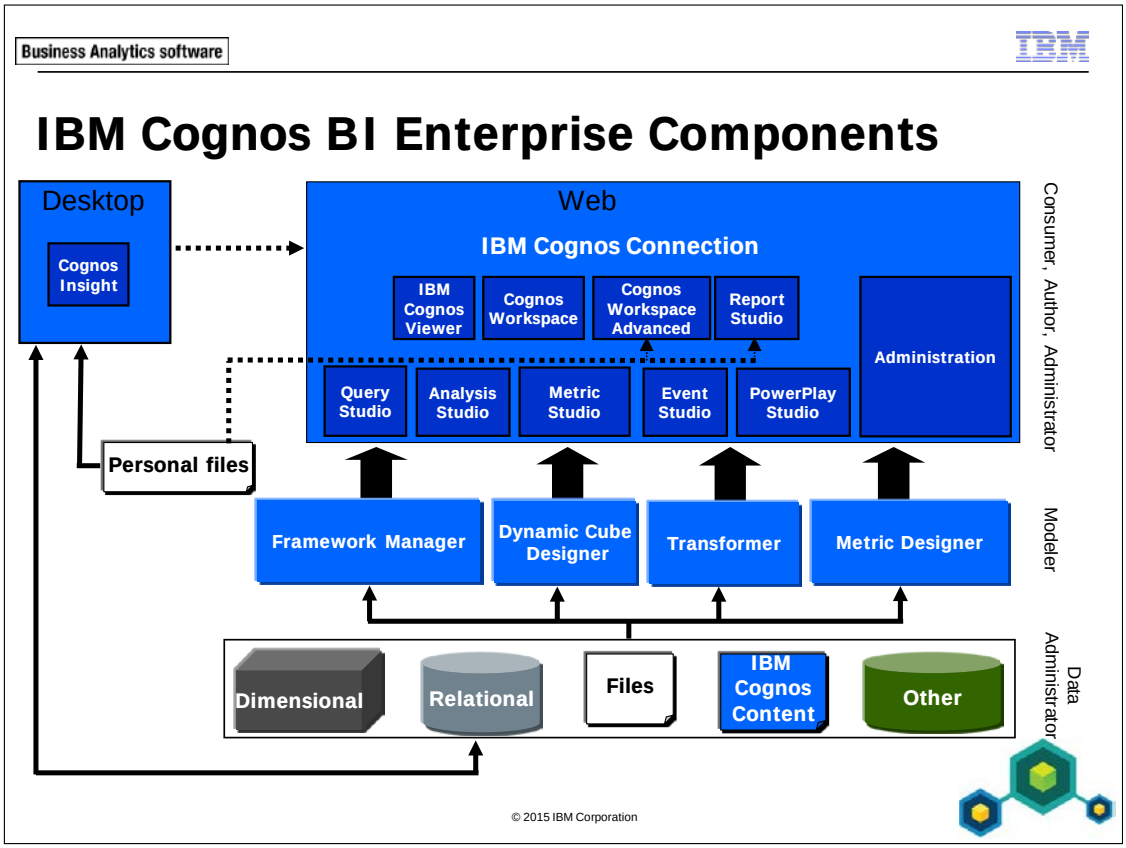
With IBM Cognos BI, users can:

- explore information freely, analyze key facts, collaborate to gain alignment with key stakeholders and make decisions for better business outcomes.
- access reports, analysis, dashboards, scorecards, planning and budgets, real-time information, statistics and manage information for more informed decisions.
- integrate the results of "what-if" analysis modeling and predictive analytics into a unified workspace to view possible future outcomes alongside current and historical data.
- work with business intelligence capabilities for the office and desktop, on mobile devices, online and offline.
- work within a highly scalable and extensible solution that can adapt to the changing needs of IT and the business with flexible deployment options that include the cloud, mainframes and data warehousing appliances.



The IBM Cognos 10 family of products is right-sized for your organization and integrated together, and offer solutions that meet your current and future needs, whether you want to deploy on a desktop, a single server, a server farm or all three. You can also start small and grow your solution over time. For example:

- Start small, using Cognos Insight for data discovery and planning. Add a server to share that insight and create additional reports from larger data sets with Cognos Express. Or combine that insight with real-time and corporate information and place insights on scorecards and interact on mobile devices with Cognos Enterprise.



IBM Cognos BI capabilities provide reporting, analysis, scorecarding, workspace creation, business event management, and data integration from a wide array of corporate and personal data sources. IBM Cognos BI includes:

- IBM Cognos Connection, which is the Web a portal for BI content presentation, management, and administration.
- Web and desktop reporting and analysis tools to author and analyze corporate data.
- Metadata modeling tools, including Framework Manager, Dynamic Cube Designer, and Transformer.

Use IBM Cognos Viewer to view reports.

Use IBM Cognos Workspace to create personal workspaces.

Use IBM Cognos Workspace Advanced to perform self-service reporting and analyses of data, including external data files.

Use IBM Cognos Insight to perform personal analysis in a desktop environment.

Use Query Studio to perform ad hoc querying and quickly answer a focused question.

Use Analysis Studio to perform analyses of data to discover trends, risks, and opportunities.

Use Report Studio to build sophisticated reports, against multiple data sources, including external data files.

Use Event Studio to create agents which notify users of key operational or performance-related events in their business.

Use PowerPlay Studio to perform multidimensional analysis using IBM Cognos PowerCubes.

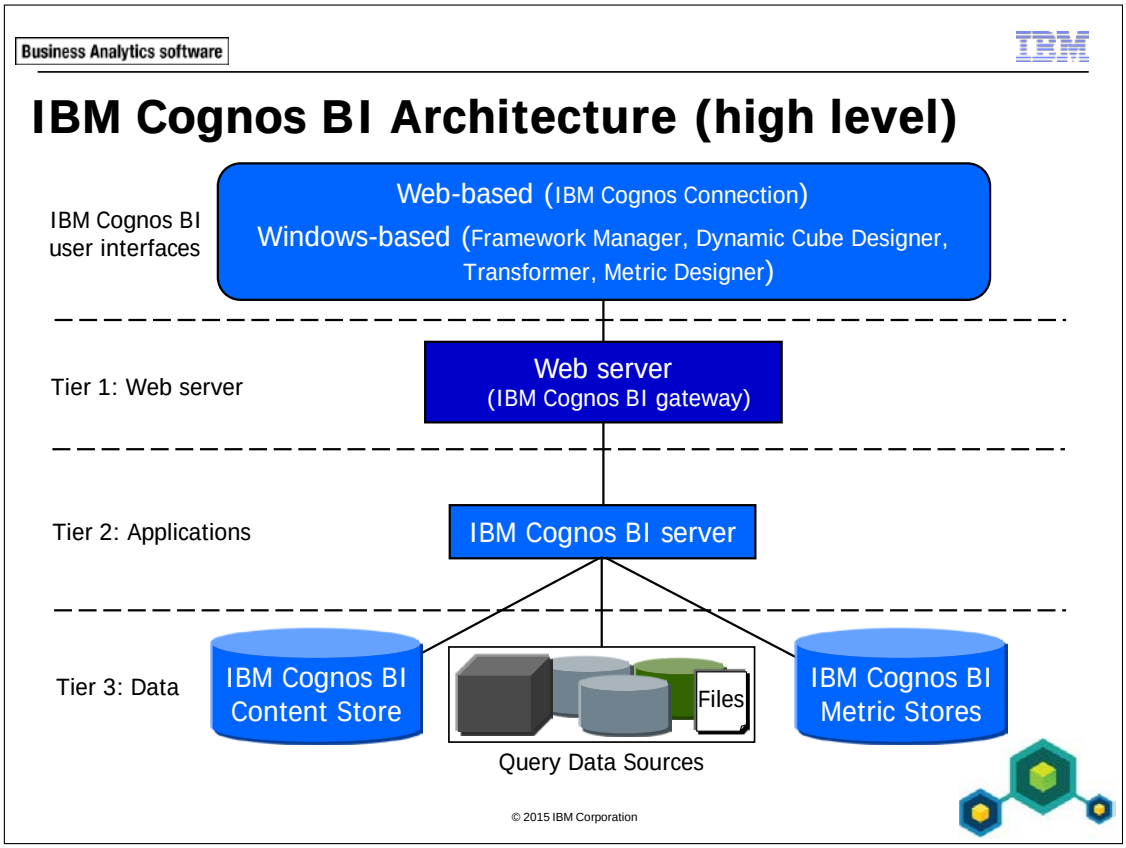
Use Metric Studio to manage performance by monitoring and analyzing metrics.

Use Framework Manager to create basic query packages, relationally based packages, and dimensional analysis packages.

Use Dynamic Cube Designer to create, edit, import, export, and deploy virtual cube models over a relational warehouse schema.

Use Transformer to create PowerCubes for dimensional analysis.

Use Metric Designer to create scorecard applications for use in Metric Studio.



BM Cognos BI is a Web-based architecture, which is separated into three tiers; Web server, applications, and data.

This architecture is scalable from a software and hardware perspective. For example, you can have several IBM Cognos servers for faster response times and load balancing.

IBM Cognos leverages existing corporate IT resources such as web servers, authentication providers, and application servers, and also supports multiple languages and locales in order to serve a global audience.

IBM Cognos is customizable to adopt your corporate look and feel and can be extended and integrated into other applications through the IBM Cognos SDK.

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IBM Cognos BI Security

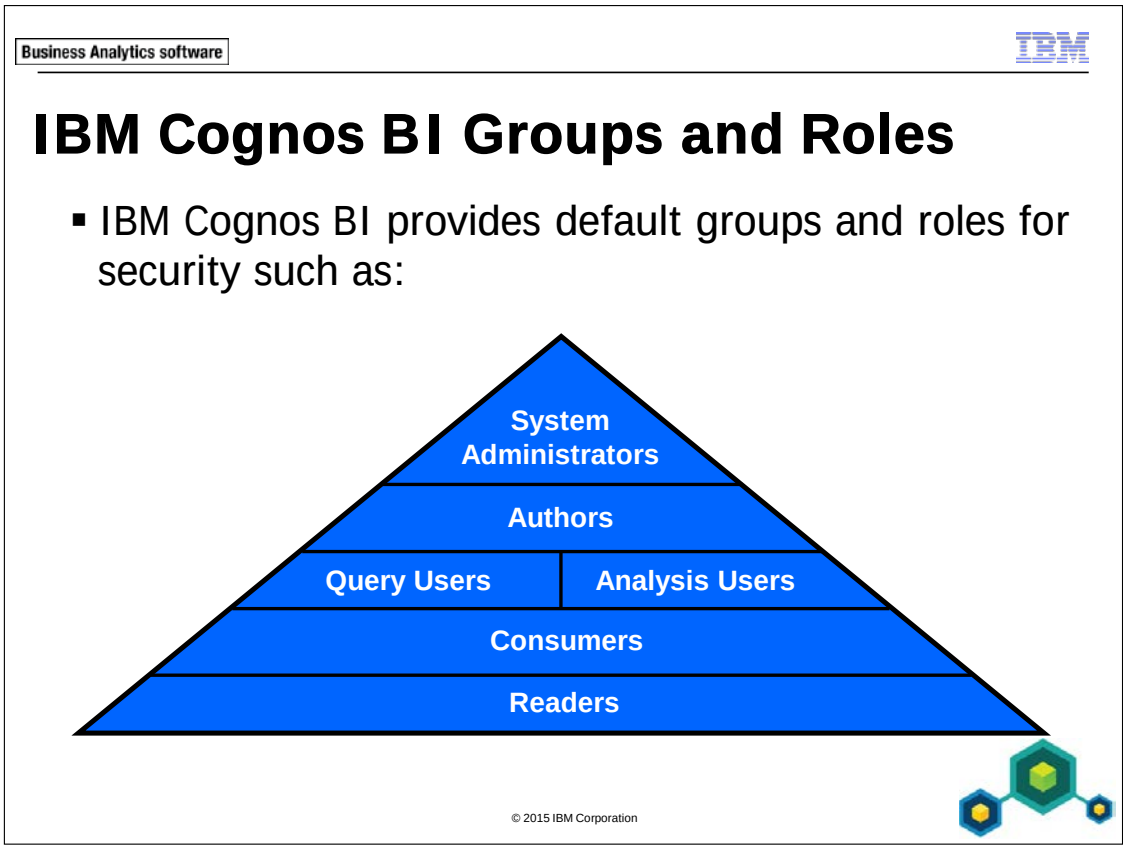
- The IBM Cognos BI security model combines existing enterprise security solutions with IBM Cognos BI security to achieve:
  - Authentication - Who are you?
  - Authorization - What can you see/do?
  - Administration - What/where can you manage?

IBM Cognos BI authentication is based on the use of third party authentication providers. These define users, groups, and roles used for authentication. User names, IDs, passwords, regional settings, and personal preferences are some examples of information stored in the providers.

Authorization is the process of granting or denying access to content, and specifying the actions that can be performed on that content, based on a user identity. Authorization assigns permissions to users, groups, and roles that allow them to perform actions, such as read or write, on objects, such as folders and reports. Permissions can be granted to users, groups, or roles directly from authentication providers or through membership in Cognos namespace groups and roles.

The Cognos namespace is the built-in namespace from IBM Cognos BI. It contains the IBM Cognos objects, such as groups, roles, data sources, distribution lists, and contacts. During the content store initialization, built-in and predefined security entries are created in this namespace, and include default access to functionality.

You can configure and administer IBM Cognos BI security using IBM Cognos Configuration and IBM Cognos Administration.



Take advantage of IBM Cognos BI groups and roles from the Cognos namespace to secure your IBM Cognos environment and content. The group or role to which a user belongs determines how much access the user has to the IBM Cognos environment and functionality. For example, if you are a member of only the Consumers role, you cannot access any of the IBM Cognos studios.

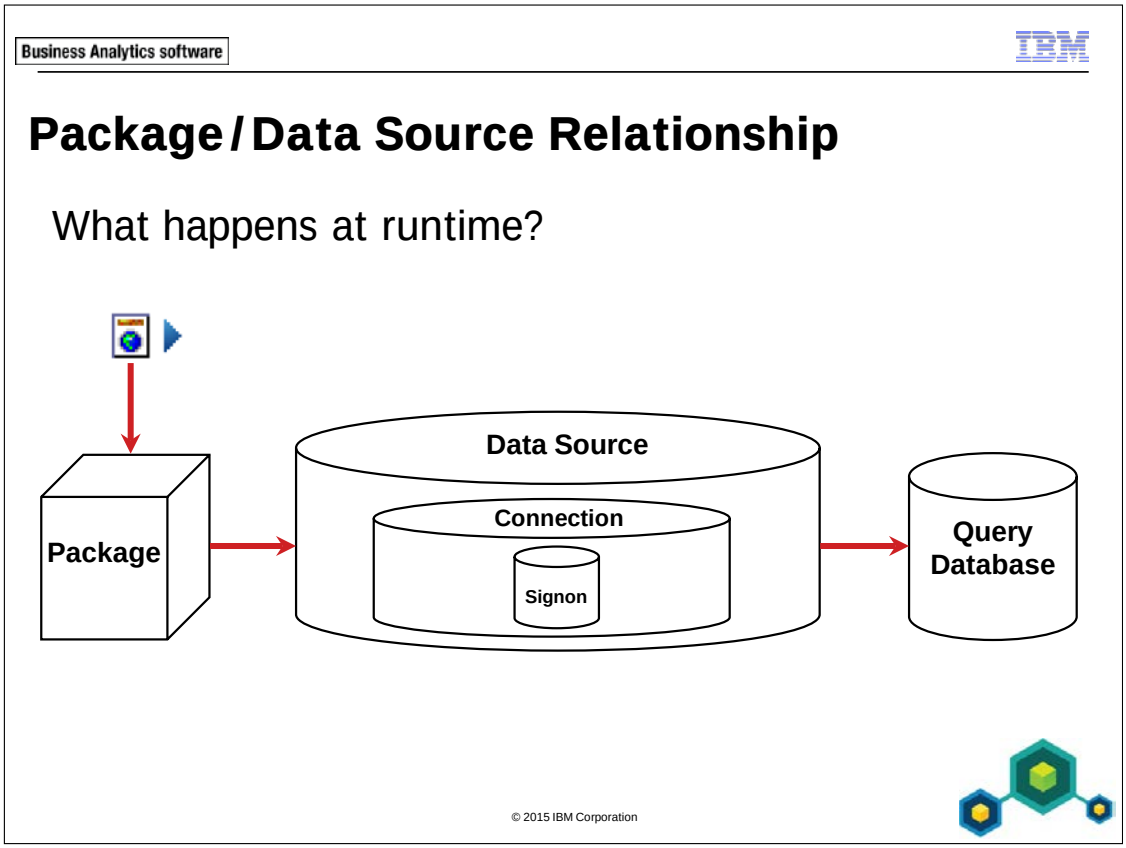
Besides the default groups and roles, you can create new groups and roles that are specific to your IBM Cognos needs. Simply add users from your authentication source to specific groups and roles as required.

Not only can you use the groups and roles defined in the IBM Cognos namespace to control access to contents, you can use groups in your authentication provider as well.

Using the IBM Cognos namespace does not require the IT department and creates a more portable environment.

There are many different groups and roles the administrator can use to restrict what you can see, what you can do, etc.

See the Predefined Entries section of the Administration and Security Guide for detailed information on the predefined groups and roles as well as the anonymous user.



When a user runs a report, interactively or in the background, the metadata and data in the report are accessed through a combination of the package from which the report was authored, and the data source from which the package was modeled. The data source includes a connection string to the database and may include a signon that allows access to the database. The data source is used to query the database and retrieve the appropriate data, and the result set is presented back to the user.

There may be multiple connections for a given data source and multiple signons for a given connection.

Reports run in the background have saved output. The output is a snapshot of the data at the time the report is run and which is saved in the content store. Note: users have the option to save the report output after running the report interactively. When viewing saved output, there is no querying of the database. Users view the data and metadata from the output version that is saved in the content store.

Each object (report, package, data source, connection, and signon) may have security applied.

Demo 1: Explore IBM Cognos BI

Purpose:
You will obtain a high-level view of how the IBM Cognos BI system works by navigating through the system and tracing the lifecycle of a data item, from its appearance in a report to its existence in an underlying data source. You will take on different IBM Cognos BI roles including a(n):
- Consumer who runs reports or performs analysis to answer business questions
- Author who creates reports using various data items from a metadata package
- Data Modeler who imports data from the underlying data source, models it, and publishes a metadata package to make it available for Authors
- Administrator who creates and manages data source connections
You will conclude by identifying how the data item from the report appears as a column in the underlying data source.

Task 1. Run a report from IBM Cognos Connection.

1. Open **Internet Explorer**, and then navigate to **http://localhost:88/ibmcognos**.
2. Log on as **scottb/Education1**.

   The Welcome to IBM Cognos software page appears. Security is currently set in this environment and you have logged on as a member of the Consumers role. As can be seen in the user interface, this role has limited access to functionality within the environment, but at this point you are only interested in running a report to answer your business question. As a Consumer, you have the ability to navigate to and run reports. To do this you will view report content in IBM Cognos Connection.

3. Click **IBM Cognos content**.

   You are now in IBM Cognos Connection. This is the portal page for accessing and managing IBM Cognos BI content, including reports, analyses, additional portal pages, and metadata packages for authoring reports. Note: members of the Consumers role can only view packages and cannot use them to author reports. You will see packages as you navigate through the folder hierarchy.

   In IBM Cognos Connection, you will find public content, found on the Public Folders tab, or personal content, found on the My Folders tab. You also have the ability to create more personal tabs to suit your needs or to share with others.

   Now you want to view and run the report that will answer your business questions.

4. Navigate to **Samples > Models > GO Data Warehouse (query) > Report Studio Report Samples**, and then click the **Total Revenue by Country** report.

   Note: GO Data Warehouse is a package as indicated by the package icon which is different from a folder icon.

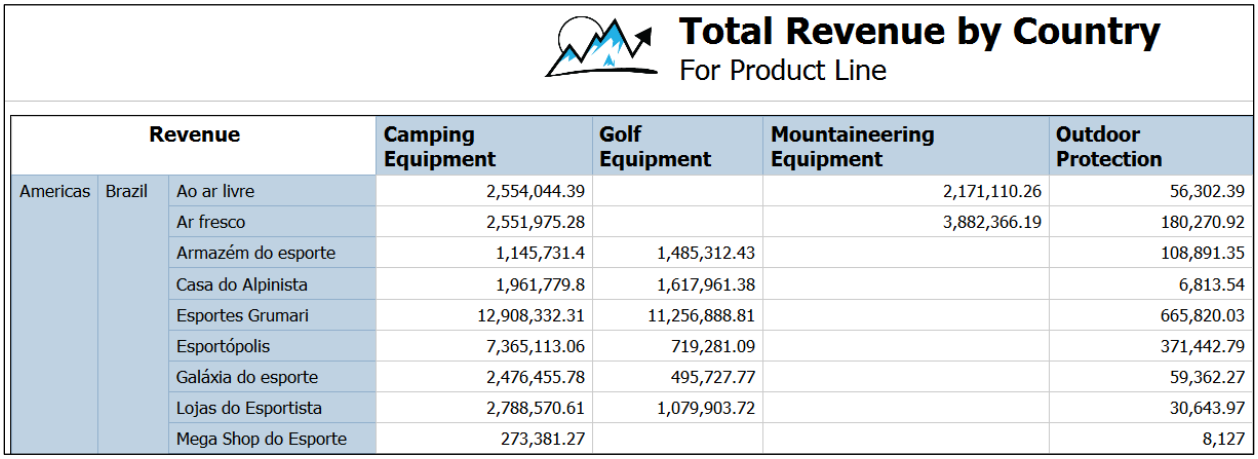
   The report opens in IBM Cognos Viewer.

   Before the full report can run, a prompt page appears asking you to provide some contextual information. In this case, you are prompted to select one or more countries for which you want to see revenue data. At runtime, after the Total Revenue by Country link is clicked, the report begins to run and the underlying data source is queried for data. In this case, the query returns data that populates the prompt.

5. Click **Select all**, and then click **Finish**.

   The full report runs and opens in IBM Cognos Viewer.

   A section of the results appear as follows:



Total Revenue by Country
For Product Line

Revenue			Camping Equipment	Golf Equipment	Mountaineering Equipment	Outdoor Protection
Americas	Brazil	Ao ar livre	2,554,044.39		2,171,110.26	56,302.39
		Ar fresco	2,551,975.28		3,882,366.19	180,270.92
		Armazém do esporte	1,145,731.4	1,485,312.43		108,891.35
		Casa do Alpinista	1,961,779.8	1,617,961.38		6,813.54
		Esportes Grumari	12,908,332.31	11,256,888.81		665,820.03
		Esportópolis	7,365,113.06	719,281.09		371,442.79
		Galáxia do esporte	2,476,455.78	495,727.77		59,362.27
		Lojas do Esportista	2,788,570.61	1,079,903.72		30,643.97
		Mega Shop do Esporte	273,381.27			8,127

The report contains a second query which returns data that has been filtered, based on information supplied in the prompt.

The report is a crosstab report with rows and columns on the edges and intersecting values in the cells. It also contains:

- a title
- an image that is the company logo
- various report items, such as Revenue, Product lines, Region, Country, Retailer name
- variables that display the report execution time and page numbering (at the bottom of the page)
- multiple pages

6. Scroll through the report.

   As a consumer, you can answer business questions, including:

   - What is the total revenue per product line in each country?
   - What is the total revenue per product line for each retailer?

   Take note of the Revenue data item, the values of which populate intersecting cells of the report. This is the item you will trace back to its source. You will assume the role of an author and examine how the report was designed, and how the Revenue data item was used.

7. Click **Bottom**, and then scroll to the end of the report.

   This report also includes a chart to provide a visual representation of the data.

8. On the toolbar, click **Return**  , and then click **Log Off**.

Task 2. Examine a report in Report Studio.

1. Click **Log on again**.
2. Log on as **brettonf/Education1**.

   In the current security environment, Frank Bretton is a member of the Author's role, which by default, provides access to the various reporting and analysis studios within IBM Cognos BI.

3. Click **IBM Cognos content** and then navigate to **Samples > Models > GO Data Warehouse (query) > Report Studio Report Samples**.
4. Beside the **Total Revenue by Country** report, under **Actions**, click **Open with Report Studio - Total Revenue by Country**  .

   The report opens in design mode in Report Studio, as indicated by the metadata values instead of actual values appearing in the report. Take note of the formatting of the various textual items, including font size and weight. All of these properties can be edited in Report Studio.

5. Click the **Work area**, to the left of the chart, and then from the **Explorer** bar, click **Page Structure**  .

   The report includes a hierarchical object structure, beginning with a Page object, which includes Page Header, Page Body, and Page Footer objects. The Page Body hierarchy includes, Block objects, which in turn includes Table objects, which in turn includes Table Row objects, etc.

6. From the **Explorer** bar, click **Page Design**  .
7. At the bottom of the report, double-click **<%AsOfDate()%>**.

   The Report Expression dialog box opens showing the AsOfDate() expression. AsOfDate() is an embedded report function within the Report Studio expression editor, which can be used to return and display the execution date for the report.

8. Click **Cancel**, and then repeat step **7** for **<%PageNumber()%>** and **<%AsOfTime()%>**.

   PageNumber() returns the current page number.

   AsOfTime() returns the report execution time.

9. In the crosstab report object, double-click the **Revenue** item.

   The objects used to define this expression come from the GO Data Warehouse (query) package, as shown in the Available Components pane on the left. You can see objects from the package by navigating the hierarchy.

10. In the **Available Components** pane, expand **Sales and Marketing (query)** > **Sales (query)** > **Sales fact** to locate the **Revenue** object.

    The hierarchy you have navigated matches what is displayed in the Expression Definition pane. Note that the Sales and Marketing (query) object is a folder and is excluded from the expression. You will become familiar with this object hierarchy when you create a report in Task 3.

11. Click **Cancel**, and then repeat steps **9** and **10** to identify the expressions and objects used to define them for the following items in the report:

    <#Region#>

    <#Retailer country#>

    <#Retailer name (multiscript)#>

    <#Product line#>

    <#Total (Product line)#>

    <#Total (Retailer country)#>

    Next you will create a report using metadata objects from a package.

Task 3. Create a report in Report Studio.

1. From the **File** menu, click **New**, click **List**, and then click **OK**.

   You are using the List template for creating this report. The template includes the List report object (column headers and columns), Text Item object for the title, and report expressions (at the bottom) for date and time the report is run and page number.

   The package that is currently open in Report Studio will, by default remain open for the creation of the report.

   Note: To open Report Studio with a different package, you do not have to navigate back to IBM Cognos Connection. Instead, right-click in the Source pane, click Report Package, and then navigate to and open the appropriate package.

   The Source pane on the left displays the contents of the GO Data Warehouse (query) package. This package has been published from IBM Cognos Framework Manager as a metadata source for report authors to create reports.

   Note: This package is also available to other studios to create reports, including IBM Cognos Workspace Advanced, Query Studio, Analysis Studio, and Event Studio.

   The structure and organization has been defined in the IBM Cognos Framework Manager model. There are four folders in this package. Note that this is the same structure that was seen in Task 2, step 9 when you were examining the Revenue item in the Report Expression dialog box.

2. Expand the **Sales and Marketing (query)** folder.

   At this level you are viewing namespaces. A namespace provides containment and name qualification for child objects.

3. Expand the **Sales (query)** namespace.

   At this level you are viewing query subjects. A query subject is a set of query items that have an inherent relationship. In most cases, query subjects behave like tables. Query subjects produce the same set of rows regardless of which columns were queried.

4. Expand the **Sales fact** query subject.

   At this level you are viewing query items. A query item represents a single characteristic of something, such as the date that a product was introduced. Query items are contained in query subjects or dimensions (if using a dimensional data source). For example, a query subject that references an entire table contains query items that represent each column in the table.

5. Drag **Product line** (from **Products**), **Product type** (from **Products**), and **Revenue** (from **Sales Fact**) query items to the work area.

   The results appear as follows:

Product line	Product type	Revenue
<Product line>	<Product type>	<Revenue>
<Product line>	<Product type>	<Revenue>
<Product line>	<Product type>	<Revenue>

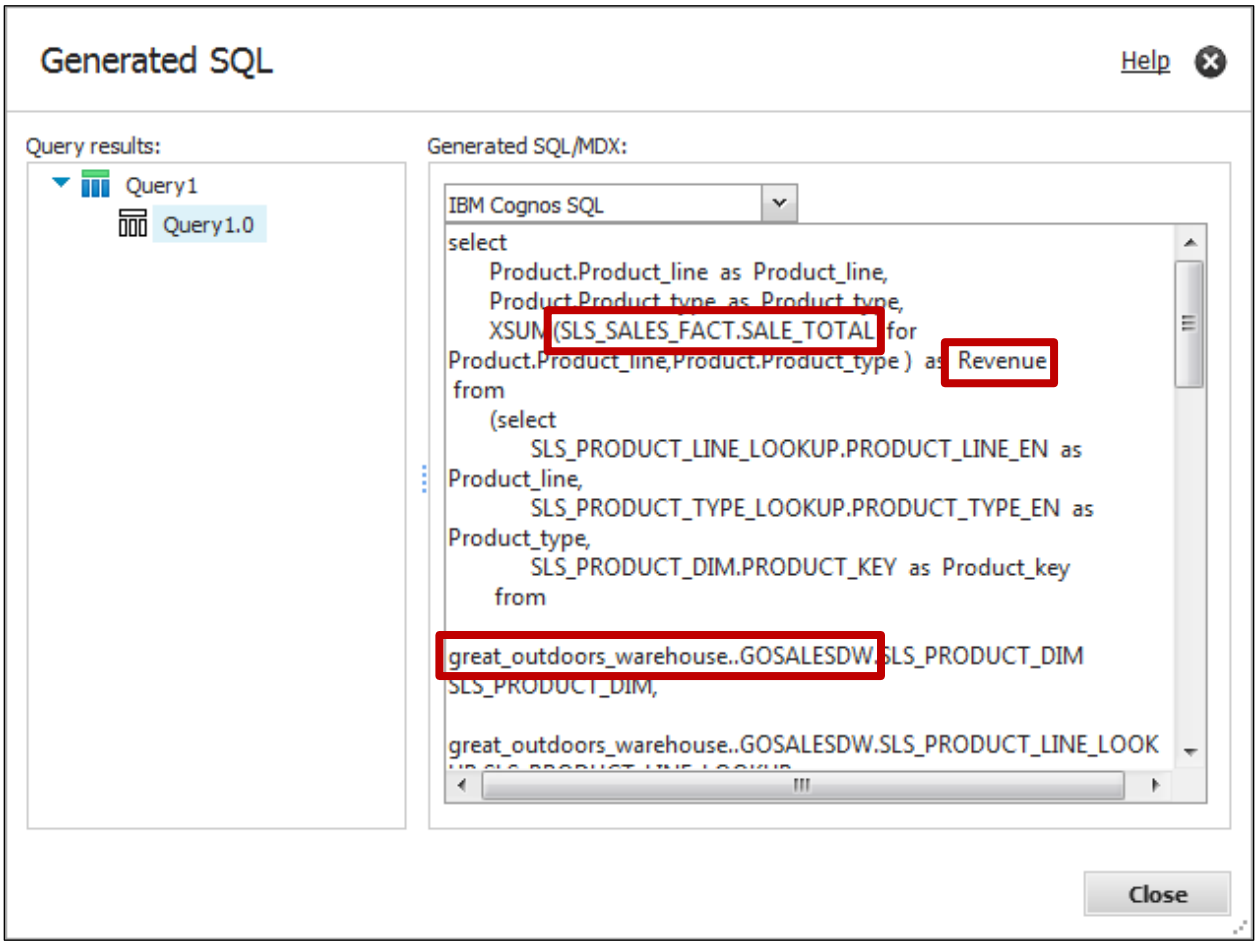
6. From the toolbar, click **Run Report**  .

   The report opens in IBM Cognos Viewer and displays revenue values for all product types from each product line. Next you will examine the SQL that is generated and sent to the data source when the report is run.

7. Close **IBM Cognos Viewer**, and then from the **Tools** menu, click **Show Generated SQL/MDX**.

   In Report Studio, you have the option to view either the Native SQL that is sent to and interpreted by the data source or the IBM Cognos SQL that is generated by the IBM Cognos query engine. For the purposes of tracing data access back through the IBM Cognos BI system, you will view the IBM Cognos SQL.

8. In the **Generated SQL/MDX** list, click **IBM Cognos SQL**.
   The results appear as follows:



   For the purposes of tracing data access back through the IBM Cognos BI system, you will not examine the SQL in detail, other than to note the following items:

   SLS.SALES_FACT.SALE_TOTAL, as Revenue - Revenue is actually a query item called SALE_TOTAL which comes from a query subject named SLS_SALES_FACT. Revenue was renamed from SALE_TOTAL as part of the modeling process in IBM Cognos Framework Manager.

   great_outdoors_warehouse.GOSALESDW - at runtime data access is achieved through a data source connection called great_outdoors_warehouse and a schema called GOSALESDW.

9. Click **Close**, and then close **Report Studio** without saving the report.

   Next you will take on the role of a modeler/developer to identify how the objects from the package, including the Revenue query item, are made available to authors to create their reports.

Task 4. Examine a model in IBM Cognos Framework Manager.

1. From the **Start** menu, click **All Programs** > **IBM Cognos 10** > **IBM Cognos Framework Manger**.
2. Click **Open a project**, and then open **great_outdoors_warehouse.cpf** from **C:\Program Files(x86)\IBM\cognos\c10\webcontent\samples\models\great_outdoors_warehouse**.
3. Log on as **admin/Education1**.

   In the current security environment, Admin Person is a member of the System Administrators role, and by default, has access to the entire IBM Cognos BI system, including IBM Cognos Framework Manager.

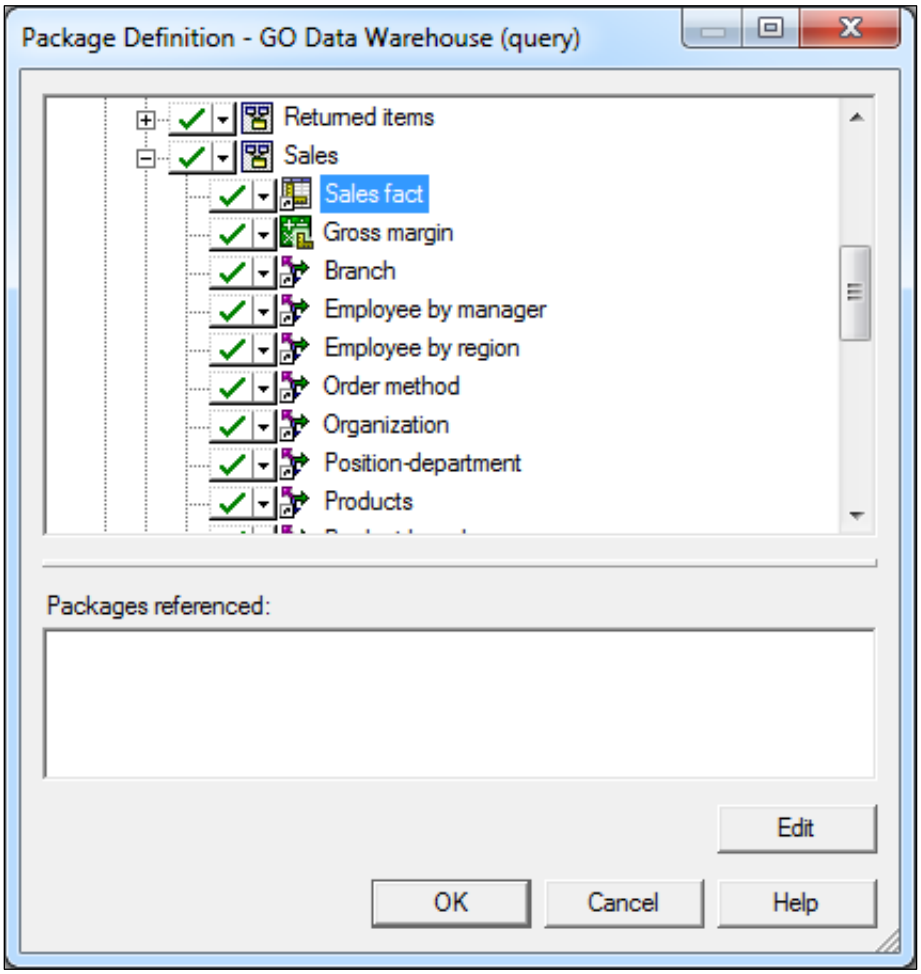
   You will examine what was published from IBM Cognos Framework Manager.
4. In the **Project Viewer** pane, expand **Packages**.

   The GO Data Warehouse (query) package appears. This is the package that you used in Report Studio to author the report.
5. Double-click the **GO Data Warehouse (query)** package.

   The Package Definition window displays which objects have been included and excluded from the package. The included objects are set to either visible or hidden. Hidden meaning they are included for publishing but will be hidden for report authors.

   Note the four folders that have been included and set to visible. These match the folders you identified when you were viewing the package in Report Studio (Task 3, step 1).

6. Expand the **Sales and Marketing (query)** folder **> Sales (query)** namespace. The results appear as follows:



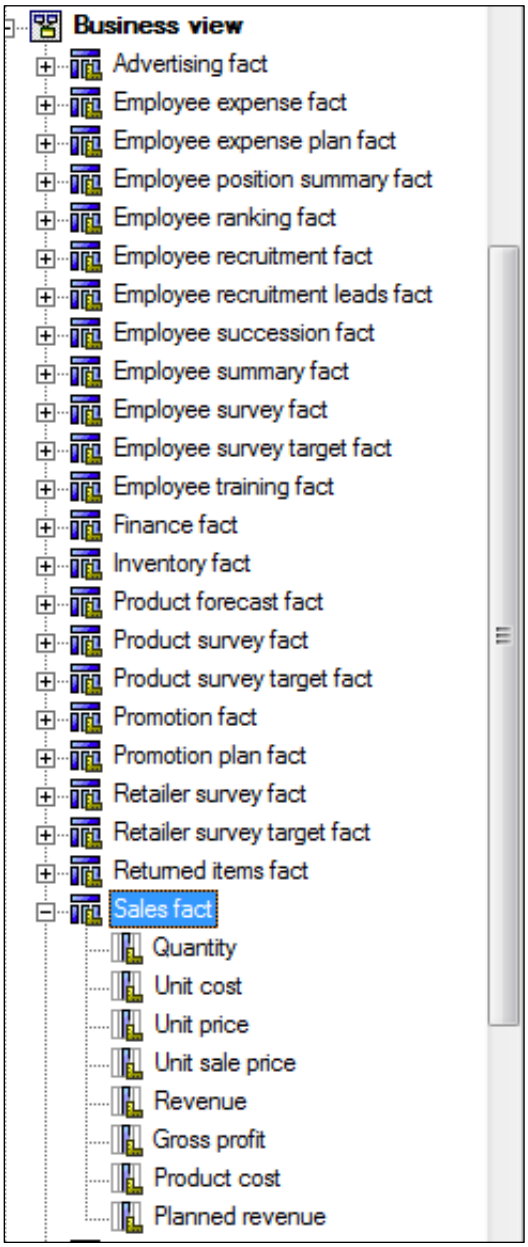
The Sales (query) namespace contains shortcuts to other objects in the model.

The Sales fact shortcut points to a source object that is also included in the package; however, you cannot trace the source using this window. To do this, you will examine the model.

7. Click **Cancel**, and then in the **Project Viewer**, expand the **go_data_warehouse** namespace **> Sales and Marketing (query)** folder **> Sales (query)** namespace.

   Again, you can see the Sales fact shortcut, but now you can trace that shortcut back to its source.

8. Right-click **Sales fact**, and then click **Go To Target**.
   A section of the results appear as follows:



You are taken inside the Business View namespace (bolded text), to the Sales fact query subject (blue background). This query subject includes the Revenue query item.

Without going in to detail on the structure of this model, you should note that, as a proven practice, this sample model has been organized to include multiple namespaces. The Database View namespace is used to contain query subjects and query items that have been imported directly from the data source. The Business View namespace is used to contain query subjects and query items on which various modeling tasks have been performed, such as:

- combining query items from multiple query subjects
- creating calculated query items
- creating model filters and query item filters
- modifying and creating relationships between query subjects
- setting of various query subject and query item, properties

Objects that will be made available to report authors are typically kept outside of these namespaces, for example the Sales and Marketing (query) folder.

The Sales and Marketing (query folder) contains only shortcuts to objects elsewhere in the model. Some of those objects, contained elsewhere in the model, have been included in the package. In the Package Definition, you noted that some objects were made hidden, including the Business View namespace. In Report Studio, when the author creates the report and uses the Revenue item, they are using a shortcut to a hidden object in the package. In this case, it is the Revenue query item, from the Sales fact query subject, in the Business View namespace.

You will now identify the source for the Revenue query item from the Sales fact query subject.

9. Double-click the **Sales fact** query subject.

   This is a model query subject. Model query subjects can be used to create a more abstract, business-oriented view of a data source. For example, you can add business objects such as calculations and filters and combine query items from other query subjects, including other model query subjects.

The Query Items and calculations pane displays the query items and their source that make up this model query subject, including the Revenue query item. Also note that there are two calculated items: Product cost, and Planned revenue. For Revenue, there are two items to note:

- The source is SLS_SALES_FACT.SALE_TOTAL.
- The name is Revenue, indicating that the item was renamed from SALE_TOTAL

From this, you can conclude that Revenue is sourced from SALE_TOTAL. To locate this object, you can search for it in the model.

10. Click **Cancel**, and then in the **Tools** pane on the right, click the **Search** tab.
11. Search for **SALE_TOTAL** using the **go_data_warehouse** model as the scope.

    Tip: Use the Search options  button to define your search.
12. Click the first instance that contains **SALE_TOTAL**.

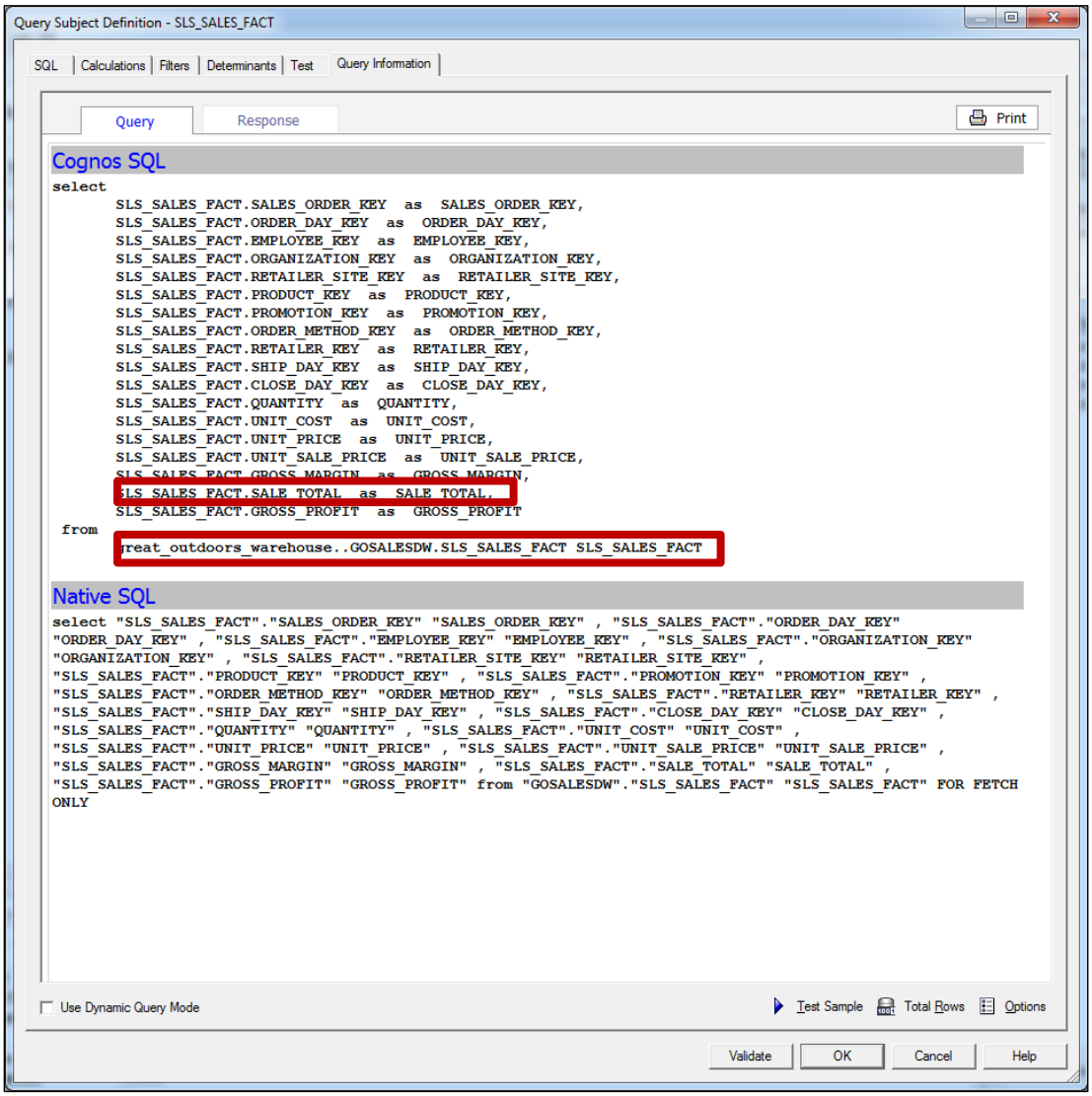
    Objects in the Project Viewer pane expand, and you can see the SALE_TOTAL query item is located at go_data_warehouse > Database view > Sales and marketing data > SLS_SALES_FACT.
13. Double-click **SLS_SALES_FACT**.

    This is a data source query subject. Data source query subjects directly reference data in a single data source. IBM Cognos Framework Manager automatically creates a relational data source query subject for each table and view that you import into your model. It includes an SQL statement that will, at runtime, retrieve all the columns from the table. You will test this behavior and in turn locate the SALE_TOTAL column and its values.
14. Click the **Test** tab, click **Test Sample**, and then in the **Test results** window, scroll to the right to locate **SALE_TOTAL**.

    SALE_TOTAL is returned as a column

15. Click the **Query Information** tab.

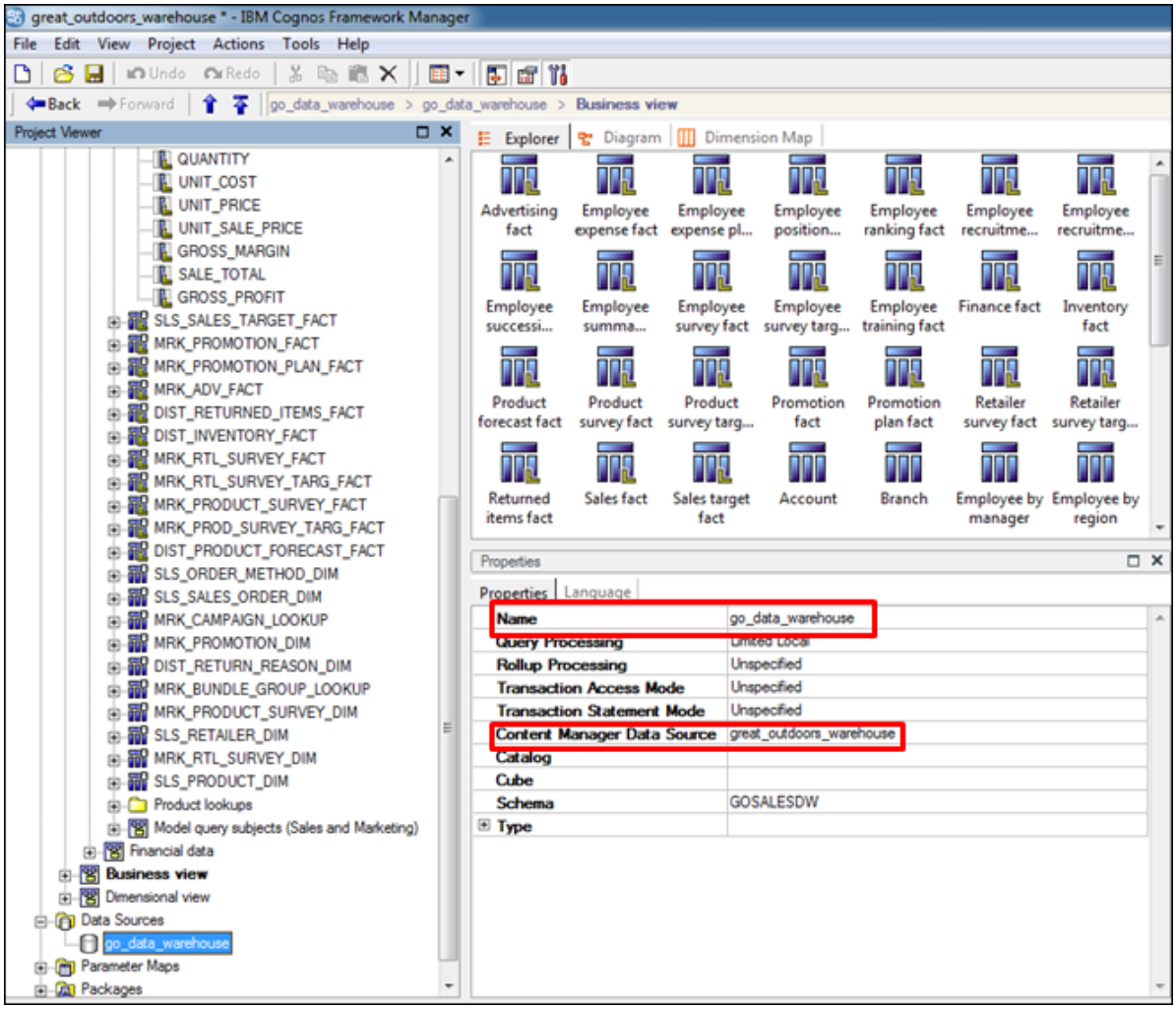
The results appear as follows:



As with the Generated SQL/MDX window in Report Studio, this window also displays the SQL that is sent to the data source (Native SQL) and the SQL generated by the IBM Cognos query engine (Cognos SQL). In the Cognos SQL, you can see that the select statement includes all columns from the SLS_SALES_FACT table, including the SALE_TOTAL column. You can see that the "from" statement includes an object called great_outdoors_warehouse, and one called GOSALEDW. These objects represent the data source connections that are used at runtime. You will examine how these connections are defined in Task 5 when you view them in IBM Cognos Administration. For now, you will continue to examine how they are used in IBM Cognos Framework Manager.

16. Click **Cancel**, and then in the **Project Viewer**, expand **Data Sources**, and then click **go_data_warehouse**.

The results appear as follows:



From the information in the Properties pane, you can see that this model makes use of data source named go_data_warehouse, which uses a Content Manager data source named great_outdoors_warehouse. In this case, the modeler has opted to provide a different name for the model data source by editing the Name property in the Properties pane.

The Content Manager Data Source is the object through which:

- runtime data access is achieved
- the process of importing data source objects in to the model is accomplished

You will examine the import process by running the Metadata Wizard.

17. In the **Project Viewer**, right-click **Database view**, and then click **Run Metadata Wizard**.

    You can import from a wide range of data source types.

18. Leave **Data Sources** selected, and then click **Next**.

    There are currently two or three data sources to choose from to perform the import. Clicking the New button will let you create a new data source provided you have the appropriate access rights to perform this action.

    One of the data sources is named great_outdoors_warehouse and is the data source that was previously used to import objects in to this model. The name also matches the Content Manager data source name identified at step 16.

19. Click **great_outdoors_warehouse**, and then click **Next**.

    This data source points to a set of child data source objects, one of them being GOSALEDW. This name matches the object name identified when examining the SQL statement in step 15.

20. Expand **GOSALESDW > Tables**.

    This data source object includes a set of tables, which can be imported into the model. Included in this set is the SLS_SALES_FACT table.

21. Expand **SLS_SALE_FACT**.

    This table includes a set of columns, which can be imported into the model. Included in this set is the SALE_TOTAL column.

22. Click **Cancel**, and then close **IBM Cognos Framework Manager** without saving the project.

    Up to this point you have identified how the Revenue query item:

    - data values appear in an existing report in IBM Cognos Viewer
    - is used in a new report created in Report Studio
    - is made available to report authors in a package that is published from IBM Cognos Framework Manager
    - is sourced and modeled in the IBM Cognos Framework Manager model
    - is imported into the IBM Cognos Framework model as the SALE_TOTAL column

23. In **IBM Cognos connection**, click **Log Off**.

Task 5. Examine data sources in IBM Cognos Administration.

You will now take on the role of the administrator to examine how data source connections are defined in IBM Cognos Administration.

1. Click **Log on again**.
2. Log on as **admin/Education1**, and then on the Welcome to IBM Cognos Software page, click **Administer IBM Cognos content**.

   IBM Cognos Administration is the portal that allows you to monitor and administer the IBM Cognos BI system including servers, security, capabilities, data source connections, and the deployment of content. In the current security environment, Admin is a member of the Directory Administrators role, which by default, provides access to the Directory pages of IBM Cognos Administration, including the ability to create and manage data sources.
3. Click the **Configuration** tab.

   The first node selected is Data Source Connections. Here you can administer existing data sources and create new ones. Note: The New button on the toolbar provides the same user interface experience for creating a new data source that is available in IBM Cognos Framework Manager in the Metadata Wizard.

   Existing data sources display; these are the same data sources that appeared when you ran the Metadata Wizard in IBM Cognos Framework Manager, at Task 4, steps 17 and 18.
4. Click the **great_outdoors_warehouse** data source.

   This data source includes a single data source connection named great_outdoors_warehouse. Note: You can have multiple data source connections for a single data source. For example, if you have multiple databases with exactly the same structure (but different data), you can create one data source with multiple connections. The data source connection identifies which database you want to connect to.
5. Under **Actions**, click **Set properties - great_outdoors_warehouse**, and then click the **Connection** tab.

   This connection is configured to connect to a DB2 database. There are many types available for creating connections.

6. Beside the **Connection string** box, click **Edit the connection string**  .

   The connection is to a database named GS_DB, and under Signon, a signon has been configured for this connection. You will now examine the signon.

7. Click **Cancel** twice, and then click the **great_outdoors_warehouse** connection.

   This connection includes a single signon named great_outdoors_warehouse. The database signon identifies the user's rights in the database. You can have multiple database signons that have access to different tables. Within the database, you can create sets of tables with different owners or schemas, and then provide access to these with the appropriate signon.

8. Under **Actions**, click **Set properties - great_outdoors_warehouse**, click the **Signon** tab, and then click **Edit the signon**.

   This signon is configured to connect to the GOSALESDW schema using the credentials of the GOSALESDW user. The GOSALESDW schema is the object referenced in the generated SQL when you examined it in Report Studio (Task 3, step 8) and in IBM Cognos Framework Manager (Task 4, step 15)

9. Click **Log Off**, and then close **Internet Explorer**.

   You have identified how the connection is made to the underlying data source. Next, you will examine the required data source objects as they appear in IBM DB2.

Task 6. Examine underlying data source objects.

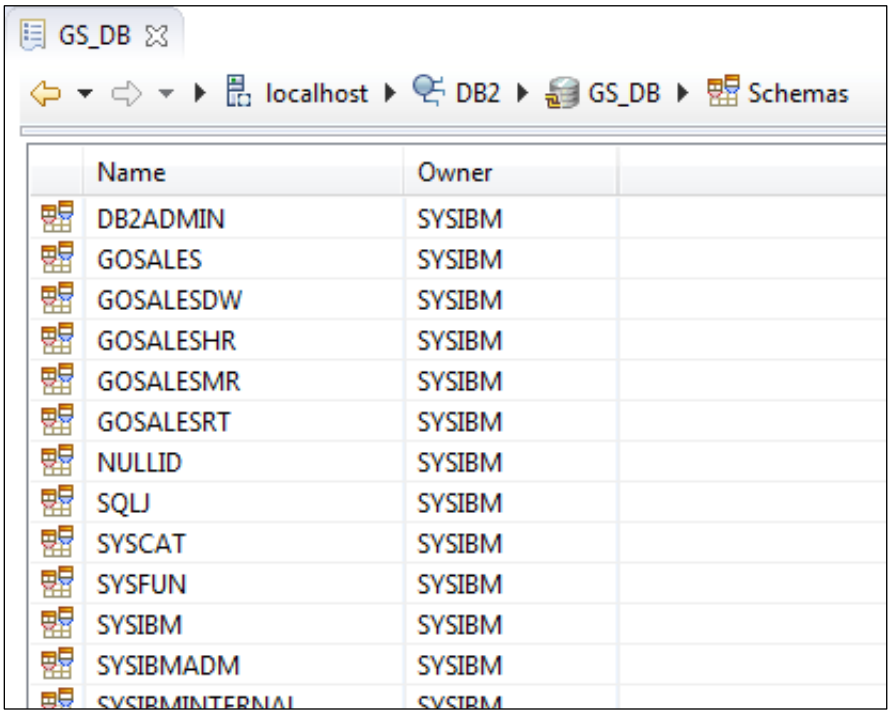
1. From the **Start** menu, navigate to **All Programs>IBM Data Studio>Data Studio 4.1.0.0 Client**.
2. Click **OK** to close the **Workspace Launcher**.
3. From the **Administrator Explorer** pane, expand **localhost>50000** and then double-click **GS_DB [DB2 Alias]**.
4. In the **Properties for GS_DB** window, on the **General** tab, in the **User name** field type **db2admin**, and then in the **Password** field type **Education1**.
5. Click the **Save password** check box, and then click **OK**.
6. Expand **GS_DB**.

   The GS_DB database connection is active and folders are displayed. This is the database identified at Task 5, step 6.

7. From the **Administrator Explorer** pane, double-click the **Schemas** folder.

   The Schemas folder is displayed in the central pane. This is the schema that the great_outdoors_warehouse data source is connecting to as identified in Task 5, step 8.

   A section of the results appear as follows:



8. From the **Administrator Explorer** pane, double-click the **Tables** folder.
9. In the **Task Launcher** pane scroll down to **SLS_Sales_Fact** (name column).
10. Right-click **SLS_Sales_Fact**, point to **Data**, and then click **New "Select" Script**.
11. From the toolbar click **Run SQL**  .

    The query executes and returns data from all the columns in the table.
12. From the **Properties** pane, at the bottom of the pane, click the **Result1** tab on the lower right pane.

13. Scroll to the right to locate the **SALE_TOTAL** column and its values.

    You have traced the Revenue item in the Total Revenue by Country report all the way back to its source in the underlying data source and have identified how the IBM Cognos BI system works.

14. Close all open windows.

Results:
You obtained a high-level view of how the IBM Cognos BI system works by navigating through the system and tracing the lifecycle of a data item, from its appearance in a report back to existence in an underlying data source.

Business Analytics software

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Summary

- At the end of this module, you should be able to:
  - describe IBM Cognos Business Intelligence (BI) and its position within the IBM Smarter Analytics approach and offerings
  - describe the IBM Cognos 10 Family of offerings
  - describe IBM Cognos BI enterprise components
  - describe IBM Cognos architecture at a high level
  - describe IBM Cognos BI security at a high level
  - explain how to extend IBM Cognos BI

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