Introduction to Crystal Reports Training

with examples and
hands-on exercises

WEBUCATOR

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Class Files

Download the class files used in this manual at https://static.webucator.com/media/public/materials/classfiles/CRY2011.1-2.2.0.zip.

Errata

Corrections to errors in the manual can be found at https://www.webucator.com/books/errata/.

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Getting Acquainted with Crystal Reports

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☑ Opening Crystal Reports.

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☑ Creating a basic report with the **Database Expert**.

☑ Report sections.

☑ The **Field Explorer**.

Introduction

Crystal Reports is a full-featured presentation system, providing numerous ways to present data from a variety of data sources. A query tool in a database management system (DBMS) can easily produce raw data; however, Crystal Reports helps you customize data presentation to individual needs. The ability to provide your customers, both internal and external, with data presented in the format most useful to them is powerful indeed. In fact, with Crystal Reports you can often output an entire set of reports in many formats from a single report file.

1.1. Report Writing Process

When building a report throughout this course, we will be following a few simple steps.

1. Choose your source and know your data. Make sure you know each table for the data source that you plan to use, and how they work together.
2. Filter out what is needed. Make sure you know the requirements of your report audience to ensure proper results. Only provide the records needed.
3. Organize the report. We will be sorting, grouping, and performing summary calculations on the detailed data in each group.

4. Enhance with custom formulas. Make sure we create the missing pieces of data with a variety of custom formula fields that we build and add to the report.
5. Generate the output. Once we have the perfect report, send it out to the audience in their favorite format. We will have many to choose from and can create them all from the original report definition.

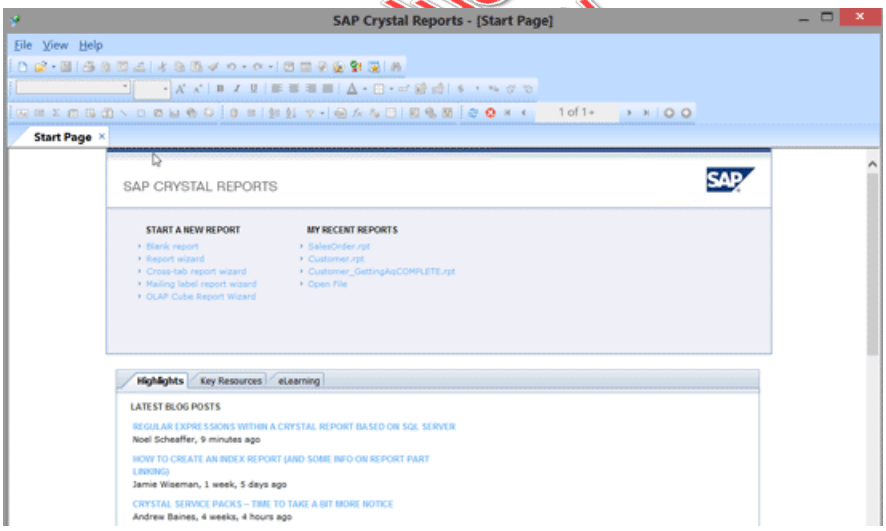
Every report will have room for improvement, and if we do not capture the right data in the right format the first time around, we can always go back and edit the original report definition.

1.2. Opening Crystal Reports

For the purposes of this training, it is assumed that Crystal Reports is installed and ready to use on your computer.

To start Crystal Reports, go to **Start > All Programs > Crystal Reports 2011 > Crystal Reports 2011**.

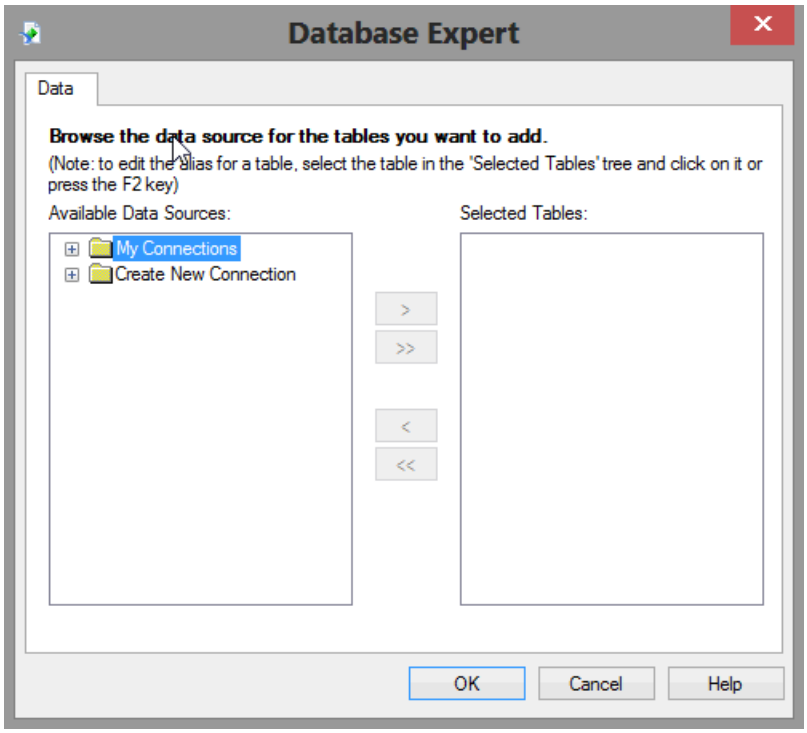
Once Crystal Reports is up and running, it should look similar to the image below:



Crystal Reports opens on the **Start Page**. You can open and create reports directly from this page. In addition, when connected to the Internet, you will see a set of tabs in the lower portion of the **Start Page**. From these tabs, you can access a variety of SAP/Crystal Reports resources on the Internet, including up-to-date information about any software updates for Crystal Reports.

1.3. The Database Expert

When creating a new report in Crystal Reports, we are first presented with the **Database Expert** dialog box:



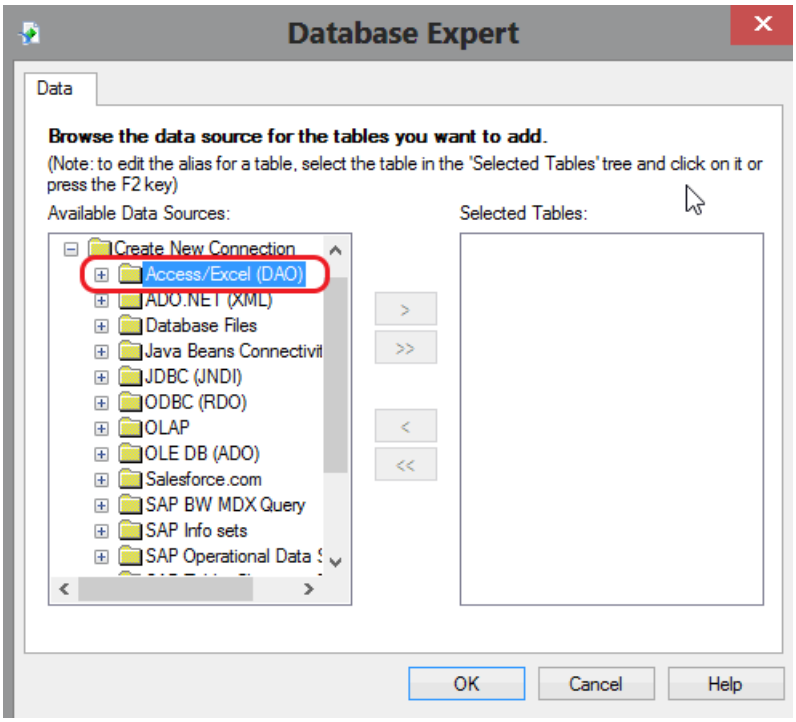
The **Database Expert** helps you connect to any data source that is available in a Windows environment. While these sources are typically databases such as Microsoft Access, Microsoft SQL Server, Oracle, MySQL, etc., other sources such as network file systems, event logs, Internet log files, and XML files can be used with Crystal Reports.

Let's use the **Database Expert** to add a table for a new report.

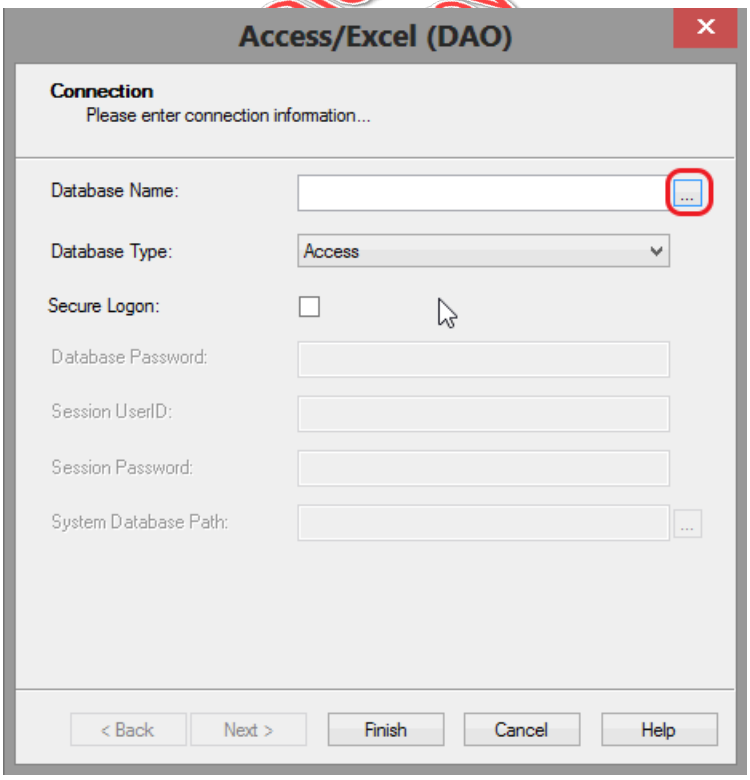
Demo - Creating Our First Report

1. From the **Start Page**, click **Blank report**.
2. In the **Database Expert** dialog box, expand **Create New Connection**.
3. Click the plus sign next to **Access/Excel (DAO)**.[1]

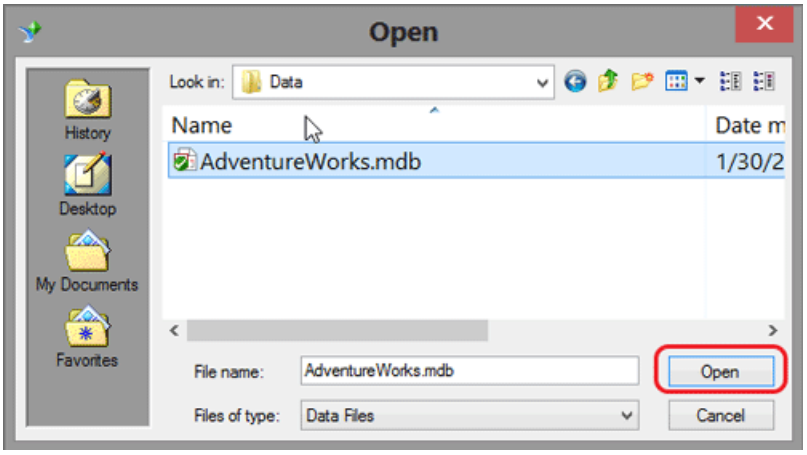
1. OLE = Object Linking and Embedding; DB = Database; DAO = Data Access Object.



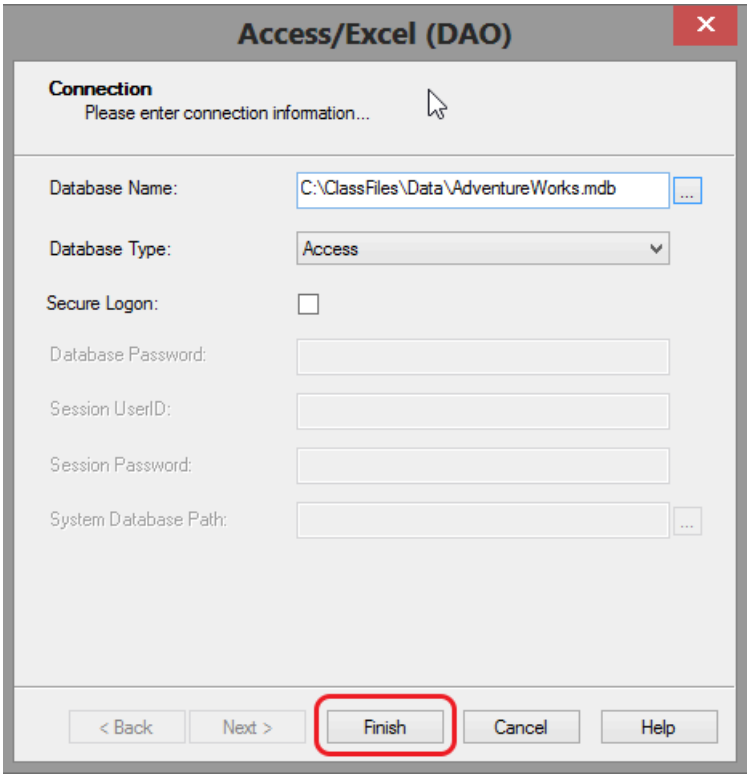
4. In the **Access/Excel (DAO)** wizard, Click the ... to choose the database to connect to.



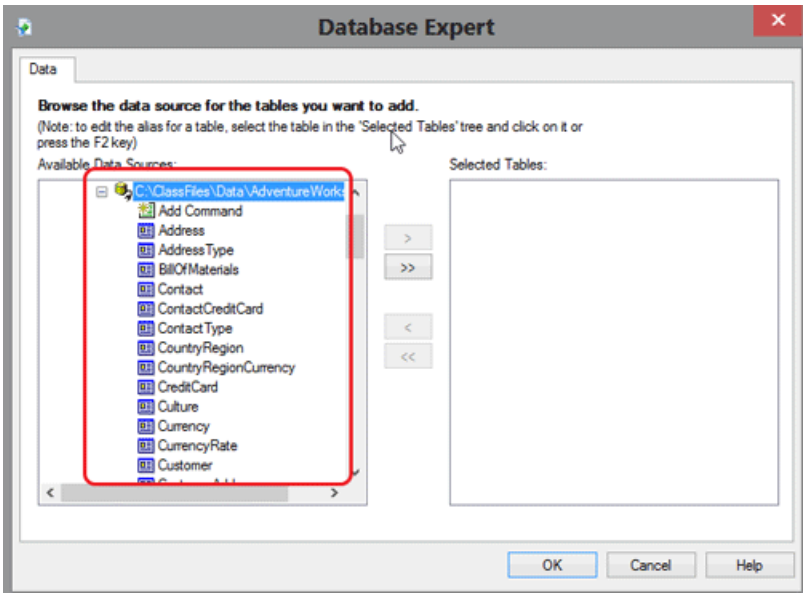
5. The database is located at `C:/ClassFiles/Data/AdventureWorks.mdb. Click` **Open**.



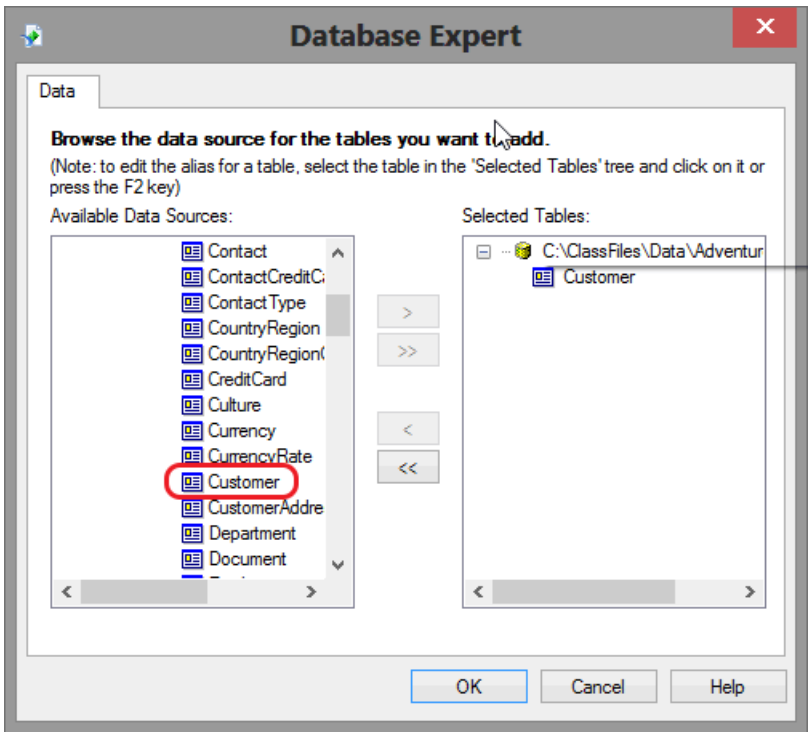
6. The rest of the choices are fine left as default. Click **Finish**.



7. In the **Database Expert** dialog box below the **Access/Excel (DA))** node, expand **C:/ClassFiles/Data/AdventureWorks.mdb**.

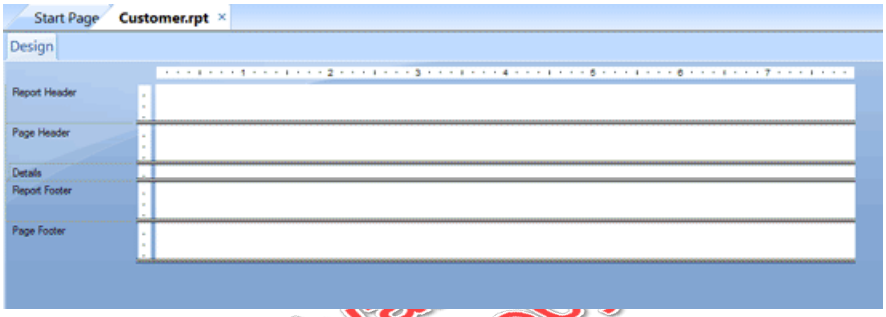


8. Double-click **Customer**. The **Customer** table is added to the **Selected Tables** pane.



9. Click **OK**.
10. From the menu, select **File > Save**.

11. In the **Save As** dialog box, navigate to `C:/ClassFiles/StudentReports/`, type "Customer.rpt" in the **File name** field, and click **Save**.



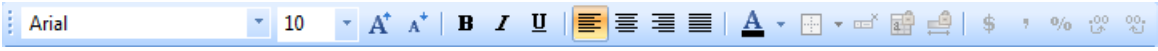
1.4. Review the Toolbars

Now that we have created a blank report, let's look closer at the tools available with Crystal Reports. Most tasks in Crystal Reports can be accomplished using commands available on the toolbars. Let's look at the toolbars and icons we will be using throughout this course.

❖ 1.4.1. The Standard Toolbar

Icon	Description	Menu sequence	Shortcut key
	Creates a new report using the Standard Report Creation Wizard.	**File > New > Standard Report**	**Ctrl+N**
	Opens saved Crystal Report (.rpt) files.	**File > Open**	**Ctrl+O**
	Saves the current report to disk.	**File > Save**	**Ctrl+S**
	Prints your report.	**File > Print**	**Ctrl+P**
	Opens the **Preview** tab showing what your report would look like with your data.	**View > Print Preview**	**Ctrl+R**
	Presents your report in HTML. (Crystal Reports must be connected to a Web server for this to work properly.)	**View > HTML Preview**	
	Exports your report output to a file or another application.	**File > Export > Export Report**	
	Cuts an object from the report to be pasted elsewhere.	**Edit > Cut**	**Ctrl+X**
	Copies an object from the report to be pasted elsewhere.	**Edit > Copy**	**Ctrl+C**
	Pastes a cut or copied object somewhere on the report.	**Edit > Paste**	**Ctrl+V**
	Allows you to copy formatting from one object to another.	**Format > Format Painter**	
	Reverses the last change made to your report.	**Edit > Undo**	**Ctrl+Z**
	Repeats the last change made to your report.	**Edit > Redo**	**Ctrl+Y**
	Toggles the Preview Panel on and off. The Preview Panel is found under the **Preview** tab.	**View > Preview Panel**	
	Opens the Field Explorer.	**View > Field Explorer**	
	Allows you to perform a search in your report.	**Edit > Find**	**Ctrl+F**

❖ 1.4.2. The Formatting Toolbar



Icon	Description	Menu sequence	Shortcut key
	Increases the font size by one unit.		
	Decreases the font size by one unit.		
	Toggles the bold font style on and off.		**Ctrl+B**
	Toggles the italics font style on and off.		**Ctrl+I**
	Toggles the underline font style on and off.		**Ctrl+U**
	Aligns selected text to the left.		
	Centers the selected text.		
	Aligns selected text to the right.		
	Aligns selected text on both the left and right sides.		
	Changes the font color of the selected object.		
	Changes the borders on the selected object.		
	Suppresses visibility of the selected object in report output.		
	Toggles the currency symbol on and off.		
	Toggles thousands formatting for numbers on and off.		
	Toggles the percentage symbol on and off.		
	Adds a decimal place to a number.		
	Removes a decimal place from a number.		

Additionally, there are two drop-down lists on the left side of the **Formatting** toolbar used to set the font and its size.

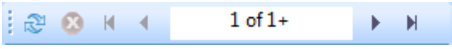
❖ 1.4.3. The Insert Toolbar

Icon	Description	Menu sequence	Shortcut key
	Inserts a text object in your report.	**Insert > Text Object**	
	Inserts a group in your report.	**Insert > Group**	
Σ	Inserts a summary field in the report footer.	**Insert > Summary**	
	Inserts a cross-tab object into your report.	**Insert > Cross-Tab**	
	Inserts a subreport into your report.	**Insert > Subreport**	
	Inserts a line object into your report.	**Insert > Line**	
	Inserts a box object into your report.	**Insert > Box**	
	Inserts a picture object into your report.	**Insert > Picture**	
	Inserts a chart object into your report.	**Insert > Chart**	

❖ 1.4.4. The Experts Toolbar

Icon	Description	Menu sequence
	Opens the Database Expert.	**Database > Database Expert**
	Opens the Group Expert.	**Report > Group Expert**
	Opens the Group Sort Expert.	**Report > Group Sort Expert**
	Opens the Record Sort Expert.	**Report > Record Sort Expert**
	Opens the Select Expert.	**Report > Select Expert**
	Opens the Section Expert.	**Report > Section Expert**
	Opens the Formula Workshop.	**Report > Formula Workshop**
	Opens the Format Editor.	**Format > Format <Object>**
	Opens the Highlighting Expert.	**Format > Format <Highlight Expert>**

❖ 1.4.5. The Navigation Toolbar



Icon	Description	Menu sequence	Shortcut key
	Refreshes the report data from your data source.	**Report > Refresh Report Data**	**F5**
	Stops gathering data from your data source after clicking the Refresh icon.		
	Shows the first page of your report in the **Preview** tab.		
	Shows the previous page of your report in the **Preview** tab.		
	Shows the next page of your report in the **Preview** tab.		
	Shows the last page of your report in the **Preview** tab.		

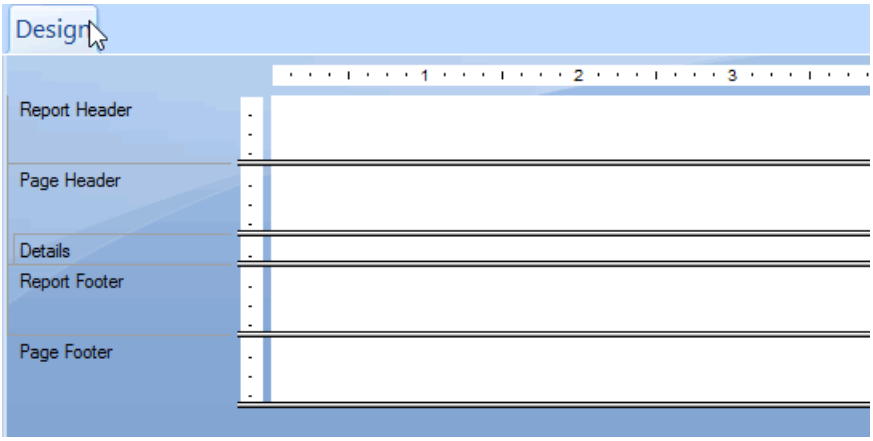
Additionally, the **Page Selector** text box displays the current page being viewed along with the total number of pages processed. The plus (+) sign indicates that there are more pages to the report that have not been processed.

❖ 1.4.6. The External Command Toolbar

The **External Command** toolbar provides access to third-party applications that have been added on to your Crystal Reports installation.

1.5. The Report Sections in the Design Tab

A report is divided into several sections, as indicated below:



Let's review each of these sections individually.

❖ 1.5.1. Report Header

The **Report Header** is at the top of the report. Its purpose is to provide an area to display information at the start of the report, such as a report title. This section does not repeat.

❖ 1.5.2. Page Header

The **Page Header** appears at the top of each page in your report. It provides a place for information that needs to be present at the top of each page. Field titles are commonly used in the **Page Header**. We will look at field titles more in the next section of this lesson. This section will repeat once per page.

❖ 1.5.3. Details

The **Details** section holds the field data from your report data sources. This section will repeat as needed to show all relevant records.

❖ 1.5.4. Page Footer

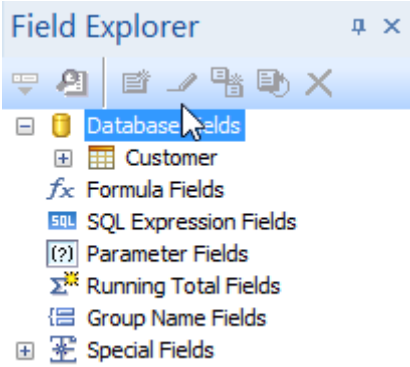
The **Page Footer** appears at the end of each page in your report. It is normally used for common elements that enhance your report and that need to appear on each page. Examples of items that may appear in the **Page Footer** are page numbers and print dates. This section will repeat once per page.

❖ 1.5.5. Report Footer

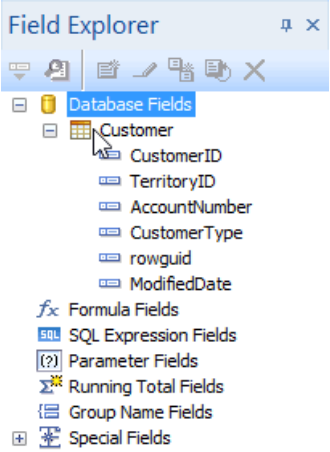
The **Report Footer** appears at the end of your report. Its most likely use is the collection of summary data for the whole report. This section does not repeat.

1.6. The Field Explorer

After selecting tables for your report using the **Database Expert**, you can access the tables through the **Field Explorer**. For the Customer report, we added a single table called "Customers" as you can see in the image below. If you do not see the **Field Explorer** and then click **View > Field Explorer**. It usually appears on the right side of the screen.

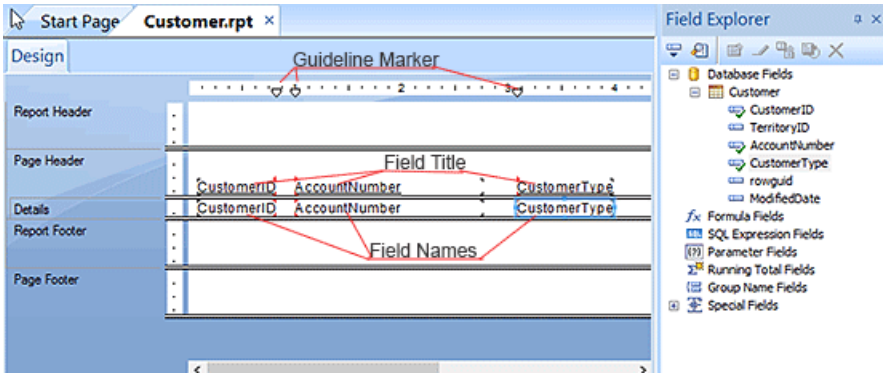


If we expand the list of fields under the **Customer** table, we can use the **Field Explorer** to place the fields on the report.



To do so, click and drag a field from the **Field Explorer** onto the **Details** section of the report. When you do, a field title based on the field name is created in the **Page Header** section and a guideline marker is placed in the top horizontal ruler. You can use this guideline marker to move the field and its field title left or right.

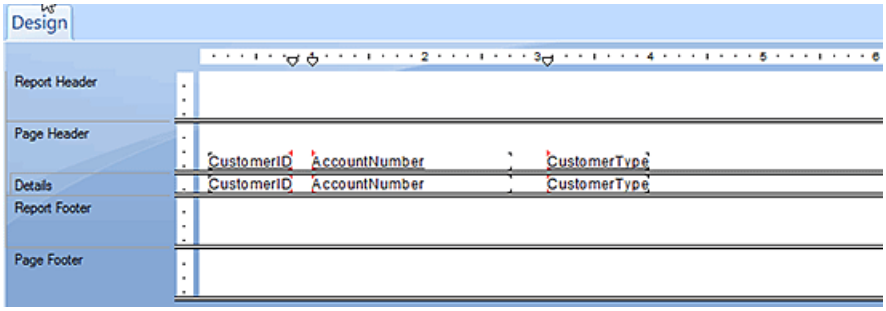
The end result is as follows:



Next, we will demonstrate how to use the **Field Explorer** to populate reports with data.

Demo - Adding Fields to the Report

1. Using `Customer.rpt`, go to the **Field Explorer** and expand the **Database Fields** node and then the **Customer** node so that the field list for the **Customer** table shows.
2. Click the **CustomerID** field in the **Field Explorer** and drag it to the **Details** section of the report.
3. Repeat the previous step for the **AccountNumber** and **CustomerType** fields.

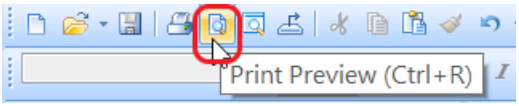


1.7. Preview the Report

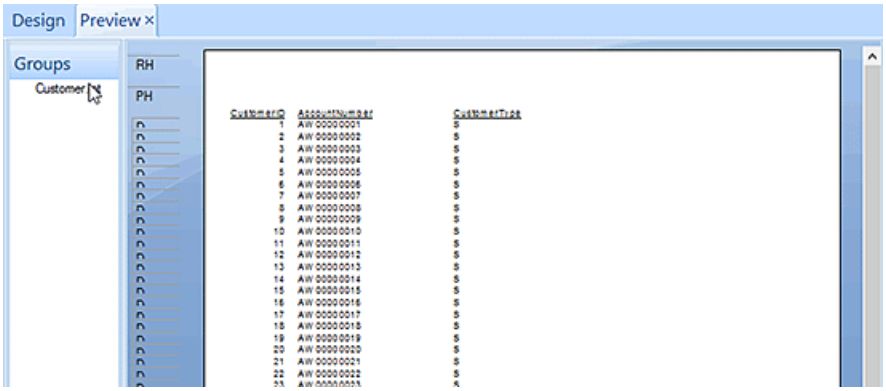
Now that we have added some fields to our report, we can see what it will look like when we print it. This is accomplished by previewing the report in the Crystal Reports environment. We'll use the Customer report we created to learn how to preview reports.

Demo - Previewing a Report

1. Select the **Customer.rpt** tab.
2. In the **Standard** toolbar, click the **Print Preview** icon.



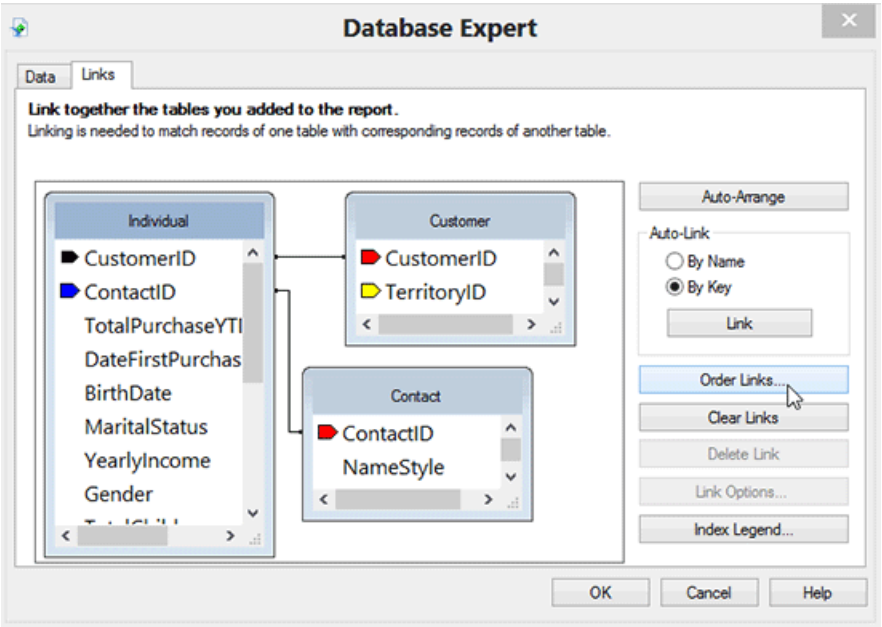
3. The **Preview** tab displays, showing a preview of the Customer report.



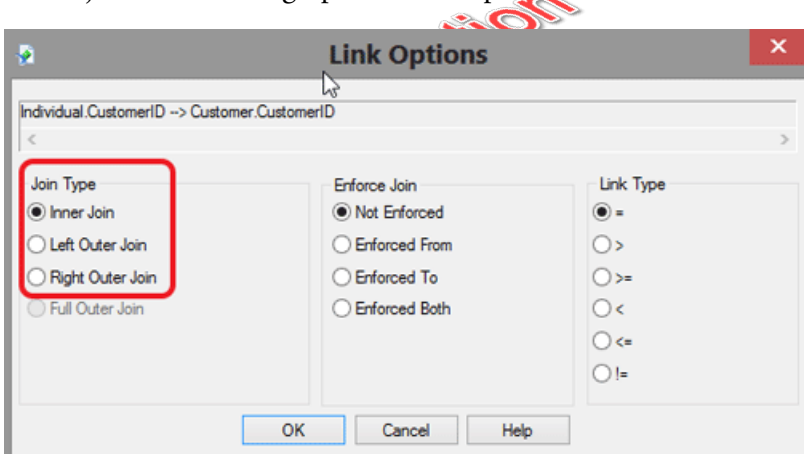
1.8. Adding Multiple Tables to Reports

Often the data for the report we need to create is not contained in a single table in our database. With relational database systems, such as Microsoft Access, the data is divided among multiple tables to improve the performance of the database and to reduce the amount of redundant data.

In Crystal Reports, the **Database Expert** helps us work with multiple tables. When a second table is added in the **Database Expert**, a new **Links** tab displays. This tab presents a visual representation of the tables available to the report along with how the tables are linked together.



There are three main join types that are used to link the Fields. They are Inner, Left Outer, and Right Outer. Double-click the join line to bring up the Link Options box.



Join Types

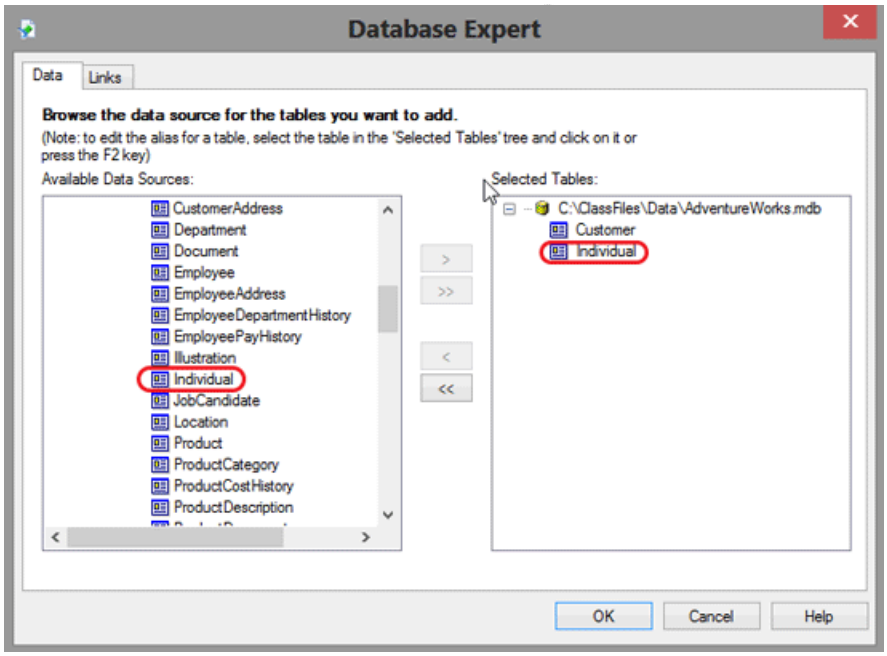
Join Type	Description
Inner Join	The record must be present in both the Left and Right tables.
Left Outer Join	All of the records from the Left table, and only those in the Right that match based on the ID Field (also known as the linked fields).
Right Outer Join	All of the records from the Right table and only those in the Left that match based on the ID Field (also known as the linked fields).

The next demonstration shows how we can use data from several tables in a single report.

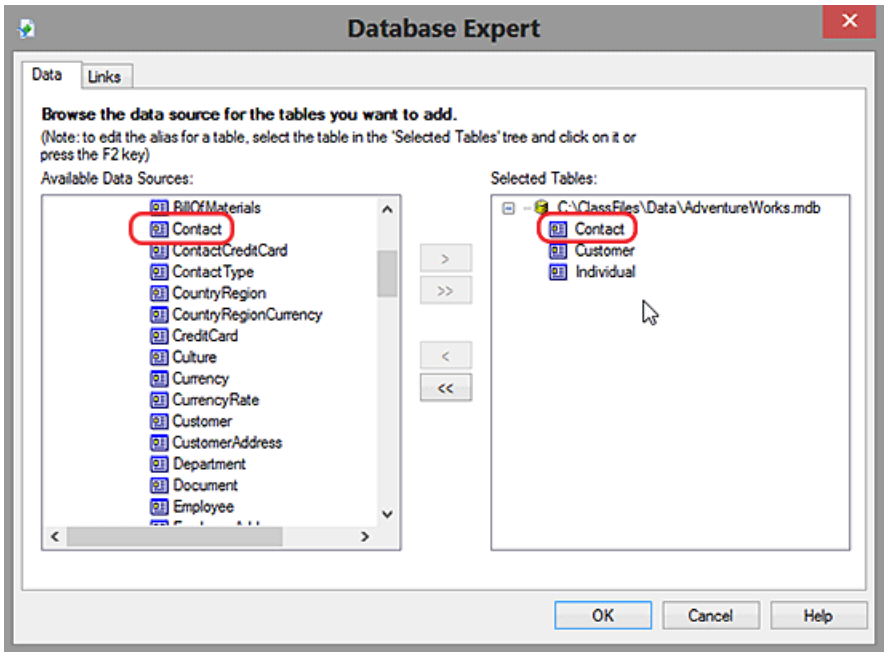
Demo - Adding Multiple Tables to a Report

The information currently in our Customer report does not represent the full picture. We need to add more tables to the report that help display the full contact information using inner joins.

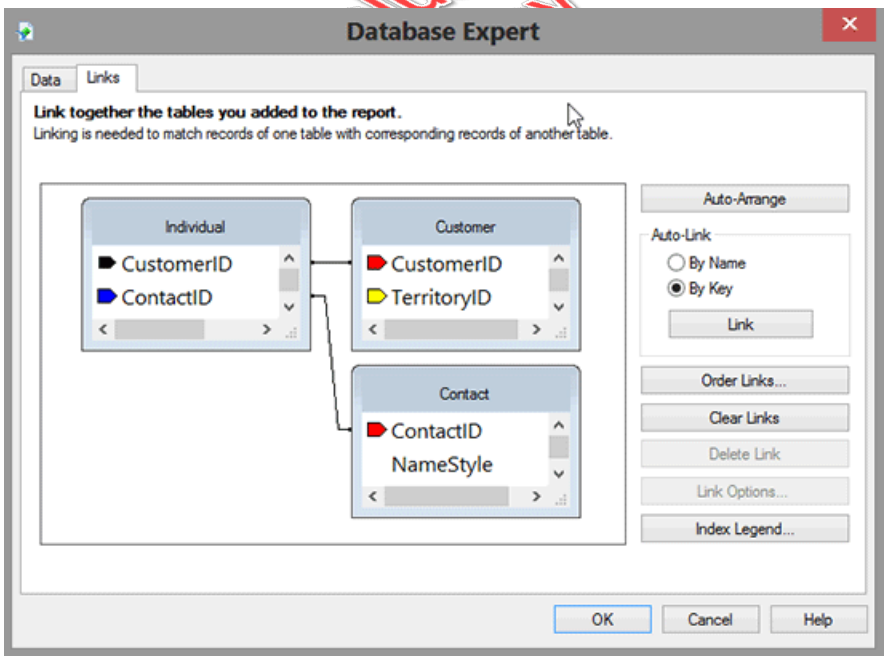
1. Open `C:/ClassFiles/StudentReports/Customer.rpt`, if necessary.
2. Select the **Design** tab.
3. Move the objects already in the **Details** section to the left using their guideline markers.
4. In the **Experts** toolbar, click the **Database Expert** icon.
5. In the **Available Data Sources** pane of the **Database Expert** dialog box, navigate to `C:/ClassFiles/Data/AdventureWorks.mdb`.
6. Double-click **Individual** to add the table to the **Selected Tables** pane.



7. Double-click **Contact** to add the table to the **Selected Tables** pane.

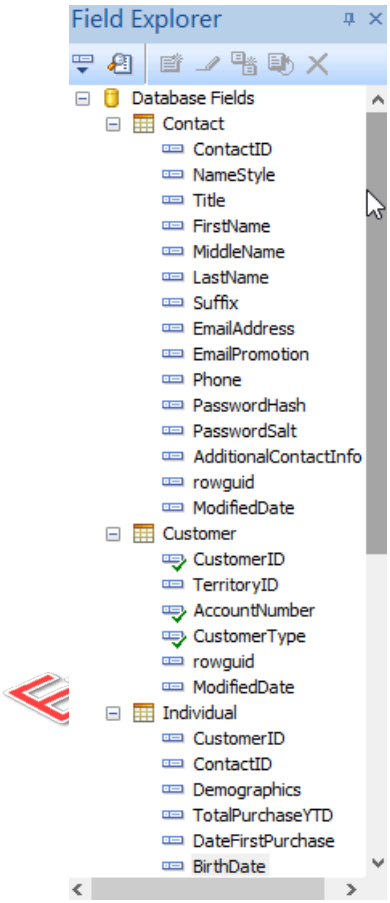


8. Still in the **Database Expert** dialog box, select the **Links** tab. (You may need to resize the window.)

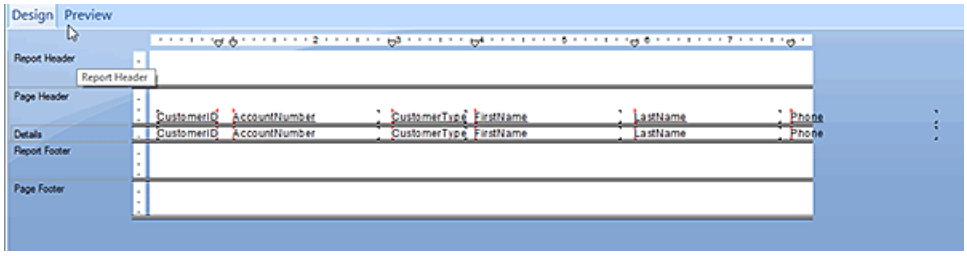


9. Confirm that the ID field link connections are correct.
10. Click **OK**.

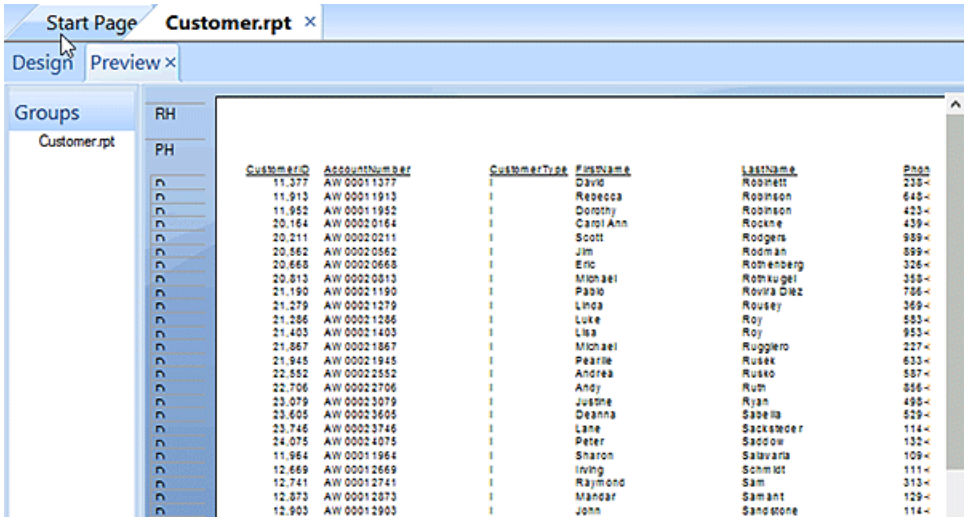
11. In the **Refresh Report Data** message box, click **OK**.
12. Select the **Design** tab.
13. In the **Field Explorer**, expand the **Database Fields** list and then the **Contact** column list.



14. Add the following fields (with corresponding field titles) to the **Details** section of the report:
    A. **FirstName**
    B. **LastName**
    C. **Phone** (Note that this field does not fit on the report. We will fix this later.)



15. Preview and save the report.



Exercise 1: Creating a Report

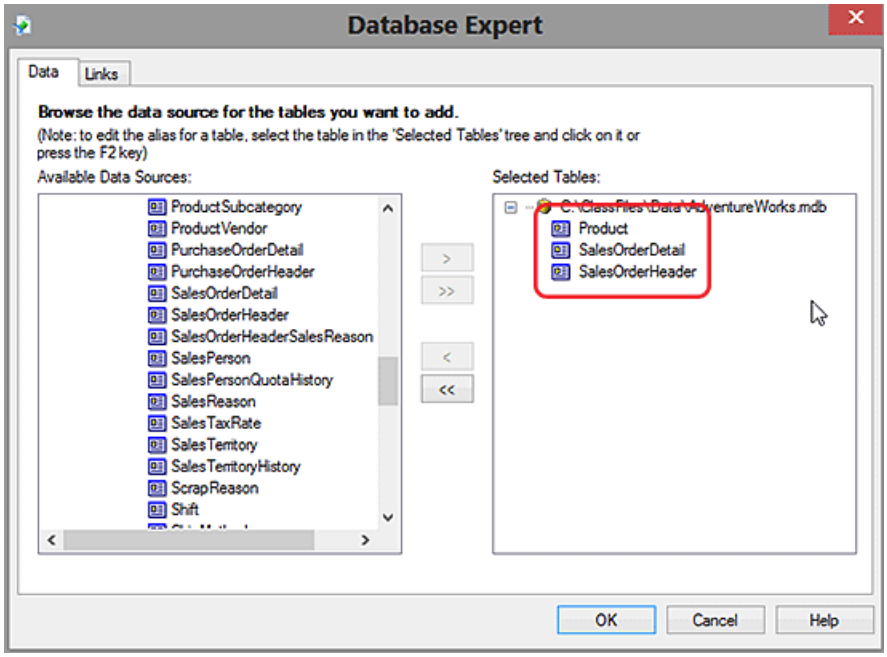
10 to 20 minutes

In this exercise, we will create a simple report by accomplishing the following tasks:

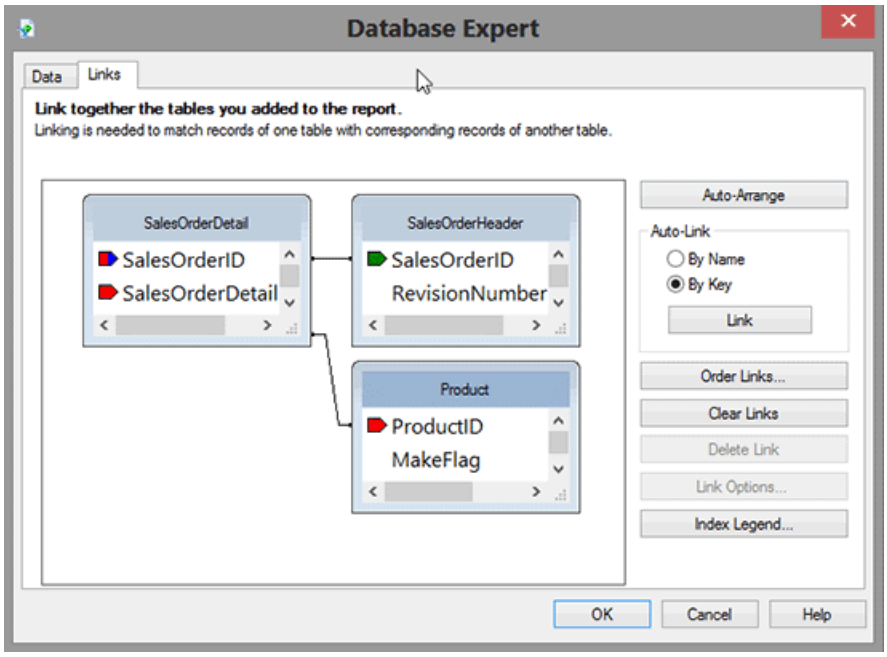
1. Create a new report.
2. Add the following tables from the AdventureWorks database to the report:
   A. **Product**
   B. **SalesOrderDetail**
   C. **SalesOrderHeader**
3. Add the following fields to the report:
   A. From the **Product** table:
      i. **ProductID**
      ii. **ProductNumber**
      iii. **Name**
   B. From the **SalesOrderHeader** table:
      i. **SalesOrderID**
      ii. **SalesOrderNumber**
   C. From the **SalesOrderDetail** table:
      i. **SalesOrderDetailID**
4. Save the report as "SalesOrder.rpt" and preview it.

Solution

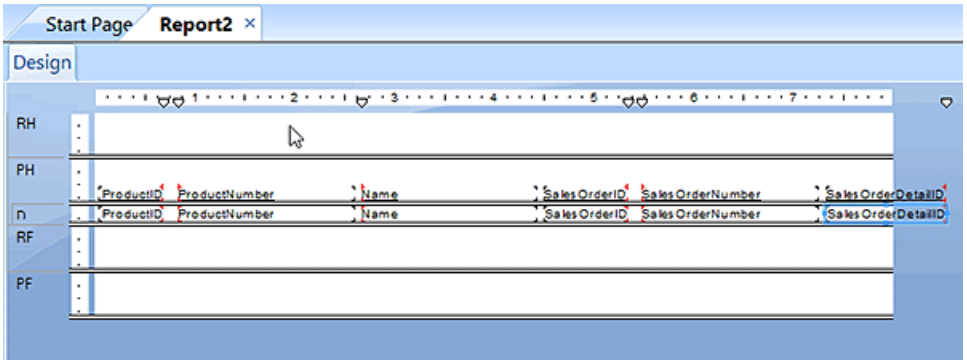
1. From the **Start Page**, click **Blank report**.
2. In the **Database Expert** dialog box, in the **Available Data Sources** pane, navigate to `C:/ClassFiles/Data/AdventureWorks.mdb` and double-click **Product, SalesOrderDetail, Sales Order Header**.



3. Select the **Links** tab.
4. Confirm that the ID field link connections are correct.



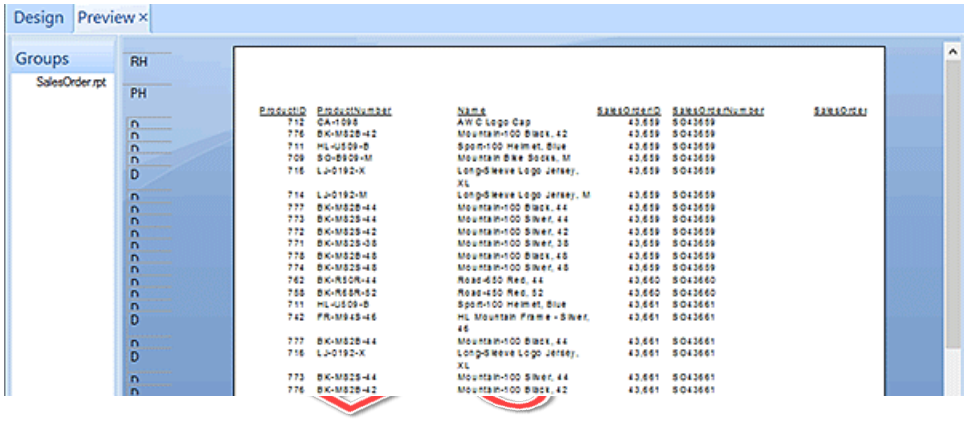
5. Click **OK**.
6. In the **Field Explorer**, expand the **Product** column list and then click and drag the **ProductID**, **ProductNumber**, and **Name** fields to the **Details** section of the report.
7. Expand the **SalesOrderHeader** column list and then click and drag the **SalesOrderID** and **SalesOrderNumber** fields to the **Details** section.
8. Expand the **SalesOrderDetail** column list and then click and drag the **SalesOrderDetailID** field to the **Details** section.



9. From the menu, select **File > Save As**.
10. In the **Save As** dialog box, navigate to `C:/ClassFiles/StudentReports`, type "SalesOrder.rpt" in the **File name** field, and click **Save**.
11. In the **Standard** toolbar, click the **Print Preview** icon.

Note

Be aware you added the SalesOrderID and the SalesOrderDetailID to experience the relationship between the tables. Please note that you may try using other fields, such as OrderQty and UnitPrice in their place once you see the relationships in action.



Conclusion

In this lesson, you learned:

- What Crystal Reports is.
- How to open Crystal Reports.
- About the toolbars used in Crystal Reports.
- To create a basic report using the **Database Expert**.
- About the different sections in a report.
- About the **Field Explorer**.

LESSON 2
Formatting Reports

Topics Covered

☑ Formatting fields.

☑ The **Format Painter**.

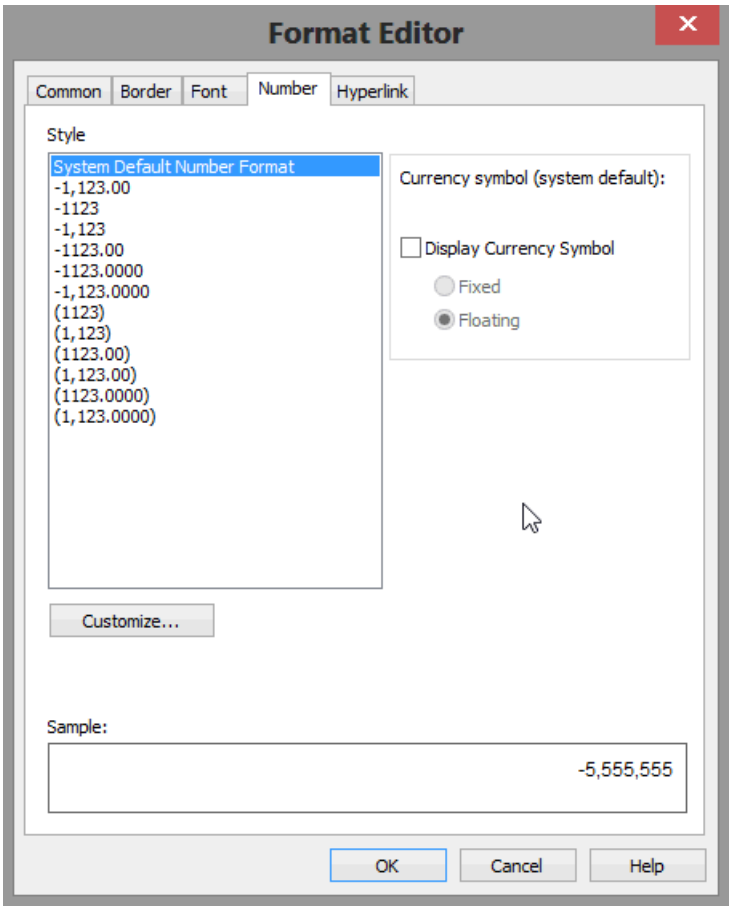
Introduction

So far we have created a simple report that presents data from a few tables in the AdventureWorks database. In the first lesson, we mentioned that Crystal Reports has the potential to produce much more than a basic data listing. To harness that potential, we need to know how the report can benefit the various consumers of our report information and how to customize the output to suit their various needs. While data is essential to a report, if it is not presented well, the message you intend to convey may be lost. In this lesson, we will learn about the tools we can use to format the data meaningfully.

2.1. Formatting Fields

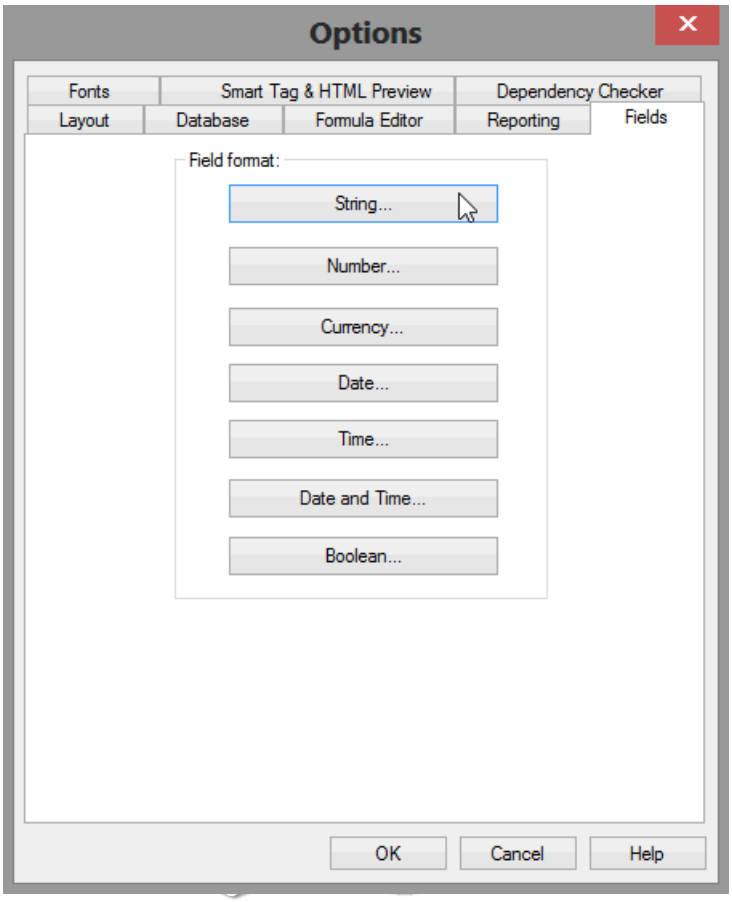
When formatting a report, understanding the audience, the data, and the message you want to send are critical in determining presentation.

To make formatting changes to a field in your report, you will use the **Format Editor** dialog box which you can access by selecting a field in the report and then selecting **Format > Format Field** from the menu. The options available in the **Format Editor** change depending on the type of field object that is selected in the report. The following image shows options for a number field.



As we progress through the demos in this lesson and subsequent lessons, we will learn a variety of options available with the **Format Editor**.

To achieve consistent formatting throughout a report, you can specify global settings using the **Options** dialog box. To access the **Options** dialog box, select **File > Options** from the menu and select the **Fields** tab.



Clicking any of the buttons on the **Fields** tab opens the **Format Editor** dialog box showing only the options that are global in nature and not specific to any particular report field object.

Recall that each of the fields we added to the Customer report has a guideline marker on the horizontal ruler at the top of the design region. These markers are associated with guidelines in the report designer. By default, the guidelines do not appear in the report, but you can turn them on by selecting **View > Guidelines > Design** from the menu. Guidelines are useful in formatting because they allow you to move fields along with their corresponding field titles. They also help line up the edges of several fields. Note that the vertical ruler can also have guidelines.

Much of the basic work of formatting involves working with the fields in the report. Fields can be resized and features from the **Format Editor** can be applied to enhance their presentation.

❖ 2.1.1. The AdventureWorks Database

The demonstrations in this course will continue to build on the Customer report that we started in the first lesson. Along the way we may introduce other reports to help illustrate particular features of Crystal Reports, but our focus will be on the Customer report.

As we work to build a quality presentation report, we will consider the business requirements that factor into report development as well as the technical aspects of report building. The AdventureWorks database represents a business called Adventure Works Cycles, a bicycle manufacturer and equipment retailer. Adventure Works builds and sells bicycles in several multinational markets.

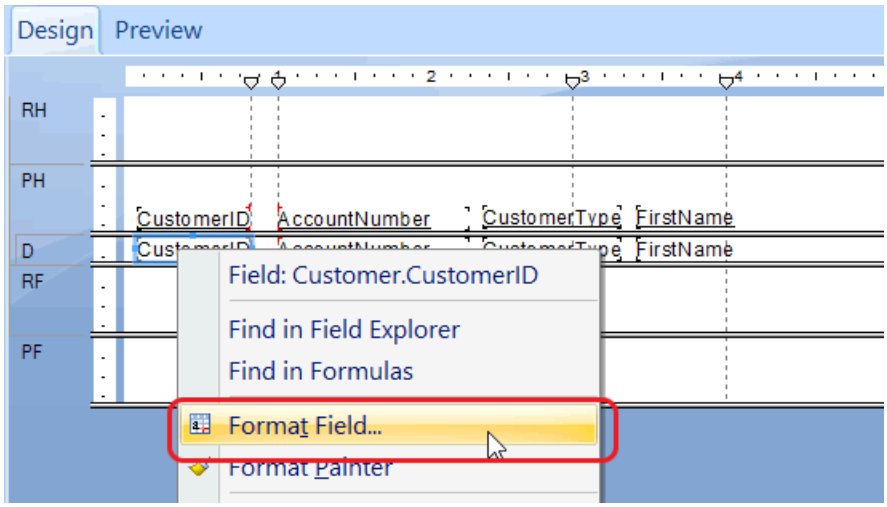
The Customer report should present information about Adventure Works' customers that can be used by various departments and upper management. As we proceed, we will modify the Customer report to correspond with the material that we are learning.

Demo - Formatting the Report

Let's make some changes to the Customer report to improve the presentation and make it more useful.

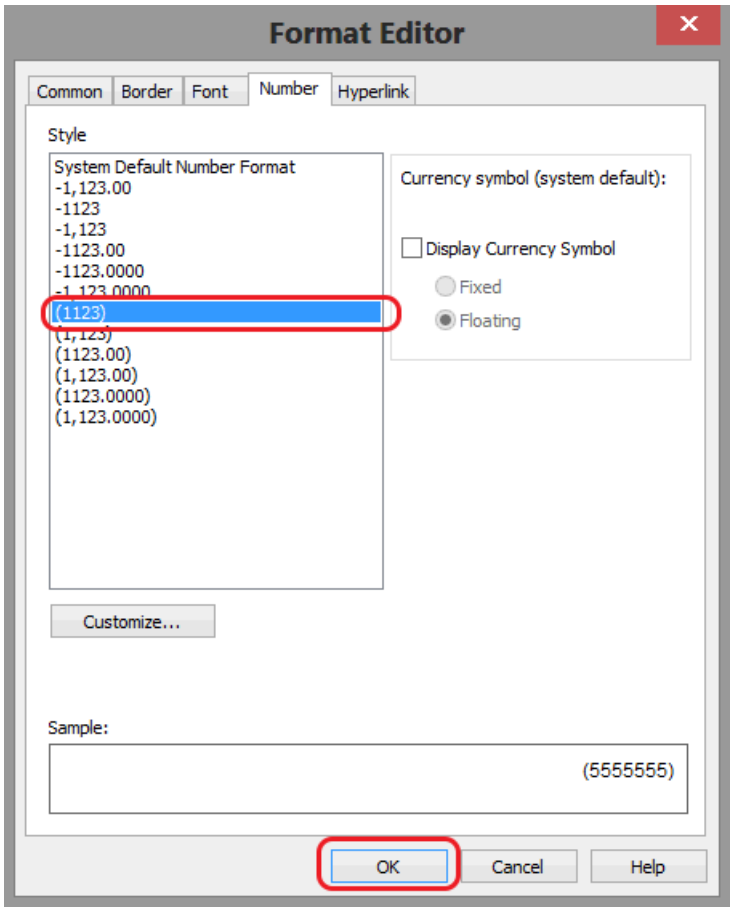
1. Open `C:/ClassFiles/cry2011-format-report/Customer.rpt`. You may also opt to use the one you had created `C:ClassFiles/StudentReports/Customer.rpt`.
2. Select the **Design** tab.
3. Preview the report. Note the following:
   A. The **CustomerID** field values contain commas. Since these are ID values, we want to format these values without any numeric-style formatting.
   B. There is extra whitespace associated with the **FirstName** and **LastName** fields.
   C. Recall that the **Phone** field did not completely fit in the body of the report.

4. Return to the **Design** tab.
5. Right-click the **CustomerID** field and select **Format Field**.

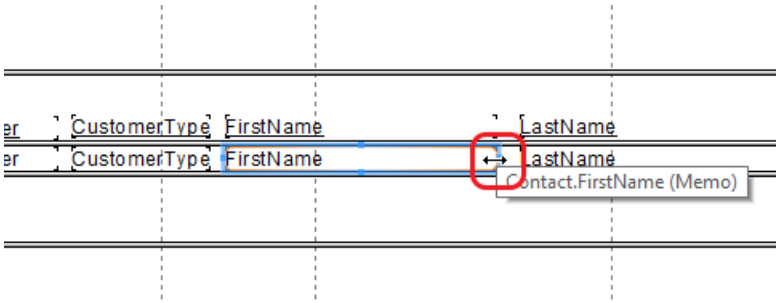


6. In the **Format Editor** dialog box, select the **Number** tab, if necessary.

7. In the **Style** list box, select **(1123)** and click **OK**.

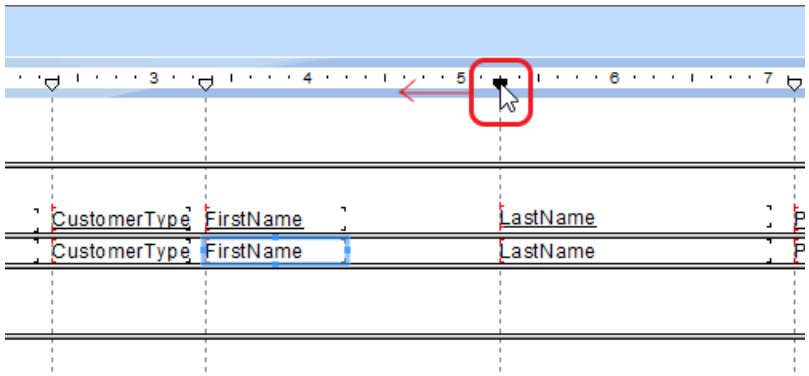


8. Select the **FirstName** field and hover over its right edge until the cursor changes into a two-headed arrow.

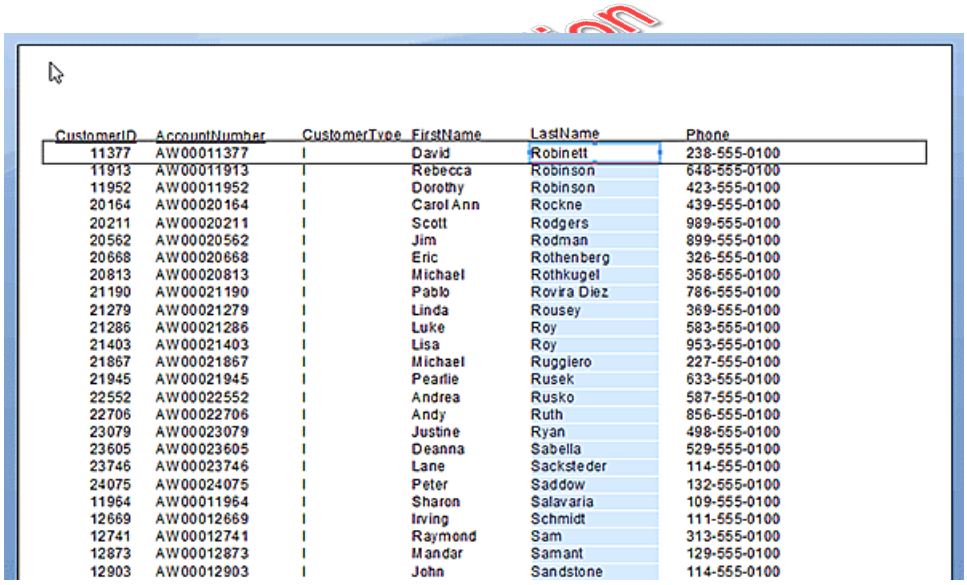


9. Click and drag the edge to the left to resize the field. Notice that the field title resizes along with the field.

10. To reduce the amount of whitespace between the **FirstName** and **LastName** fields, click and drag the guideline marker for the **LastName** field to the left.



11. Resize the **LastName** field.
12. Move the **Phone** field to the left using its guideline marker.
13. Resize the **Phone** field.
14. Preview the report. Ensure that all field values and field titles are completely visible. Make changes if necessary.
15. Save the report.



CustomerID	AccountNumber	CustomerType	FirstName	LastName	Phone
11377	AW00011377	I	David	Robinett	238-555-0100
11913	AW00011913	I	Rebecca	Robinson	648-555-0100
11952	AW00011952	I	Dorothy	Robinson	423-555-0100
20164	AW00020164	I	Carol Ann	Rockne	439-555-0100
20211	AW00020211	I	Scott	Rodgers	989-555-0100
20562	AW00020562	I	Jim	Rodman	899-555-0100
20668	AW00020668	I	Eric	Rothenberg	326-555-0100
20813	AW00020813	I	Michael	Rothkugel	358-555-0100
21190	AW00021190	I	Pablo	Rovira Diez	786-555-0100
21279	AW00021279	I	Linda	Rousey	369-555-0100
21286	AW00021286	I	Luke	Roy	583-555-0100
21403	AW00021403	I	Lisa	Roy	953-555-0100
21867	AW00021867	I	Michael	Ruggiero	227-555-0100
21945	AW00021945	I	Pearlie	Rusek	633-555-0100
22552	AW00022552	I	Andrea	Rusko	587-555-0100
22706	AW00022706	I	Andy	Ruth	856-555-0100
23079	AW00023079	I	Justine	Ryan	498-555-0100
23605	AW00023605	I	Deanna	Sabella	529-555-0100
23746	AW00023746	I	Lane	Sacksteder	114-555-0100
24075	AW00024075	I	Peter	Saddow	132-555-0100
11964	AW00011964	I	Sharon	Salavaria	109-555-0100
12669	AW00012669	I	Irving	Schmidt	111-555-0100
12741	AW00012741	I	Raymond	Sam	313-555-0100
12873	AW00012873	I	Mandar	Samant	129-555-0100
12903	AW00012903	I	John	Sandstone	114-555-0100

2.2. The Format Painter

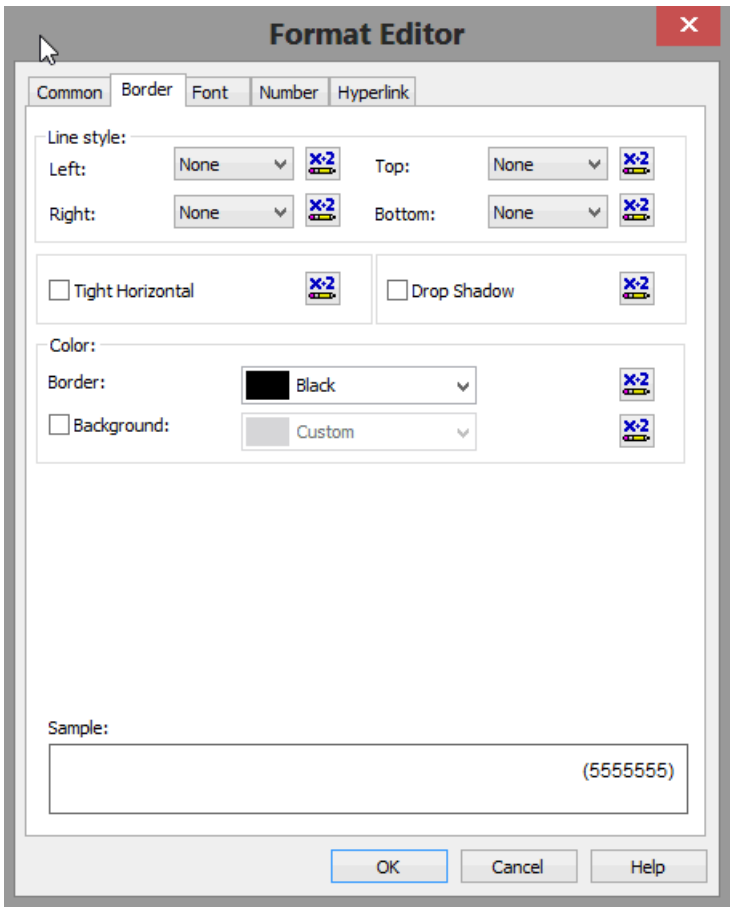
When formatting fields in a report, you may find that several fields should be formatted in a similar way. For example, you may want fields to have the same font style, font size, and background color.

To accomplish this quickly, you can use the **Format Painter**. The following demo shows how the **Format Painter** works.

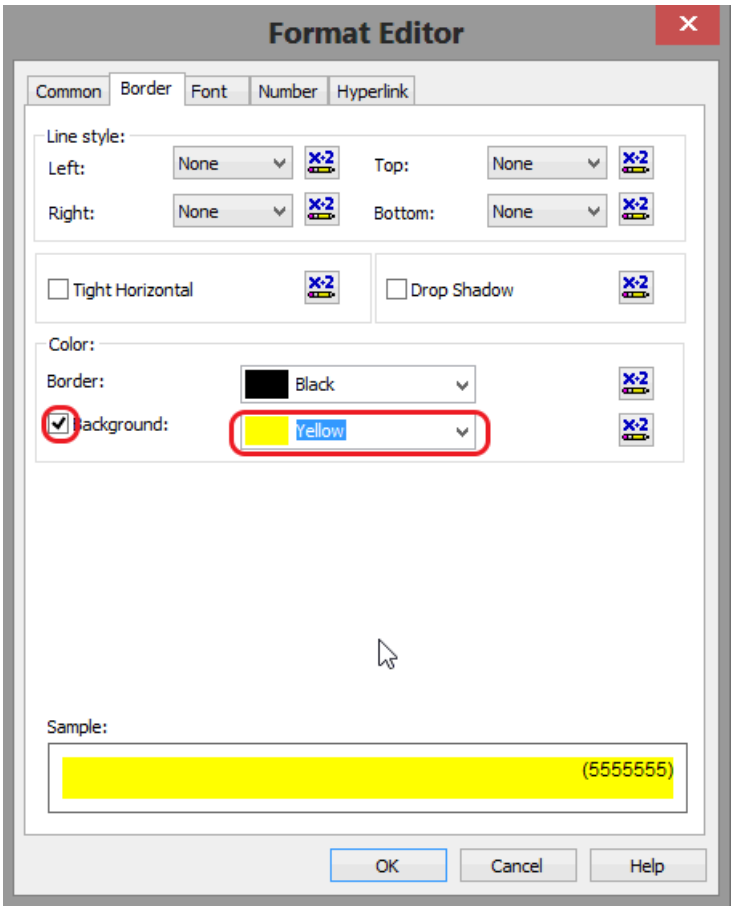
Demo - Format Painter

In this demo, we will use the **Format Painter** as a quick solution for making repeated format changes to the fields in the Customer report.

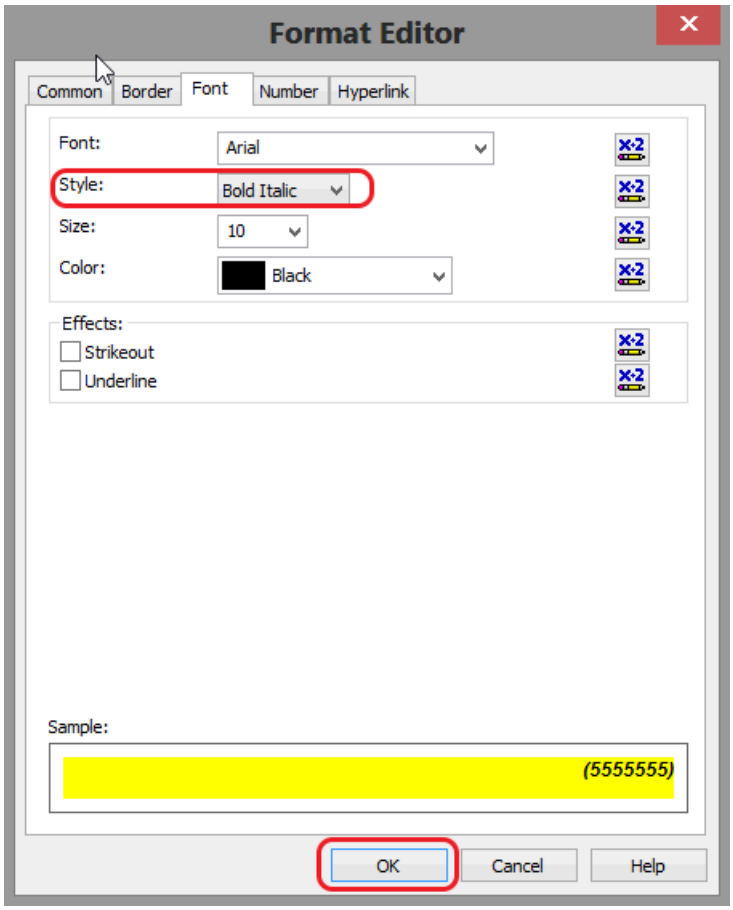
1. Open `C:/ClassFiles/cry2011-format-report/Customer_1.rpt` or continue using the one that you had created. Select the **Design** tab.
2. Right-click the **CustomerID** field and select **Format Field**.
3. In the **Format Editor** dialog box, select the **Border** tab.



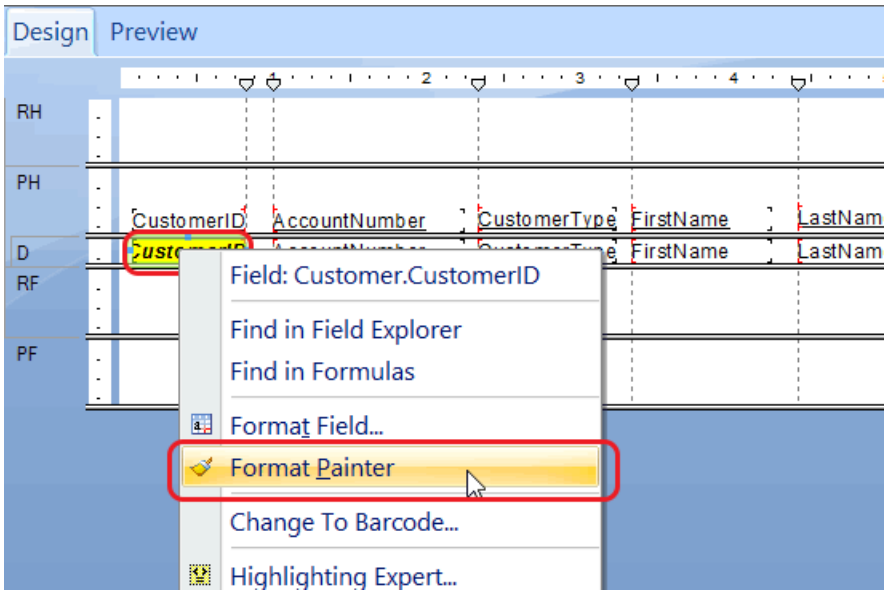
4. In the **Color** section, check the **Background** check box and then select "Yellow" as the background color.



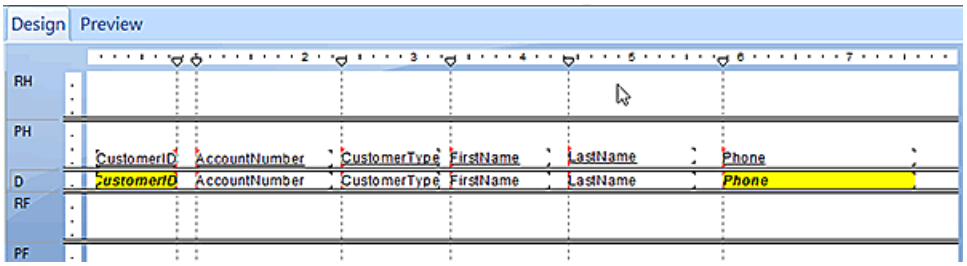
5. Select the **Font** tab. Change the **Style** to "Bold Italic". Please be mindful of choosing a color on a color as we need to keep readability and stay Section 508 compliant. See appendix A for details on Section 508.



6. Click **OK**.
7. Right-click the **CustomerID** field and select **Format Painter**. Notice that your cursor has changed into a paint brush.



8. Click the **Phone** field. Notice that the **Phone** field now has all of the formatting from the **CustomerID** field.



9. In order to remove the formatting from the two fields we had just changed, select the **AccountNumber** field and double-click the **Format Painter** button in the Standard toolbar to activate the **Format Painter**. Click the **CustomerID** field and the **Phone** field.

10. Click again on the **Format Painter** button in the Standard toolbar to deactivate the **Format Painter**.

Great time saver!

Select the field you wish to copy in the report, and double-click the **Format Painter** button in the Standard toolbar to activate the **Format Painter**. Click the fields you wish to apply the formatting. Then, click again on the **Format Painter** button in the standard toolbar to deactivate the **Format Painter**.

Exercise 2: Formatting a Report

15 to 30 minutes

❖ E2.1. The Sales Order Report

Just as the demonstrations throughout this course focus on the Customer report, the exercises at the conclusion of each lesson will focus on the Sales Order report.

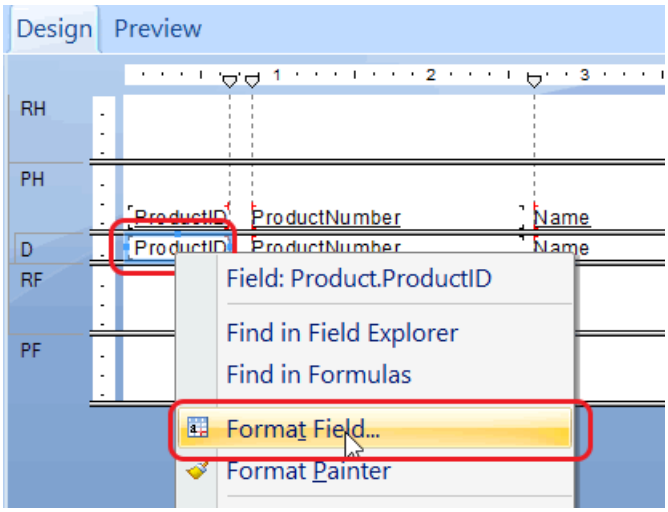
The purpose of the Sales Order report is to provide information on the orders that Adventure Works' customers have placed. In the first lesson, we created the report. In this exercise, you will modify the Sales Order report using what you have learned about formatting and the **Format Painter**.

Apply the following format changes to the Sales Order report:

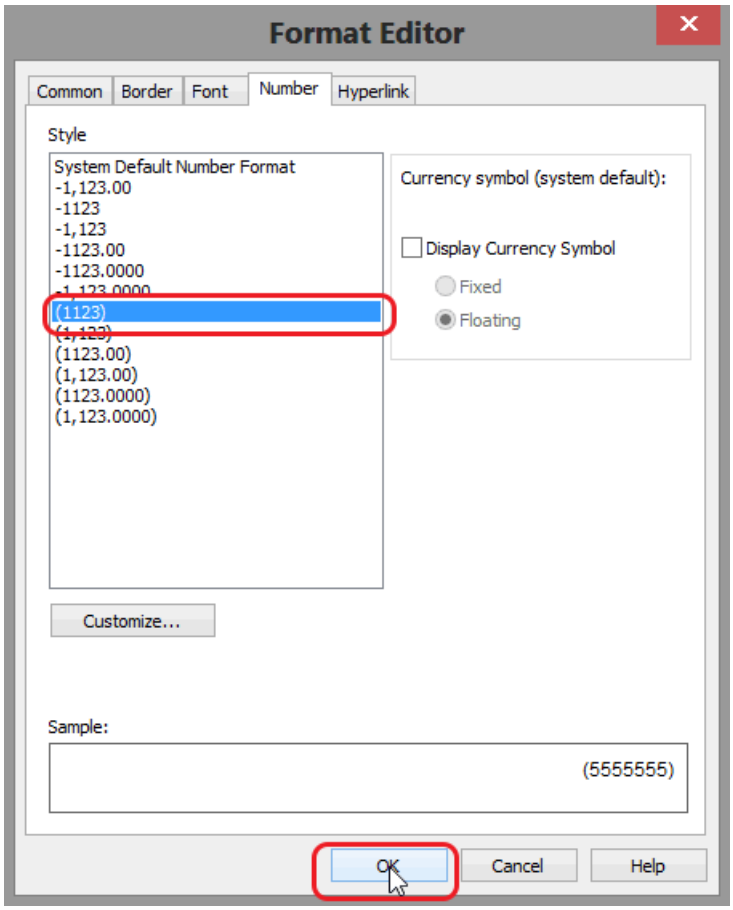
1. Resize the **ProductNumber** and **SalesOrderNumber** fields.
2. Move fields to the left as needed to ensure that all fields fit in the body of the report.
3. Format the **ProductID**, **SalesOrderID**, and **SalesOrderDetailID** fields to remove commas from the formatting.
4. Make adjustments as needed to ensure that all fields and their corresponding field titles are completely visible.
5. Save the report and preview it.

Solution

1. Open `C:/ClassFiles/cry2011-format-report/SalesOrder.rpt` or you may use the one that you created `C:/ClassFiles/StudentReports/SalesOrder.rpt`. Select the **Design** tab.
2. Right-click the **ProductID** field and select **Format Field**.



3. Select the **Number** tab, select **(1123)** in the **Style** list box, and click **OK**.



4. Since we want to apply the same formatting that we applied to the **ProductID** field to the **SalesOrderID** and **SalesOrderDetailID** fields, we can use the **Format Painter**. To do so, right-click the **ProductID** field and select **Format Painter**, and then click the **SalesOrderID** field. Repeat this action for the **SalesOrderDetailID** field.
5. Select the **ProductNumber** field and then click and drag the right edge of the field to the left to resize it.
6. Move the **Name** field to the left by clicking and dragging its guideline marker.
7. Move the **SalesOrderID** field to the left by clicking and dragging its guideline marker.
8. Move the **SalesOrderNumber** field to the left by clicking and dragging its guideline marker.
9. Select the **SalesOrderNumber** field and then click and drag the right edge of the field to the left to resize it.
10. Move the **SalesOrderDetailID** field to the left by clicking and dragging its guideline marker.
11. Make any other adjustments to the report fields that you feel are needed.
12. Preview the report by clicking the **Print Preview** icon on the **Standard** toolbar.

13. Save the report by clicking the **Save** icon on the **Standard** toolbar.

ProductID	ProductNumber	Name	SalesOrderID	SalesOrderNumber	SalesOrderDetailID
712	CA-1098	AWC Logo Cap	43659	SO43659	11
776	BK-M82B-42	Mountain-100 Black, 42	43659	SO43659	1
711	HL-U509-B	Sport-100 Helmet, Blue	43659	SO43659	12
709	SO-B909-M	Mountain Bike Socks, M	43659	SO43659	10
716	LJ-0192-X	Long-Sleeve Logo Jersey, XL	43659	SO43659	9
714	LJ-0192-M	Long-Sleeve Logo Jersey, M	43659	SO43659	8
777	BK-M82B-44	Mountain-100 Black, 44	43659	SO43659	2
773	BK-M82S-44	Mountain-100 Silver, 44	43659	SO43659	6
772	BK-M82S-42	Mountain-100 Silver, 42	43659	SO43659	5
771	BK-M82S-38	Mountain-100 Silver, 38	43659	SO43659	4
778	BK-M82B-48	Mountain-100 Black, 48	43659	SO43659	3
774	BK-M82S-48	Mountain-100 Silver, 48	43659	SO43659	7
762	BK-R50R-44	Road-650 Red, 44	43660	SO43660	13
758	BK-R68R-52	Road-450 Red, 52	43660	SO43660	14
711	HL-U509-B	Sport-100 Helmet, Blue	43661	SO43661	23
742	FR-M94S-46	HL Mountain Frame - Silver, 46	43661	SO43661	20
777	BK-M82B-44	Mountain-100 Black, 44	43661	SO43661	28
716	LJ-0192-X	Long-Sleeve Logo Jersey, XL	43661	SO43661	27
773	BK-M82S-44	Mountain-100 Silver, 44	43661	SO43661	26
776	BK-M82B-42	Mountain-100 Black, 42	43661	SO43661	25
741	FR-M94S-52	HL Mountain Frame - Silver, 48	43661	SO43661	24

Conclusion

In this lesson, you learned:

- How to format fields.
- How to use the **Format Painter**.

LESSON 3
Working with Objects

Topics Covered

☑ Text objects.

☑ Field titles.

☑ Incorporating fields in text objects.

☑ Image objects.

☑ The **Section Expert**.

☑ Using images in reports.

Introduction

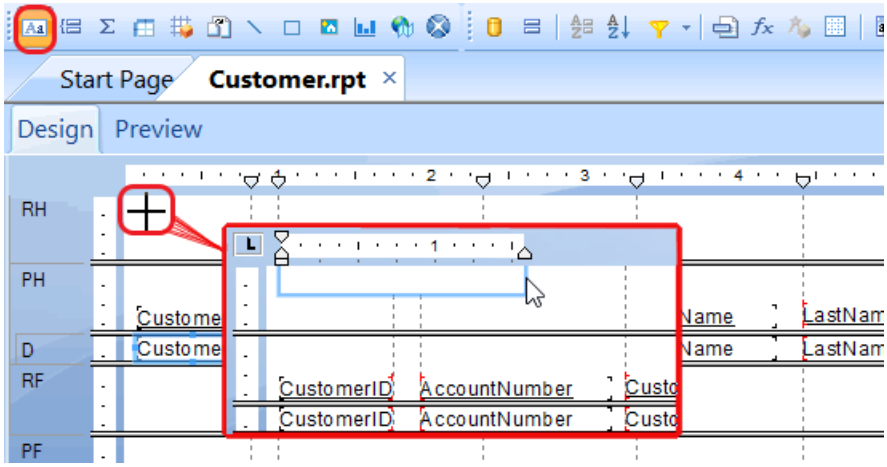
In the previous lesson, we looked at formatting the fields in a report. We can enhance our report further with the use of text and image objects.

3.1. Text Objects

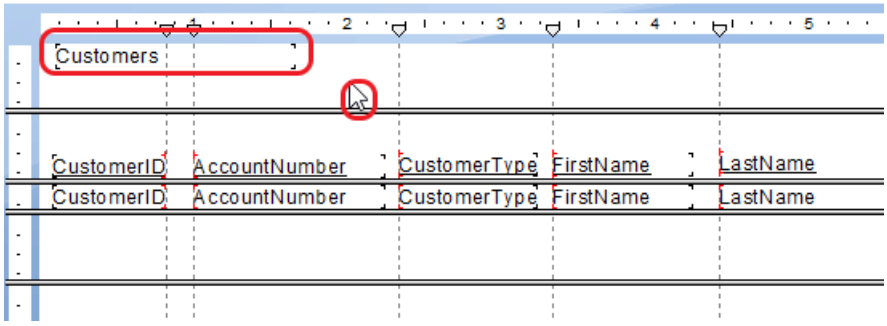
Aside from report fields, the most common object we will use in a report is the text object. Text objects help enhance the presentation quality of a report and have a variety of applications. One of the most common uses of a text object is to create a report title. In our next demonstration, we'll add a title to the Customer report.

Demo - Using Text Objects

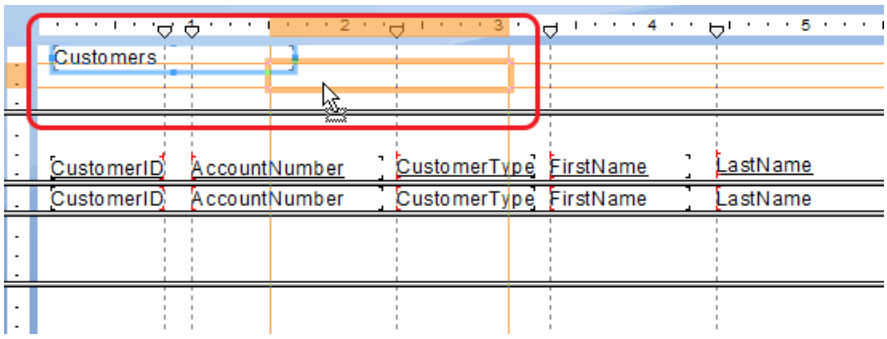
1. Open `C:/ClassFiles/cry-2011-objects/Demos/Customer.rpt` or use the one that you had created `C:/ClassFiles/StudentReports/Customer.rpt`. Select the **Design** tab.
2. On the **Insert** toolbar, click the **Insert Text Object** icon. The mouse cursor changes to a large plus sign.
3. Place the cursor near the upper-left-hand corner of the **Report Header** section and click.



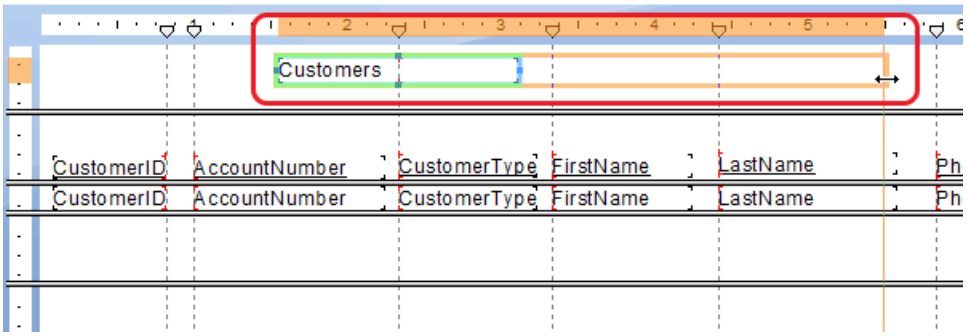
4. In the text object, type “Customers”. Click outside the text object.



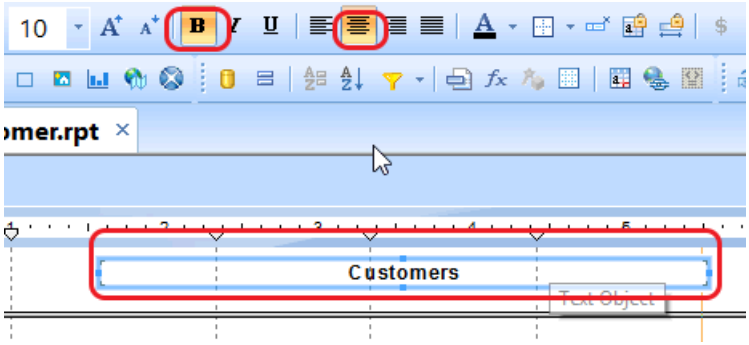
5. Click the text object and drag it so the left edge aligns with the 1.5-inch mark on the horizontal ruler.



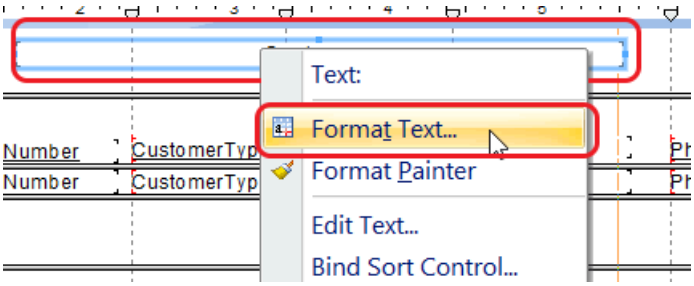
6. Click and drag the right edge of the text object until it is about four inches long.



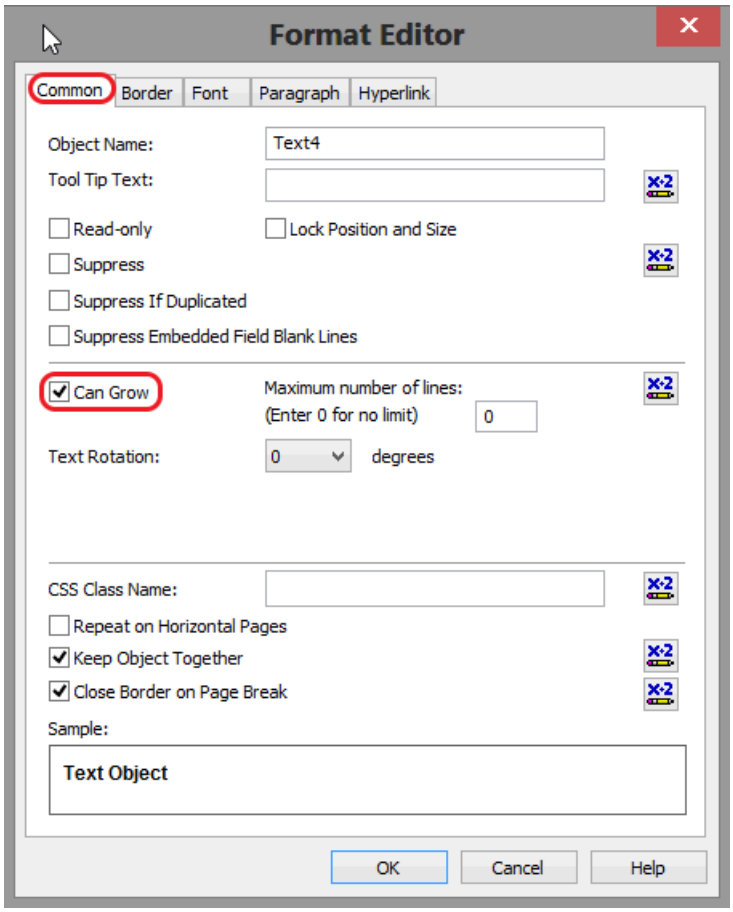
7. Select the text and, using the **Formatting** toolbar, change the font size to 16, and click the **Bold** and **Align Center** icons.



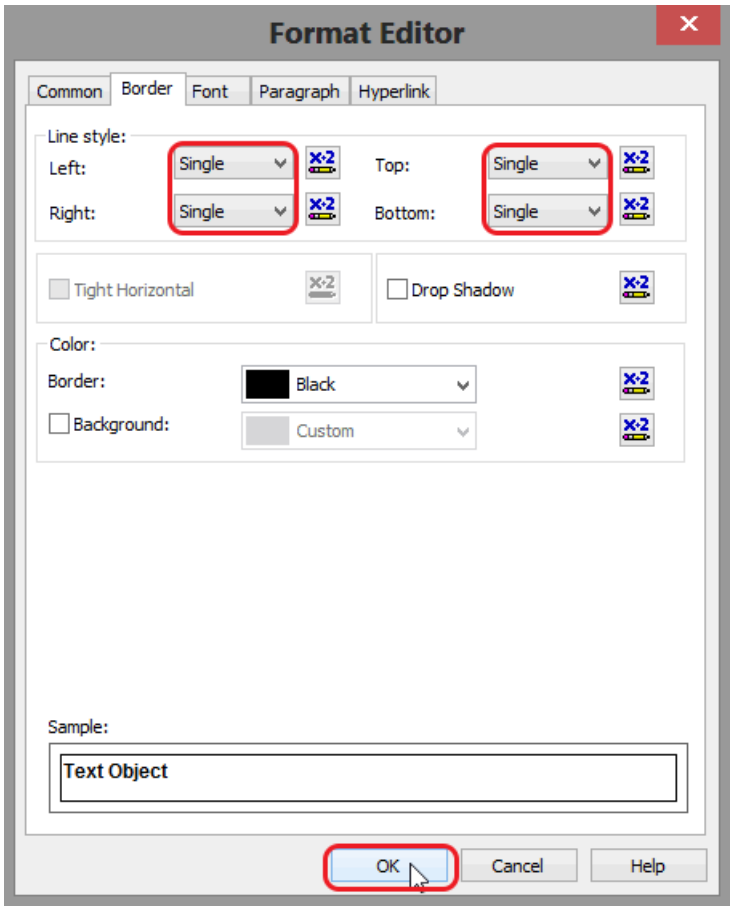
8. Right-click the report title and select **Format Text**.



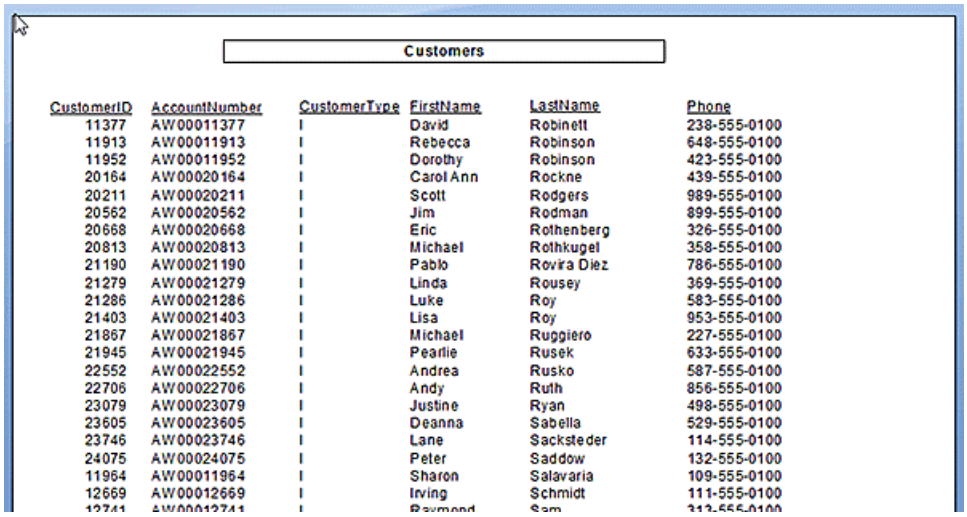
9. In the **Format Editor** on the **Common** tab, check the **Can Grow** check box. The **Can Grow** option automatically increases the size of the text object when the formatted text is too large for the object box as currently defined.



10. Select the **Border** tab and then set all sides in the **Line style** section to "Single" and click **OK**.



11. Select the text object and move it down so that it is away from the top of the **Report Header** section. This will ensure that the entire border is visible.
12. Preview the report.



Customers

CustomerID	AccountNumber	CustomerType	FirstName	LastName	Phone
11377	AW00011377	I	David	Robinett	238-555-0100
11913	AW00011913	I	Rebecca	Robinson	648-555-0100
11952	AW00011952	I	Dorothy	Robinson	423-555-0100
20164	AW00020164	I	Carol Ann	Rockne	439-555-0100
20211	AW00020211	I	Scott	Rodgers	989-555-0100
20562	AW00020562	I	Jim	Rodman	899-555-0100
20668	AW00020668	I	Eric	Rothenberg	326-555-0100
20813	AW00020813	I	Michael	Rothkugel	358-555-0100
21190	AW00021190	I	Pablo	Rovira Diez	786-555-0100
21279	AW00021279	I	Linda	Rousey	369-555-0100
21286	AW00021286	I	Luke	Roy	583-555-0100
21403	AW00021403	I	Lisa	Roy	953-555-0100
21867	AW00021867	I	Michael	Ruggiero	227-555-0100
21945	AW00021945	I	Pearlie	Rusek	633-555-0100
22552	AW00022552	I	Andrea	Rusko	587-555-0100
22706	AW00022706	I	Andy	Ruth	856-555-0100
23079	AW00023079	I	Justine	Ryan	498-555-0100
23605	AW00023605	I	Deanna	Sabella	529-555-0100
23746	AW00023746	I	Lane	Sacksteder	114-555-0100
24075	AW00024075	I	Peter	Saddow	132-555-0100
11964	AW00011964	I	Sharon	Salavaria	109-555-0100
12669	AW00012669	I	Irving	Schmidt	111-555-0100

3.2. Field Titles

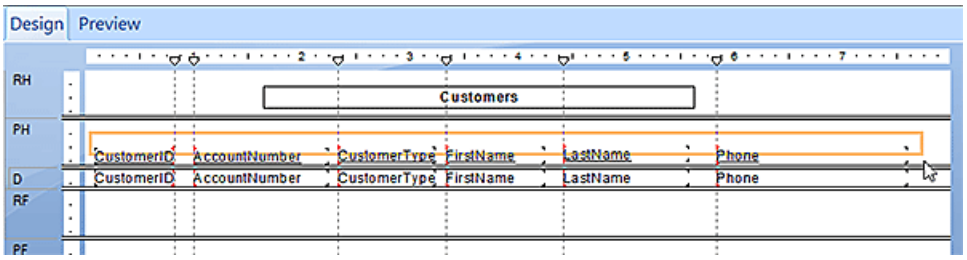
When you add a field to the **Details** section of a report, a special text object, the field title, is created along with a vertical guideline. The field title mimics the field name, so it is probably not the best label to use for your field. Due to this, we should look at each of our field titles, edit their text to be more descriptive, and apply formatting as needed. In this process, we may need to make other changes such as resizing the field title. A special feature of the field titles is that, as long as their linkage is maintained with their corresponding fields, you can resize and move the field titles as you resize and move the fields.

The next demo will illustrate how we can work with field titles.

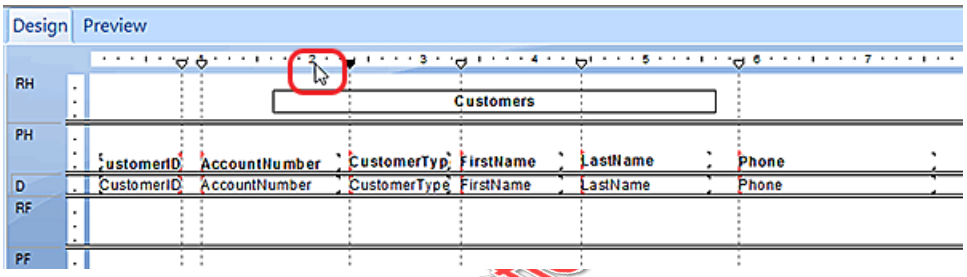
Demo - Editing Field Titles

At this point, the field titles in the Customer report simply mirror the field names and, except for underlining, they tend to blend in with the report data. In this demo, we will edit the field titles so they are more meaningful to our users and we will apply formatting to these text objects to make them stand out.

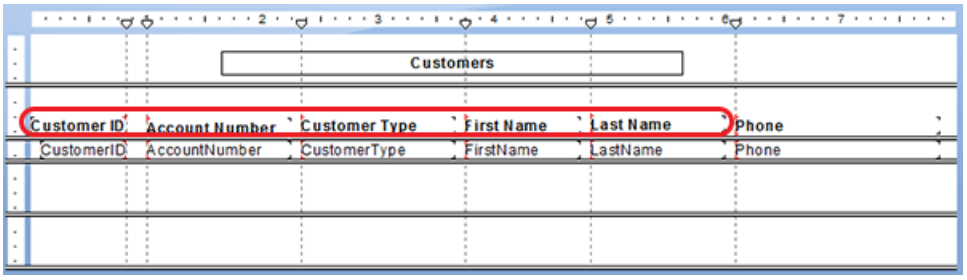
1. Open `C:/ClassFiles/cry2011-objects/Demos/Customer_1.rpt` or continue using the one you had created. Select the **Design** tab.
2. Using your mouse, click near (but not on) the **CustomerID** field title and drag to draw a selection box over all the field titles (Rubber band Selection). Notice that when you release the mouse button all the field titles are highlighted.



3. The field titles are currently underlined, so click the **Underline** icon in the **Formatting** toolbar to turn underlining off.
4. Click the **Bold** icon in the **Formatting** toolbar to bold the field titles.
5. Click anywhere outside of the text objects in the **Page Header** section to deselect them.



6. To edit a field title, double-click it. Once inside the text object, you can freely edit the text. Edit the field titles as follows:
   A. Change “CustomerID” to “Customer ID”.
   B. Change “AccountNumber” to “Account #”.
   C. Change “CustomerType” to “Customer Type”.
   D. Change “FirstName” to“First Name”.
   E. Change “LastName” to “Last Name”.



7. Adjust the fields as needed by moving and resizing the fields to ensure that the field values and field titles are completely visible.
8. Preview the report.

Customers

Customer ID	Account Number	Customer Type	First Name	Last Name	Phone
11377	AW00011377	I	David	Robinett	238-555-0100
11913	AW00011913	I	Rebecca	Robinson	648-555-0100
11952	AW00011952	I	Dorothy	Robinson	423-555-0100
20164	AW00020164	I	Carol Ann	Rockne	439-555-0100
20211	AW00020211	I	Scott	Rodgers	989-555-0100
20562	AW00020562	I	Jim	Rodman	899-555-0100
20668	AW00020668	I	Eric	Rothenberg	326-555-0100
20813	AW00020813	I	Michael	Rothkugel	358-555-0100
21190	AW00021190	I	Pablo	Rovira Diez	786-555-0100
21279	AW00021279	I	Linda	Rousey	369-555-0100
21286	AW00021286	I	Luke	Roy	583-555-0100
21403	AW00021403	I	Lisa	Roy	953-555-0100
21867	AW00021867	I	Michael	Ruggiero	227-555-0100
21945	AW00021945	I	Pearlie	Rusek	633-555-0100
22552	AW00022552	I	Andrea	Rusko	587-555-0100
22706	AW00022706	I	Andy	Ruth	856-555-0100
23079	AW00023079	I	Justine	Ryan	498-555-0100
23605	AW00023605	I	Deanna	Sabella	529-555-0100
23746	AW00023746	I	Lane	Sacksteder	114-555-0100
24075	AW00024075	I	Peter	Saddow	132-555-0100
11964	AW00011964	I	Sharon	Salavaria	109-555-0100
12669	AW00012669	I	Irving	Schmidt	111-555-0100

3.3. Using Fields in Text Objects

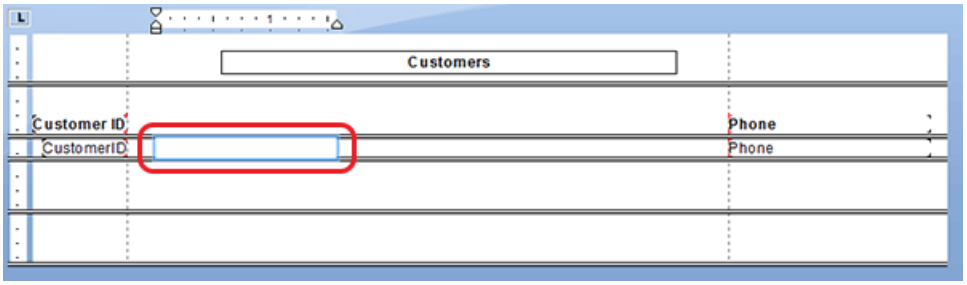
So far we have only used text objects to hold regular text. However, it is also possible to add fields to a text object. This means we can have a formatted text object with content that changes based on the information coming from the fields we incorporate in it.

Demo - Adding Fields to Text Objects

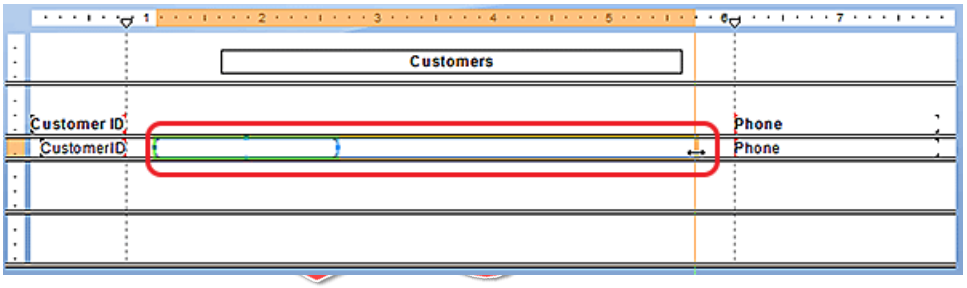
In this demonstration, we'll consolidate the **FirstName** and **LastName** fields to simulate a single field that we'll label "Customer Name". In addition, we'll combine the current account number and the customer type to derive a new account number format.

1. Open `C;/ClassFiles/cry2011-objects/Demos/Customer_2.rpt` or continue using the one that you had created. Select the **Design** tab.
2. Delete the following fields from the report by highlighting the field and pressing **Delete**:
   A. **AccountNumber**
   B. **CustomerType**
   C. **FirstName**
   D. **LastName**
3. Remove the guideline markers for the deleted fields by clicking and dragging them off the horizontal ruler.
4. If any field titles remain, delete them.

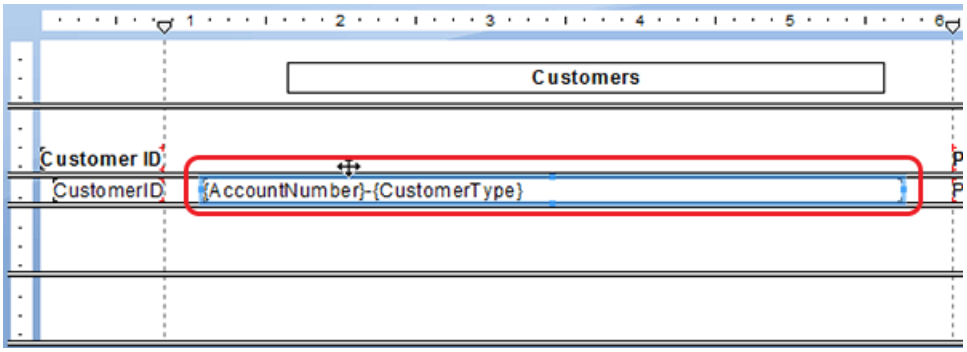
5. On the **Insert** toolbar, click the **Insert Text Object** icon.
6. Place the cursor to the right of the **CustomerID** field and click.



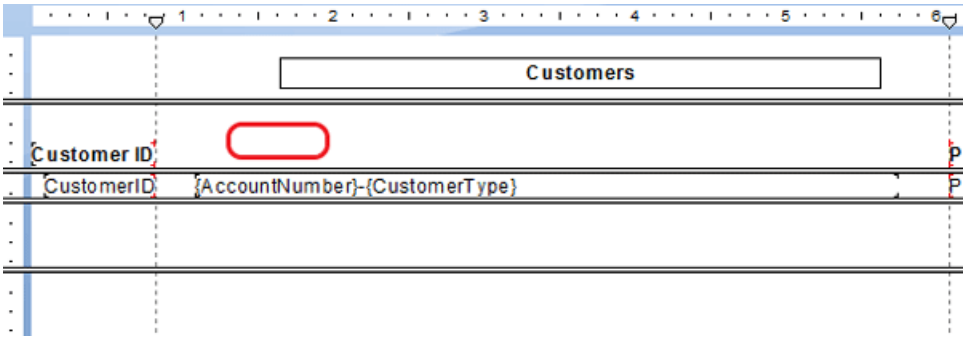
7. Click outside the text object and then reselect it and drag its right edge to the right to increase its width.



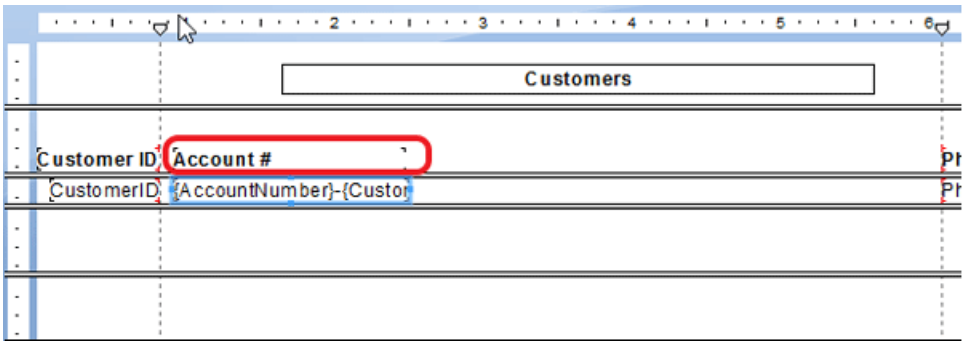
8. Using the **Field Explorer**, click and drag the **AccountNumber** field from the **Customer** table node and place it inside the new text object. Then type a **dash (-)**.
9. Click and drag the **CustomerType** field from the **Customer** table node and place it next to the **dash (-)**.



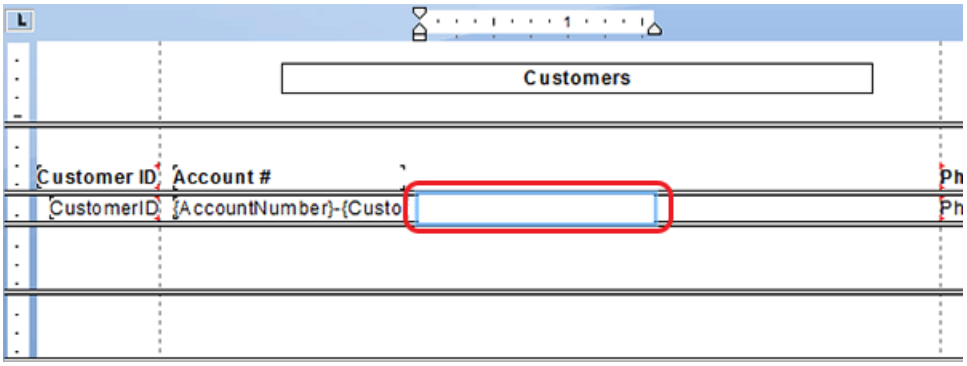
10. Click outside the text object.



11. Click the **Insert Text Object** icon, place the cursor in the **Page Header** directly over the left edge of the account number text object, and click.
12. Type “Account #” in this new text object.
13. Click outside of the new text object and then select it again. Click the **Bold** icon in the **Formatting** toolbar. Resize the text object to about the 2.5" mark.

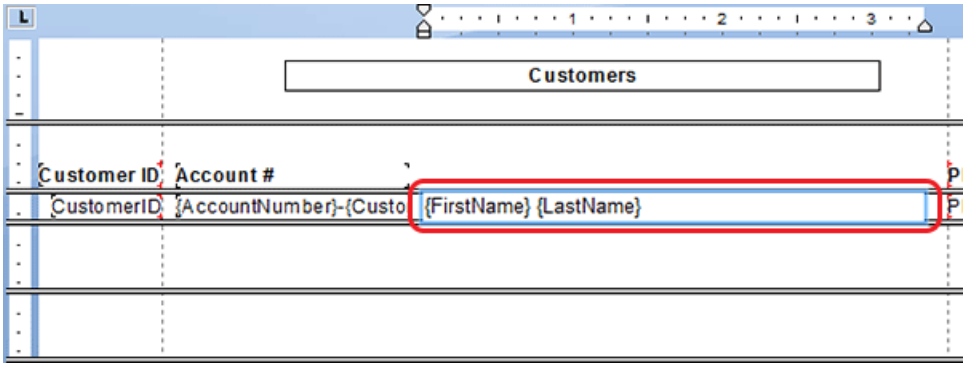


14. Click the **Insert Text Object** icon, place the cursor to the right of account number text object in the **Details** section, and click.

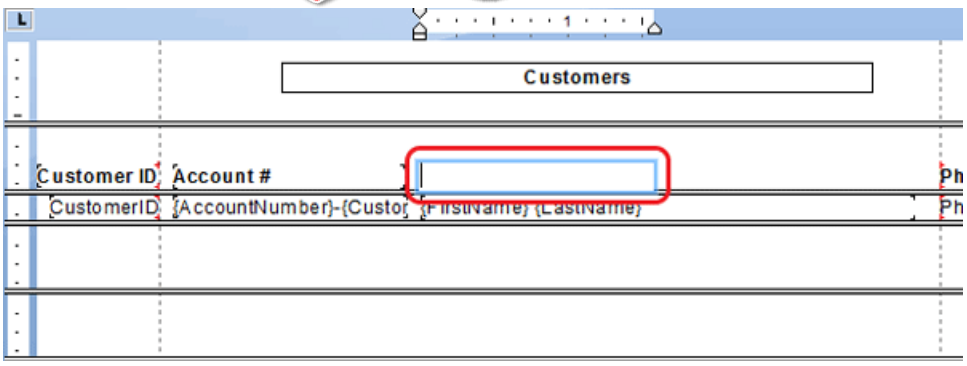


15. Click outside the text object and then reselect it and drag its right edge to the right to increase its width.

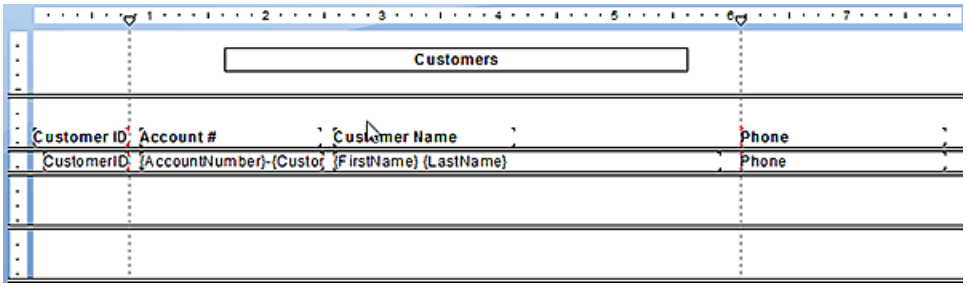
16. Using the **Field Explorer**, click and drag the **FirstName** field from the **Contact** table node and place it inside the new text object. Type a **space**.
17. Click and drag the **LastName** field from the **Contact** table node and place it next to the **space** in the text object.



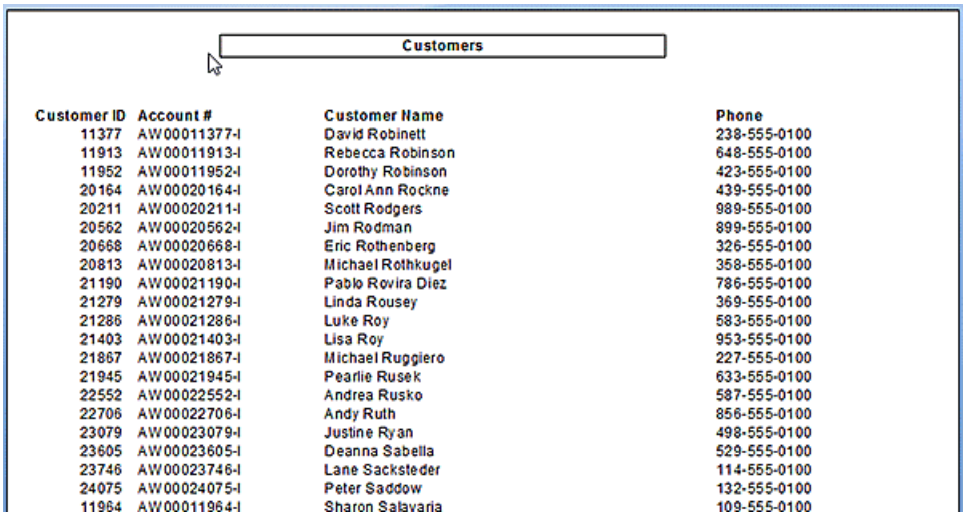
18. Click outside the text object.
19. Click the **Insert Text Object** icon, place the cursor in the **Page Header** directly over the left edge of the customer name text object, and click.



20. Type "Customer Name" in this new text object.
21. Click outside of the text object and then select it again. Click the **Bold** icon.
22. Resize each of the fields with their corresponding field titles to ensure the field titles are completely visible. Some of the surrounding objects may need to be moved/expanded.



23. Preview and save the report.



Customers

Customer ID	Account #	Customer Name	Phone
11377	AW00011377-I	David Robinett	238-555-0100
11913	AW00011913-I	Rebecca Robinson	648-555-0100
11952	AW00011952-I	Dorothy Robinson	423-555-0100
20164	AW00020164-I	Carol Ann Rockne	439-555-0100
20211	AW00020211-I	Scott Rodgers	989-555-0100
20562	AW00020562-I	Jim Rodman	899-555-0100
20668	AW00020668-I	Eric Rothenberg	326-555-0100
20813	AW00020813-I	Michael Rothkugel	358-555-0100
21190	AW00021190-I	Pablo Rovira Diez	786-555-0100
21279	AW00021279-I	Linda Rousey	369-555-0100
21286	AW00021286-I	Luke Roy	583-555-0100
21403	AW00021403-I	Lisa Roy	953-555-0100
21867	AW00021867-I	Michael Ruggiero	227-555-0100
21945	AW00021945-I	Pearlie Rusek	633-555-0100
22552	AW00022552-I	Andrea Rusko	587-555-0100
22706	AW00022706-I	Andy Ruth	856-555-0100
23079	AW00023079-I	Justine Ryan	498-555-0100
23605	AW00023605-I	Deanna Sabella	529-555-0100
23746	AW00023746-I	Lane Sacksteder	114-555-0100
24075	AW00024075-I	Peter Saddow	132-555-0100
11964	AW00011964-I	Sharon Salavaria	109-555-0100

Note

The alignment of the text objects and their field titles is not consistent. We will look into that in the next section.

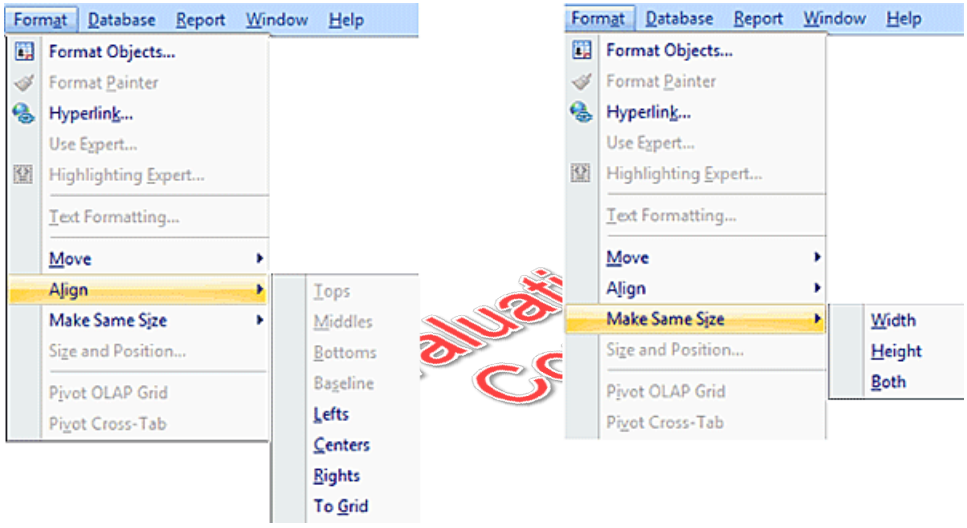
3.4. Aligning and Sizing Objects

It can be difficult to manually place objects on a report so that they line up with other objects. Crystal Reports provides several features for adjusting the alignment and the relative size of objects.

While guidelines and their markers are added automatically when we place fields inside the **Details** section of a report, we can also manually add guidelines to a report. We have already seen that one

benefit of using guidelines is that we can use them to help line up objects either vertically or horizontally. By using guidelines, we can also link two or more objects together so that they can be moved together.

Tools in the **Format** menu also help us align two or more objects. In addition, the menu has tools for setting the height or width (or both) of two or more objects to the same size. These features can also be accessed from a shortcut menu by right-clicking an object when two or more objects are selected.

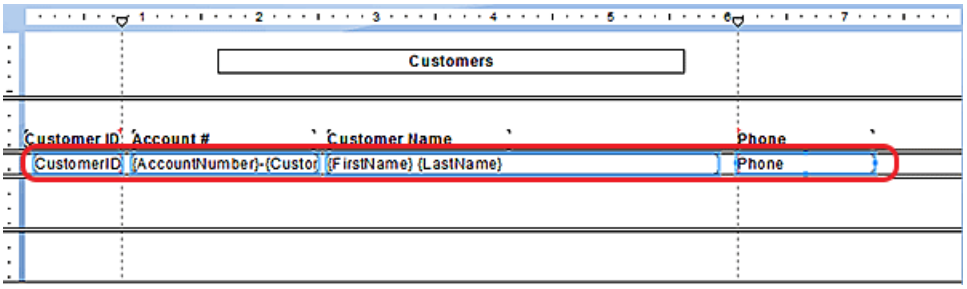


Let's take a look at how this works in our Customer report.

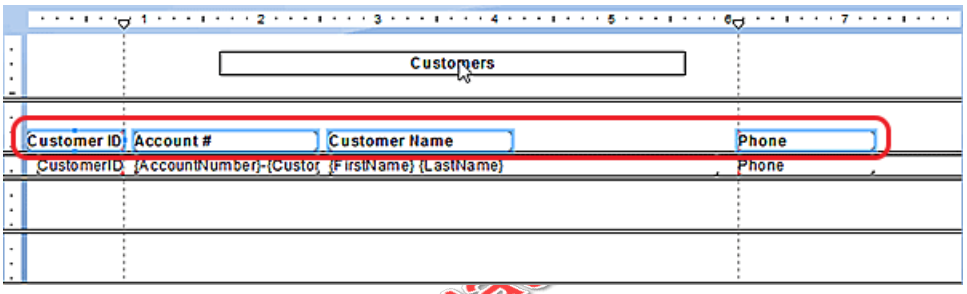
Demo - Aligning and Resizing Objects

On our Customer report, we want the field titles to align properly with each other. For the new fields we created from text objects, we want the text objects and their corresponding field titles to line up and have the same width.

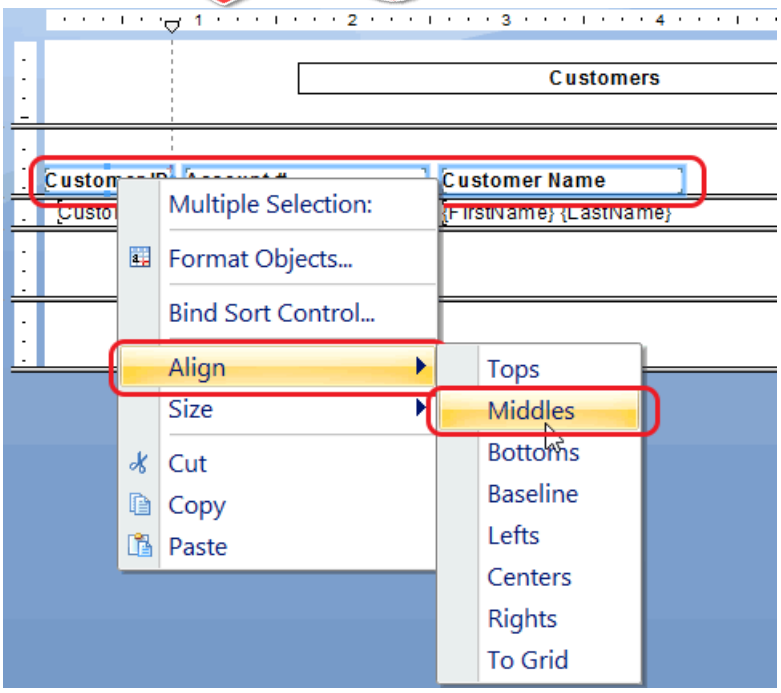
1. Open `C:/ClassFiles/cry2011-objects/Demos/Customer_3.rpt` or continue using the report you had created. Select the **Design** tab.
2. Select the **CustomerID** field and then press **Ctrl** while clicking each of the remaining objects in the **Details** section of the report.



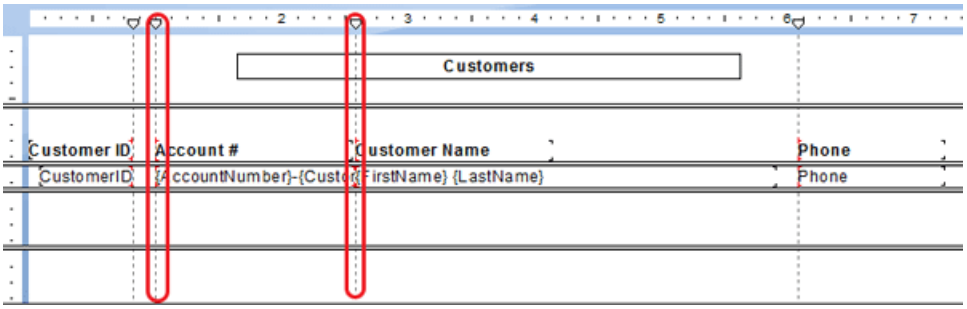
3. From the menu, select **Format > Align > Tops**.
4. Select the **CustomerID** field title and then press **Ctrl** while clicking each of the remaining objects in the **Page Header** section of the report.



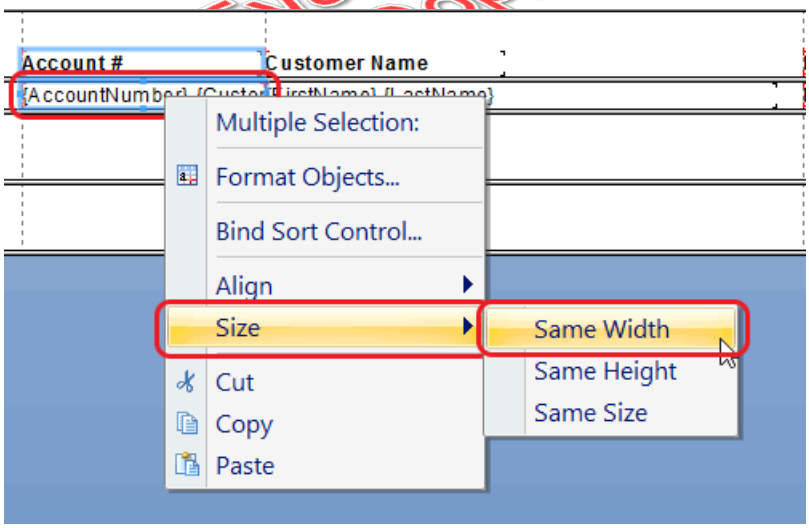
5. Right-click the **CustomerID** field title and select **Align > Middles**.



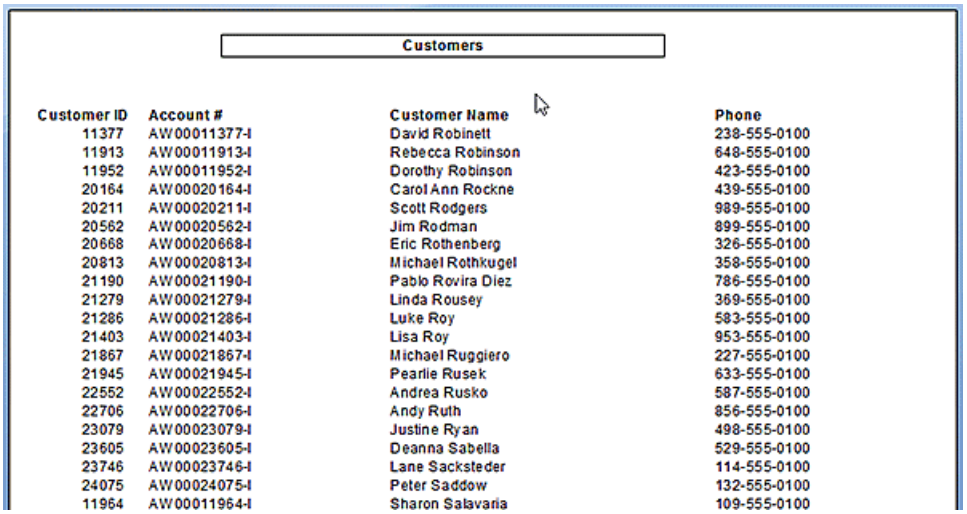
6. Click in the whitespace in the **Page Header** section to deselect the objects.
7. Add a vertical guideline over the account number object by clicking in the ruler area around the 1" mark. Move the text object and its corresponding field title so their left sides line up with the guideline.
8. Add another vertical guideline over the customer name object by clicking in the ruler area around the 2.5" mark. Move the text objects and their corresponding field titles to ensure that the left sides line up on the guideline.



9. Click below the account number object and drag the selection box (Rubber band Selection) to include the account number text object and its corresponding field title.
10. Right-click the text object and select **Size > Same Width**.



11. Click below the customer name object and drag the selection box to include the customer name text object and its corresponding field title.
12. Right-click the text object and select **Size > Same Width**.
13. Preview and save the report.

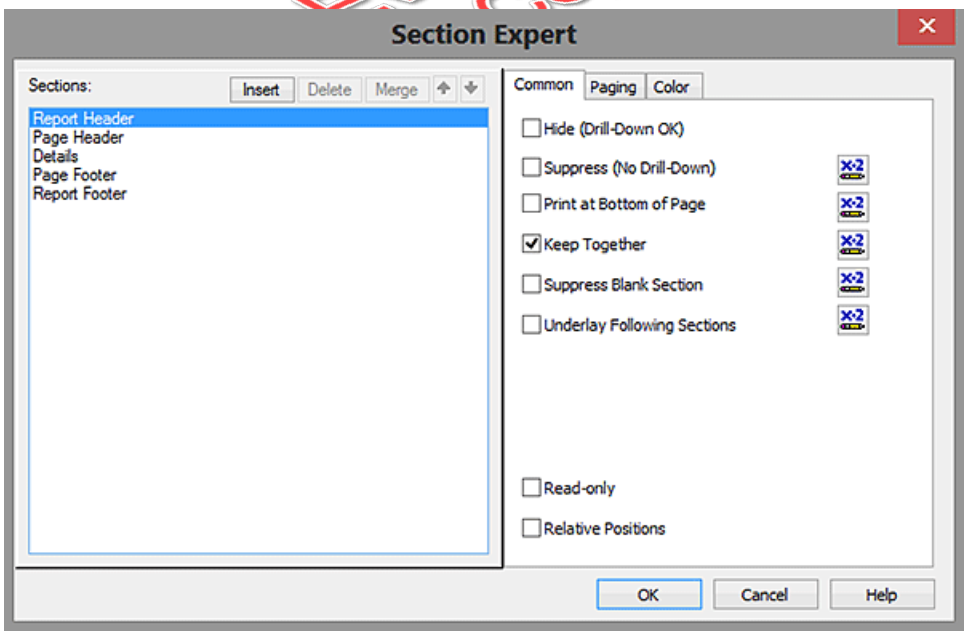


Customers

Customer ID	Account #	Customer Name	Phone
11377	AW00011377-I	David Robinett	238-555-0100
11913	AW00011913-I	Rebecca Robinson	648-555-0100
11952	AW00011952-I	Dorothy Robinson	423-555-0100
20164	AW00020164-I	Carol Ann Rockne	439-555-0100
20211	AW00020211-I	Scott Rodgers	989-555-0100
20562	AW00020562-I	Jim Rodman	899-555-0100
20668	AW00020668-I	Eric Rothenberg	326-555-0100
20813	AW00020813-I	Michael Rothkugel	358-555-0100
21190	AW00021190-I	Pablo Rovira Diez	786-555-0100
21279	AW00021279-I	Linda Rousey	369-555-0100
21286	AW00021286-I	Luke Roy	583-555-0100
21403	AW00021403-I	Lisa Roy	953-555-0100
21867	AW00021867-I	Michael Ruggiero	227-555-0100
21945	AW00021945-I	Pearlie Rusek	633-555-0100
22552	AW00022552-I	Andrea Rusko	587-555-0100
22706	AW00022706-I	Andy Ruth	856-555-0100
23079	AW00023079-I	Justine Ryan	498-555-0100
23605	AW00023605-I	Deanna Sabella	529-555-0100
23746	AW00023746-I	Lane Sacksteder	114-555-0100
24075	AW00024075-I	Peter Saddow	132-555-0100
11964	AW00011964-I	Sharon Salavaria	109-555-0100

3.5. The Section Expert

We've seen how we can work with the different objects in our report. Next we'll look at how we can work with the different sections of the report. To work with sections, we use the **Section Expert**.

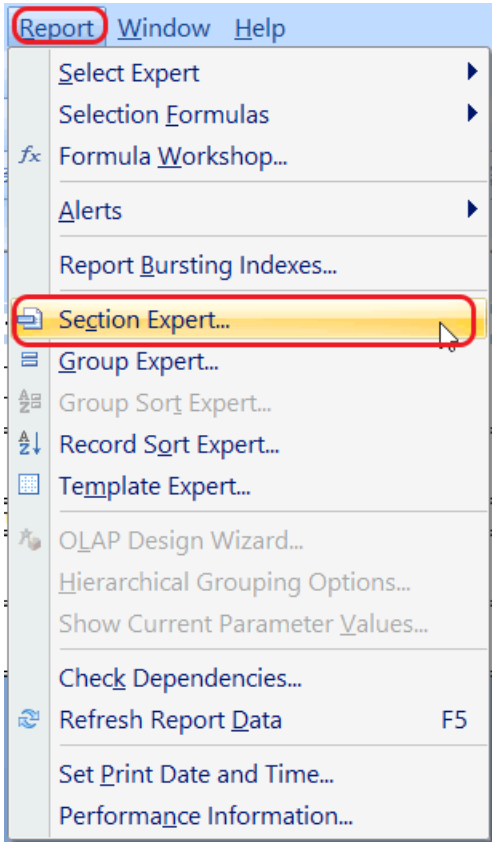


The **Section Expert** includes a number of options that can be used to format the report as a whole. The following demo will explore some of these features.

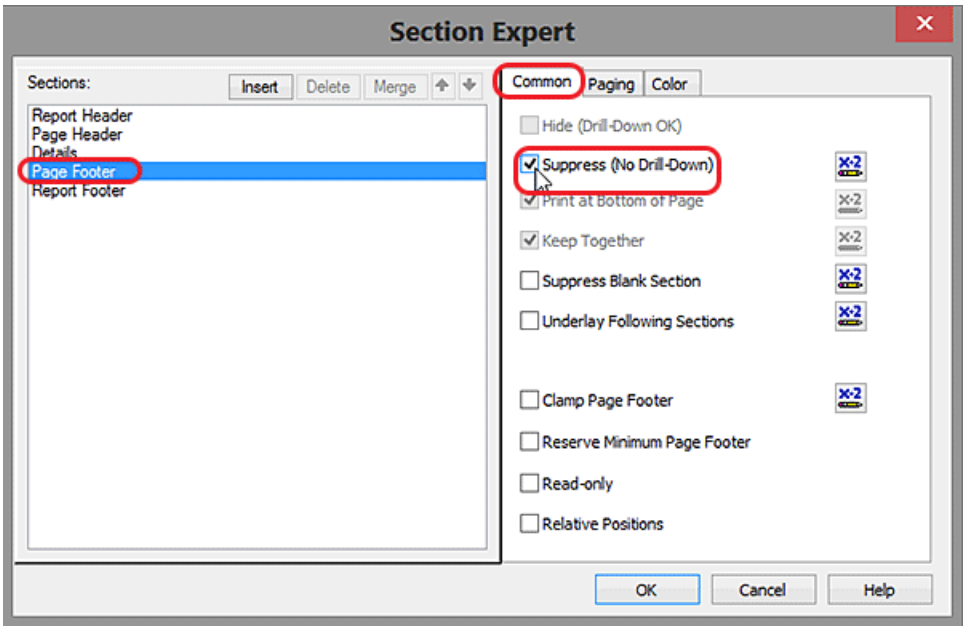
Demo - Using the Section Expert

We will make adjustments to some of the sections of the Customer report to improve formatting.

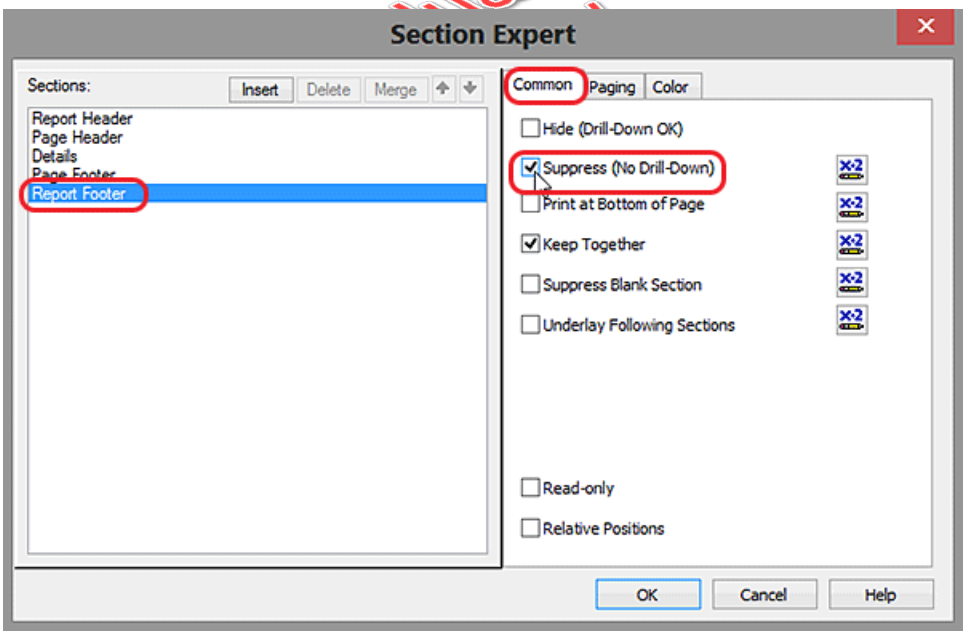
1. Open `C:/ClassFiles/cry2011-objects/Demos/Customer_4.rpt` or continue to use the report you created. Select the **Design** tab.
2. From the menu, select **Report > Section Expert**.



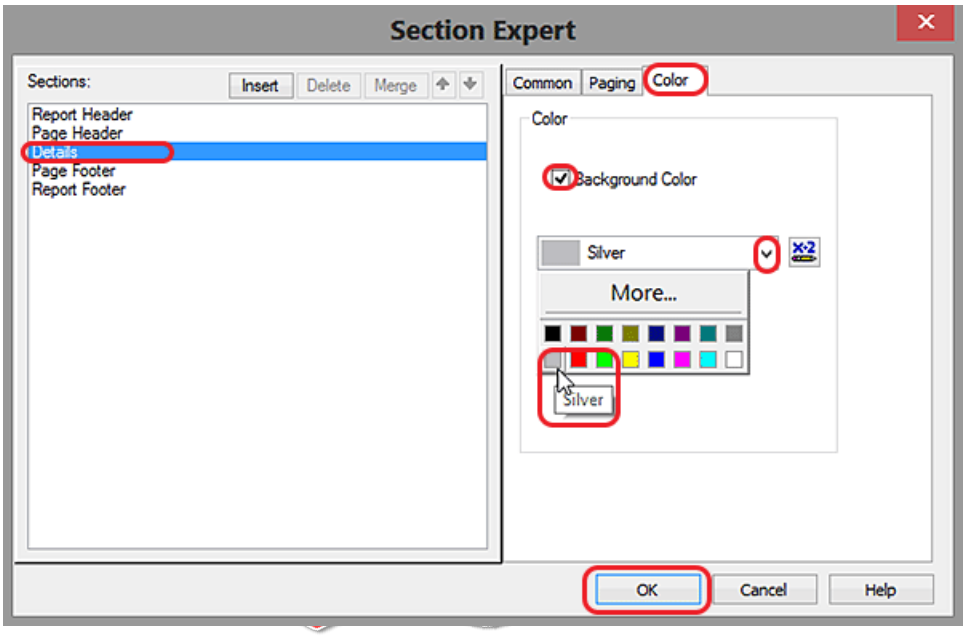
3. In the **Sections** list box, select **Page Footer**.
4. On the **Common** tab, check the **Suppress (No Drill-Down)** check box.



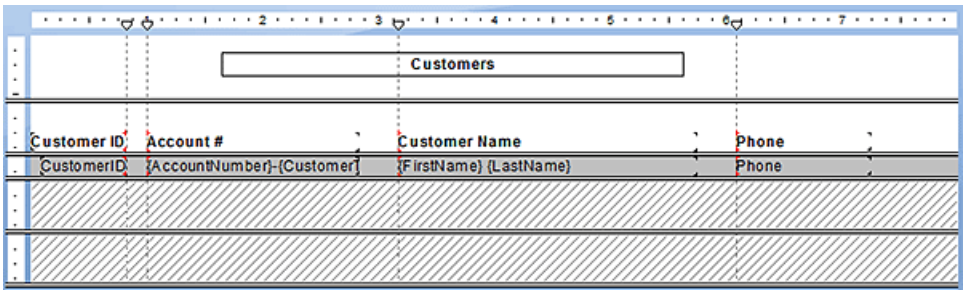
5. In the **Sections** list box, select **Report Footer**.
6. On the **Common** tab, check the **Suppress (No Drill-Down)** check box.



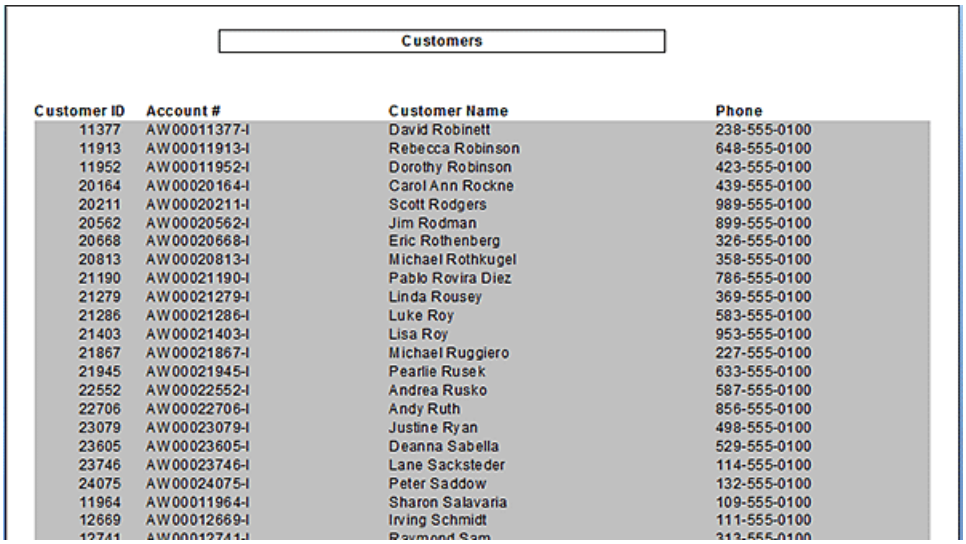
7. In the **Sections** list box, select **Details**.
8. Select the **Color** tab, check the **Background Color** check box, and select **Silver** from the color palette.



9. Click **OK**.



10. Preview the report.



Customers

Customer ID	Account #	Customer Name	Phone
11377	AW00011377-I	David Robinett	238-555-0100
11913	AW00011913-I	Rebecca Robinson	648-555-0100
11952	AW00011952-I	Dorothy Robinson	423-555-0100
20164	AW00020164-I	Carol Ann Rockne	439-555-0100
20211	AW00020211-I	Scott Rodgers	989-555-0100
20562	AW00020562-I	Jim Rodman	899-555-0100
20668	AW00020668-I	Eric Rothenberg	326-555-0100
20813	AW00020813-I	Michael Rothkugel	358-555-0100
21190	AW00021190-I	Pablo Rovira Diez	786-555-0100
21279	AW00021279-I	Linda Rousey	369-555-0100
21286	AW00021286-I	Luke Roy	583-555-0100
21403	AW00021403-I	Lisa Roy	953-555-0100
21867	AW00021867-I	Michael Ruggiero	227-555-0100
21945	AW00021945-I	Pearlie Rusek	633-555-0100
22552	AW00022552-I	Andrea Rusko	587-555-0100
22706	AW00022706-I	Andy Ruth	856-555-0100
23079	AW00023079-I	Justine Ryan	498-555-0100
23605	AW00023605-I	Deanna Sabella	529-555-0100
23746	AW00023746-I	Lane Sacksteder	114-555-0100
24075	AW00024075-I	Peter Saddow	132-555-0100
11964	AW00011964-I	Sharon Salavaria	109-555-0100
12669	AW00012669-I	Irving Schmidt	111-555-0100
12741	AW00012741-I	Raymond Sam	313-555-0100

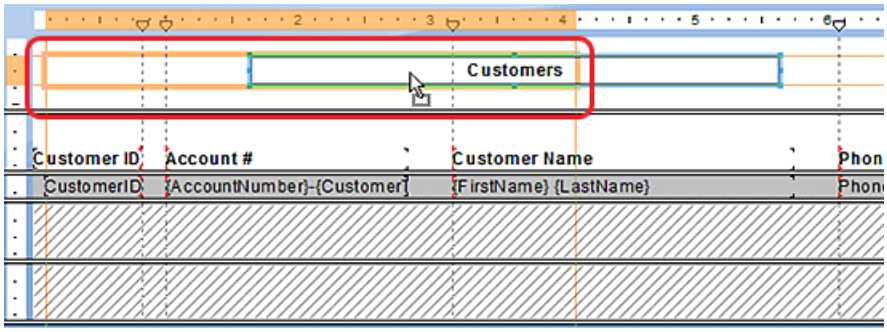
3.6. Images

An image can be a simple enhancement to any report. This is especially true when you want to brand your reports with your company logo. Let's look at how to add an image to a report.

Demo - Adding the Company Logo

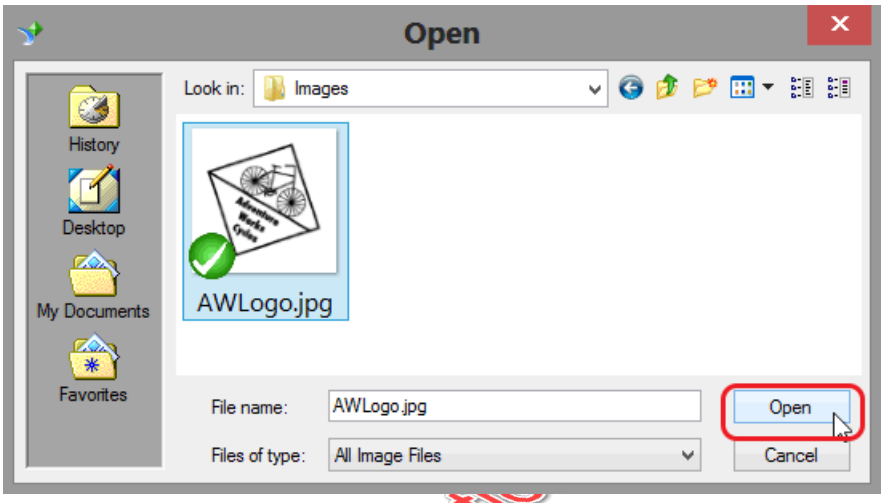
For branding purposes, we will add the Adventure Works company logo to the top of the Customer report.

1. Open `C:/ClassFiles/cry2011-objects/Demos/Customer_5.rpt` or you may continue to use the report you had created. Select the **Design** tab.
2. In the **Report Header** section, drag the report title to the far left.



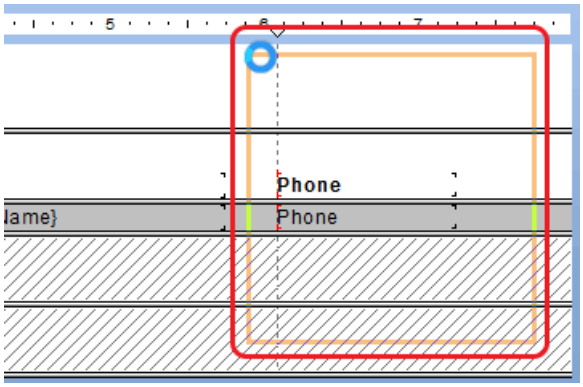
3. On the **Insert** toolbar, click the **Insert Picture** icon.

4. In the **Open** dialog box, navigate to the Images folder `C:/ClassFiles/Images/AWLogo.jpg`.

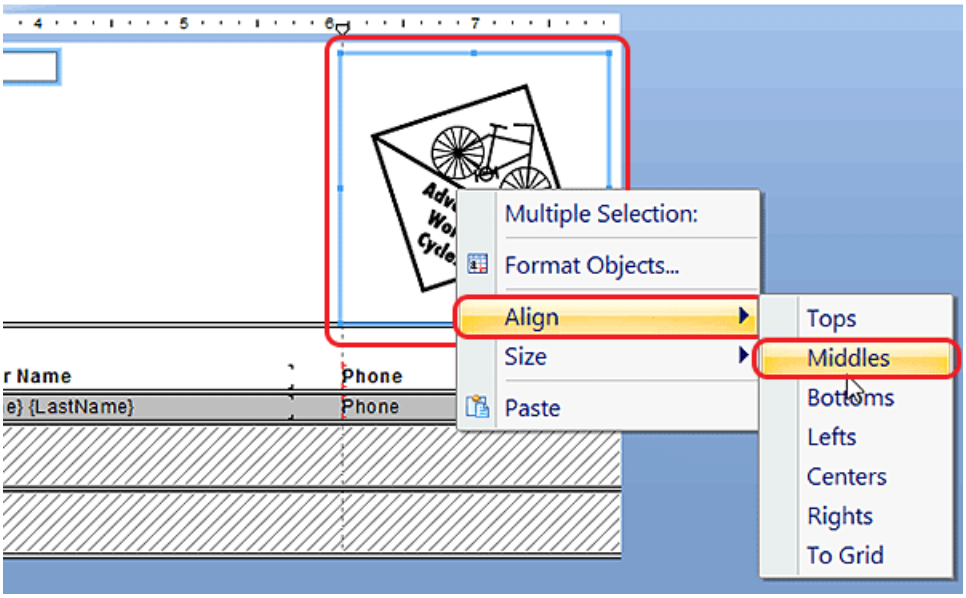


5. Select the `AWLogo.jpg` file and click **Open**.

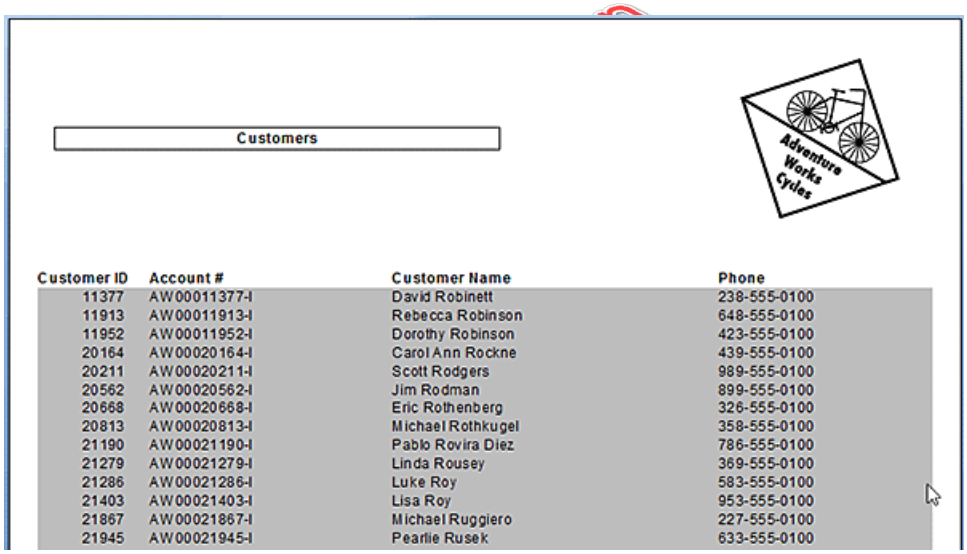
6. Position the mouse in the **Report Header** section so that the right edge of the picture box is on the right edge of the report.



7. Click and then select the image and the report title. Right-click the image and select **Align > Middles**.



8. Preview the report.



Customer ID	Account #	Customer Name	Phone
11377	AW00011377-I	David Robinett	238-555-0100
11913	AW00011913-I	Rebecca Robinson	648-555-0100
11952	AW00011952-I	Dorothy Robinson	423-555-0100
20164	AW00020164-I	Carol Ann Rockne	439-555-0100
20211	AW00020211-I	Scott Rodgers	989-555-0100
20562	AW00020562-I	Jim Rodman	899-555-0100
20668	AW00020668-I	Eric Rothenberg	326-555-0100
20813	AW00020813-I	Michael Rothkugel	358-555-0100
21190	AW00021190-I	Pablo Rovira Diez	786-555-0100
21279	AW00021279-I	Linda Rousey	369-555-0100
21286	AW00021286-I	Luke Roy	583-555-0100
21403	AW00021403-I	Lisa Roy	953-555-0100
21867	AW00021867-I	Michael Ruggiero	227-555-0100
21945	AW00021945-I	Pearlie Rusek	633-555-0100

When to Use an Image

Images should be used in a very purposeful manner. Use them to better describe, illustrate, or clarify a point. Do not use them only for decorative purposes. Also, when used on a series of reports, make sure to be consistent across all the reports. Keep art to a minimum because reports are all about data. Clean, professional layouts are the key to easy-to-interpret the data.

Exercise 3: Working with Text Objects

30 to 45 minutes

We will make changes to our Sales Order report to make it more useful and presentable. Open `C:/ClassFiles/cry2011-objects/Exercises/SalesOrder.rpt` or continue using the report that you had created `C:/ClassFiles/StudentReports/SalesOrders.rpt`.

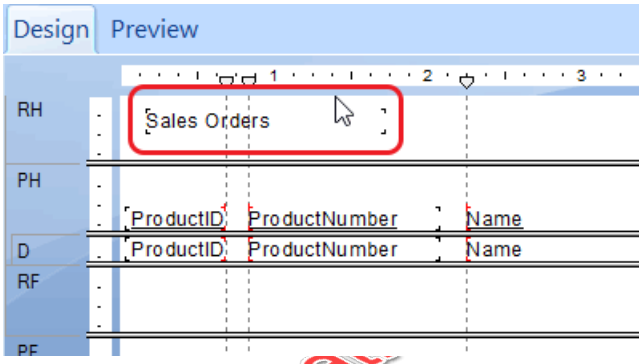
1. Add the report title "Sales Orders".
2. Remove the following fields from the report:
   A. **ProductID**
   B. **SalesOrderID**
   C. **SalesOrderDetailID**
3. Add the following fields to the report from the **SalesOrderDetail** table:
   A. **OrderQty**
   B. **UnitPrice**

4. Rearrange the fields in the following order and edit their field titles as indicated:
   A. **SalesOrderNumber** - "Order Number"
   B. **Name** - "Name of Product"
   C. **ProductNumber** - "Product #"
   D. **OrderQty** - "Quantity"
   E. **UnitPrice** - "Unit Price"
5. Change the style for all field titles to italicized and underlined.
6. Suppress the **Report Footer**.
7. Change the background color of the **Page Footer** to silver.
8. Save the report and preview it.

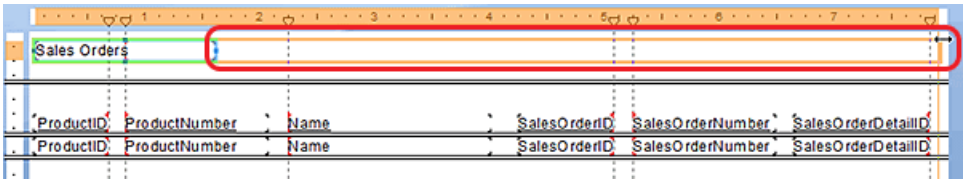
Solution

The following describes one possible solution to the exercise.

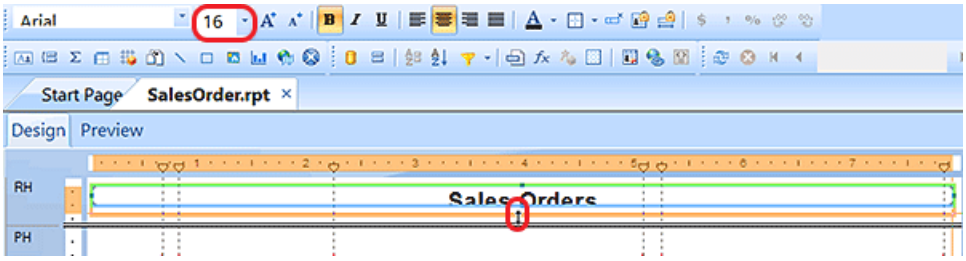
1. Open `C:/ClassFiles/cry2011-objects/Exercises/SalesOrder.rpt` and select the **Design** tab.
2. Click the **Insert Text Object** icon.
3. Position the mouse cursor on the left side of the **Report Header** section and click.
4. In the new text object, type "Sales Orders" and then click in the whitespace to deselect it.



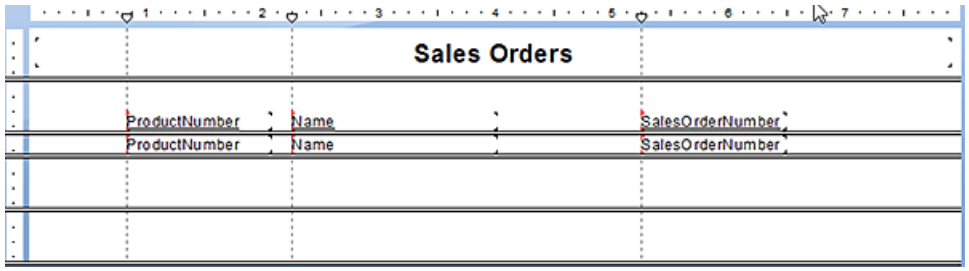
5. Select the text object and then press the left arrow key until the text object stops moving.
6. Click and drag the right edge of the text object to the right side of the report.



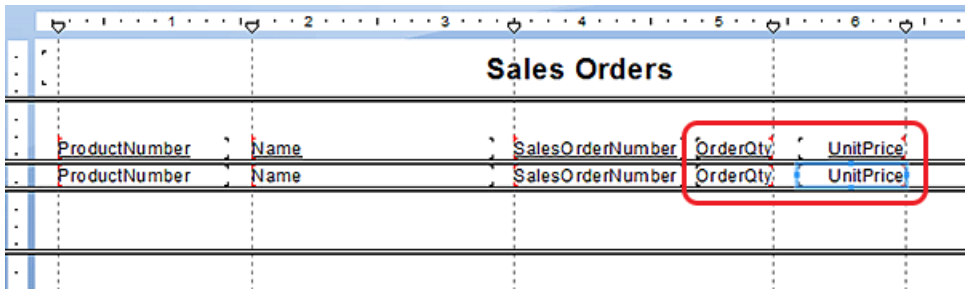
7. Click the **Bold** icon.
8. Click the **Align Center** icon.
9. Change the font size to 16.



10. Resize the box to a height that holds all of the text.
11. Delete the **ProductID**, **SalesOrderID**, and **SalesOrderDetailID** fields by selecting them and pressing **Delete**. Ensure their titles are also deleted. Drag their guideline markers off the horizontal ruler.

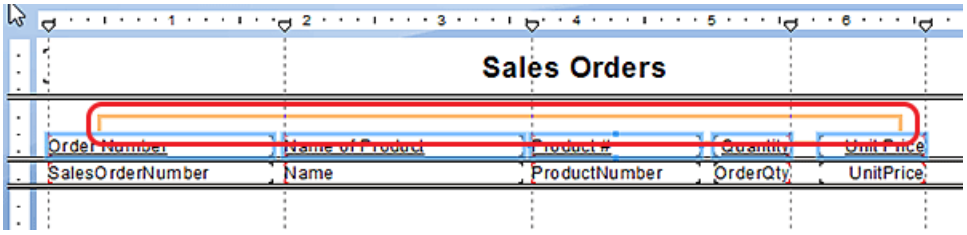


12. Move the remaining fields to the left.
13. Using the **Field Explorer**, drag the **OrderQty** and **UnitPrice** fields from the **SalesOrderDetail** node to the **Details** section of the report.

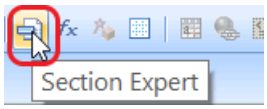


14. Using the guidelines, move the fields so they are in the following order:
    A. **SalesOrderNumber**
    B. **Name**
    C. **ProductNumber**
    D. **OrderQty**
    E. **UnitPrice**
15. Select the field title of the **SalesOrderNumber** field, right-click, select **Edit Text**, and type "Order Number". Repeat for the remaining field titles using the following labels:
    A. **Name** - "Name of Product"
    B. **ProductNumber** - "Product #"
    C. **OrderQty** - "Quantity"
    D. **UnitPrice** - "Unit Price"

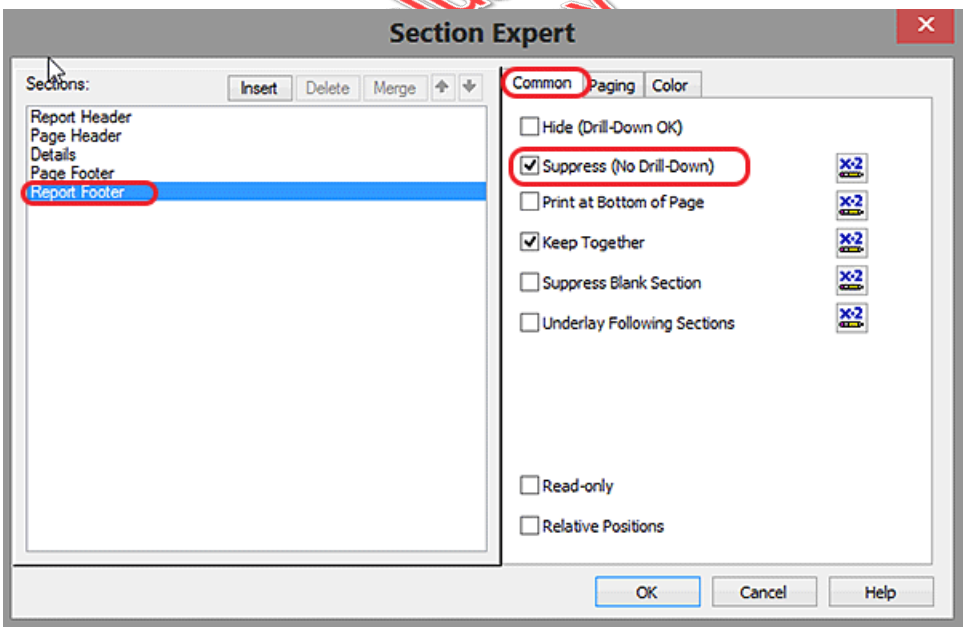
16. In the **Page Header** section, click above the field title of the **SalesOrderNumber** field and drag a selection box around all field titles to select them (Rubber band Selection).



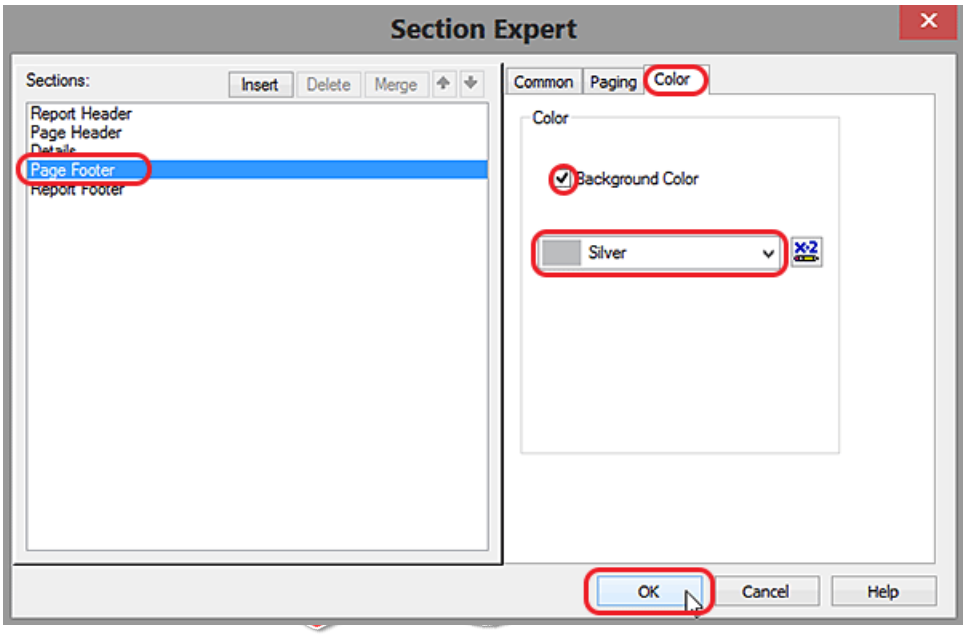
17. Click the **Italics** icon. (The field titles should already be underlined.)
18. Adjust and resize fields and their titles to ensure the titles are completely visible.
19. On the **Experts** toolbar, click the **Section Expert** icon.



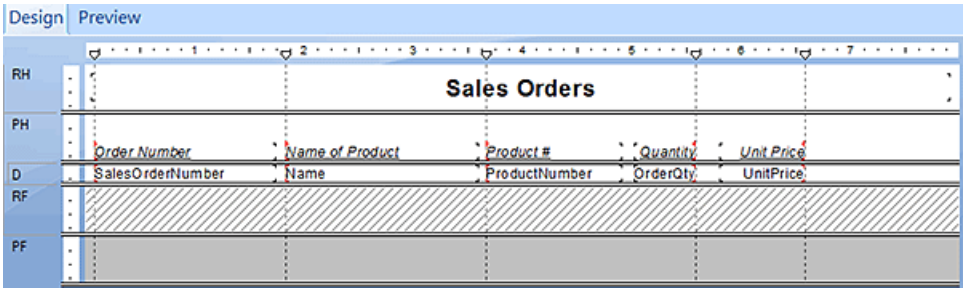
20. In the **Sections** list box, select **Report Footer**.
21. On the **Common tab**, check the **Suppress (No Drill-Down)** check box.



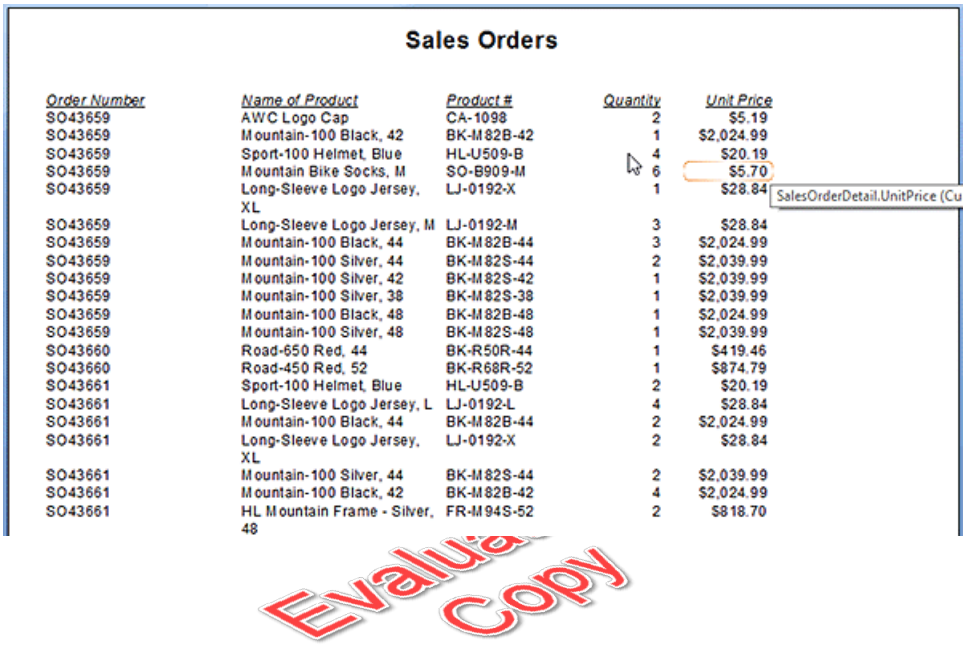
22. In the **Sections** list box, select **Page Footer**.
23. Select the **Color** tab, check the **Background Color** check box, and verify that **Silver** is selected in the color palette. Click **OK**.



24. Save and preview the report.



25. Your report may look similar to this.



Sales Orders

Order Number	Name of Product	Product #	Quantity	Unit Price
SO43659	AWC Logo Cap	CA-1098	2	$5.19
SO43659	Mountain-100 Black, 42	BK-M82B-42	1	$2,024.99
SO43659	Sport-100 Helmet, Blue	HL-U509-B	4	$20.19
SO43659	Mountain Bike Socks, M	SO-B909-M	6	$5.70
SO43659	Long-Sleeve Logo Jersey, XL	LJ-0192-X	1	$28.84
SO43659	Long-Sleeve Logo Jersey, M	LJ-0192-M	3	$28.84
SO43659	Mountain-100 Black, 44	BK-M82B-44	3	$2,024.99
SO43659	Mountain-100 Silver, 44	BK-M82S-44	2	$2,039.99
SO43659	Mountain-100 Silver, 42	BK-M82S-42	1	$2,039.99
SO43659	Mountain-100 Silver, 38	BK-M82S-38	1	$2,039.99
SO43659	Mountain-100 Black, 48	BK-M82B-48	1	$2,024.99
SO43659	Mountain-100 Silver, 48	BK-M82S-48	1	$2,039.99
SO43660	Road-650 Red, 44	BK-R50R-44	1	$419.46
SO43660	Road-450 Red, 52	BK-R68R-52	1	$874.79
SO43661	Sport-100 Helmet, Blue	HL-U509-B	2	$20.19
SO43661	Long-Sleeve Logo Jersey, L	LJ-0192-L	4	$28.84
SO43661	Mountain-100 Black, 44	BK-M82B-44	2	$2,024.99
SO43661	Long-Sleeve Logo Jersey, XL	LJ-0192-X	2	$28.84
SO43661	Mountain-100 Silver, 44	BK-M82S-44	2	$2,039.99
SO43661	Mountain-100 Black, 42	BK-M82B-42	4	$2,024.99
SO43661	HL Mountain Frame - Silver, 48	FR-M94S-52	2	$818.70

SalesOrderDetail.UnitPrice (Cu

Conclusion

In this lesson, you learned:

- How to use text objects.
- How to work with field titles.
- How to incorporate fields in text objects.
- How to add image objects.
- About the various features available through the **Section Expert**.
- How to use images in reports.

LESSON 4
Filtering Reports

Topics Covered

☑ The **Select Expert**.

☑ Building a filter based on a single field.

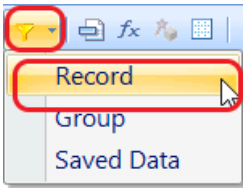
☑ Building a filter based on multiple criteria.

Introduction

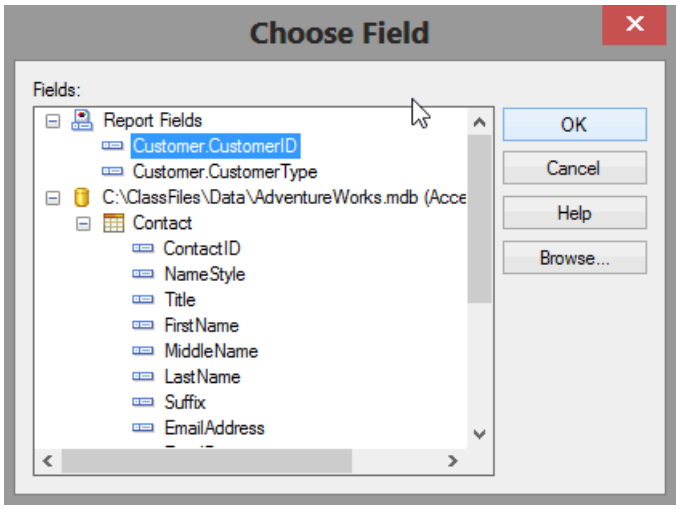
When creating a report, you want to deliver the data that your users need. In some cases, presenting all the data is not desirable and, in fact, can be overwhelming, especially when the report is based on a large data set. To limit the data that is presented in your report, you will need to use filters. In Crystal Reports, the tool you use to create filters is the **Select Expert**. The **Select Expert** allows you to choose items to filter by. You can also use the **Formula Workshop** and type in the code to create a filter.

4.1. Create a Filter Based on a Single Criterion

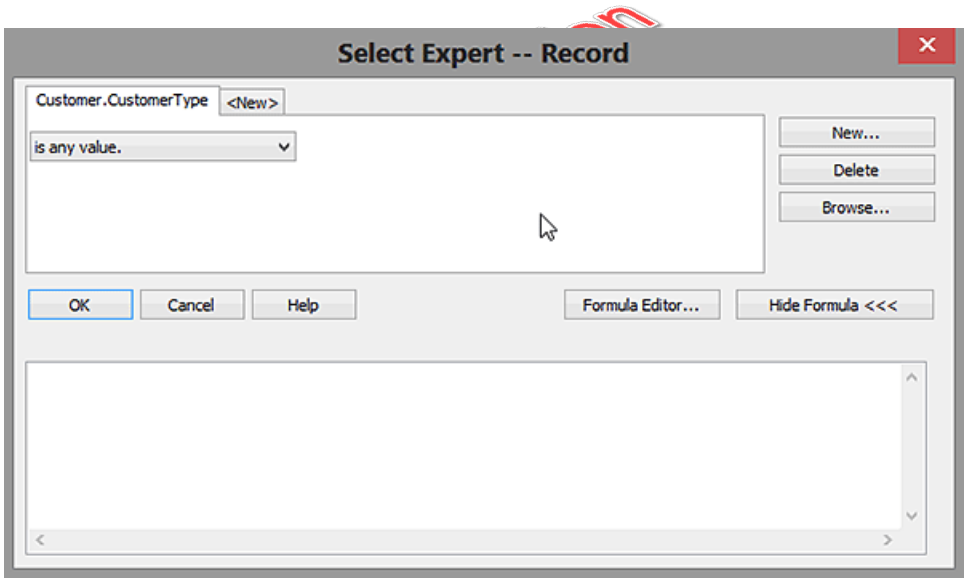
To access the **Select Expert**, click the **Select Expert** icon in the **Experts** toolbar.



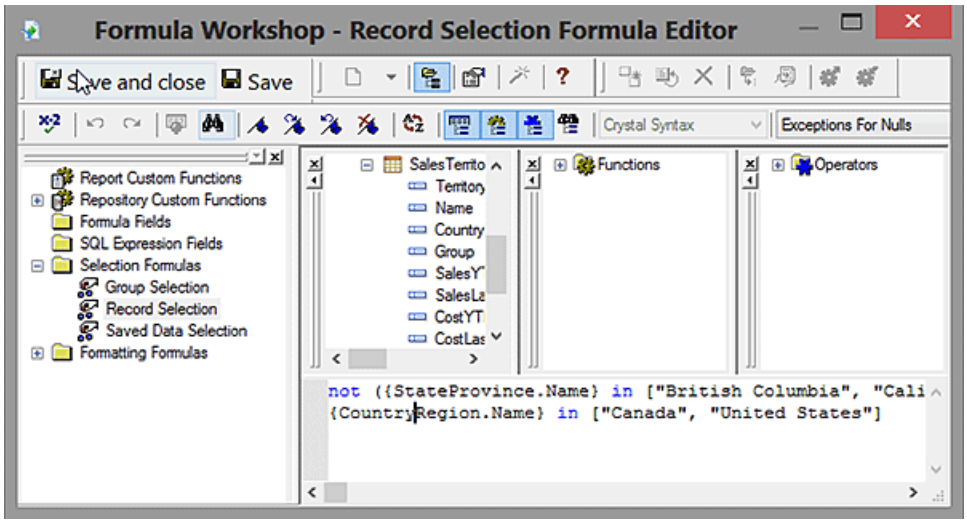
Initially, if you have no filters in place, you will see this dialog box:



Once you select a field and click the **OK** button, you are taken to the **Select Expert** dialog box:



The **Formula Editor...** opens the **Formula Workshop**, which allows for advanced work with filters and other areas of Crystal Reports. You will have a chance to work with the formula editor later on in this lesson. The **Formula Workshop** will be covered in more detail later in the course.

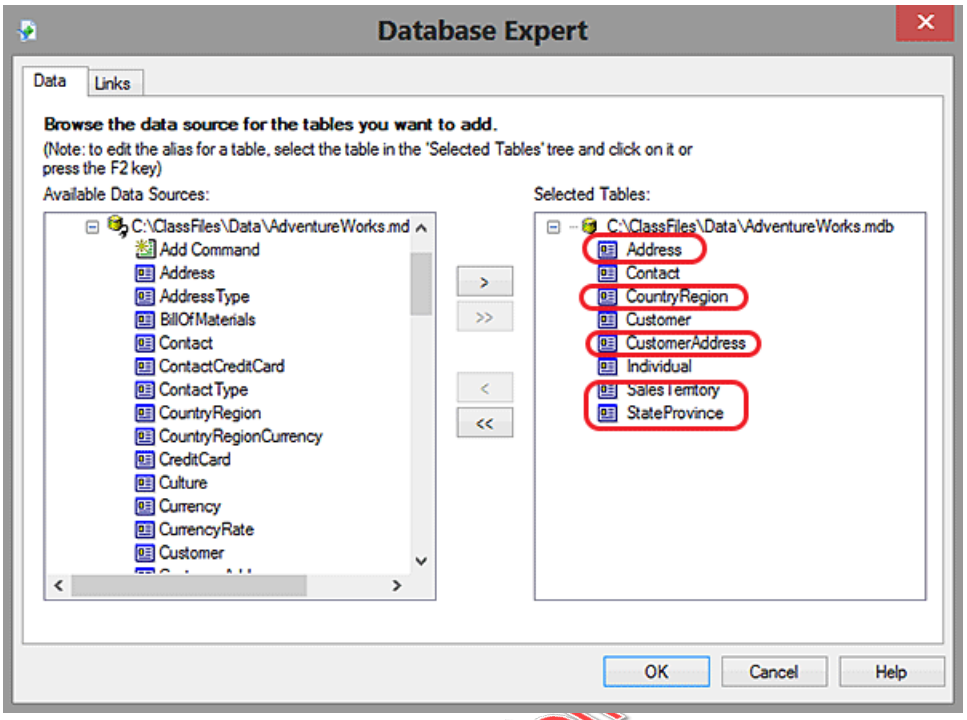


Let's build a filter for the Customer report.

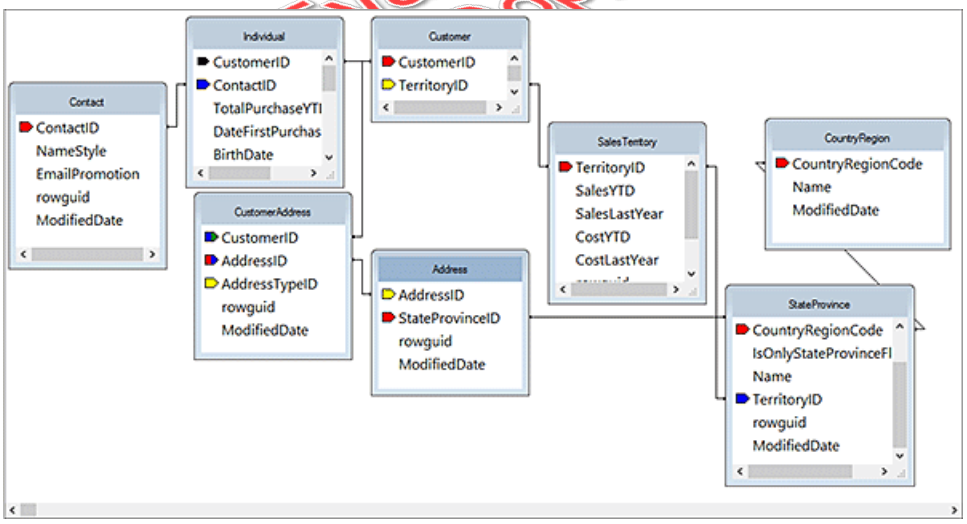
Demo - Adding a Filter on a Single Field

In our Customer report, we will limit the report to customers who are in North America.

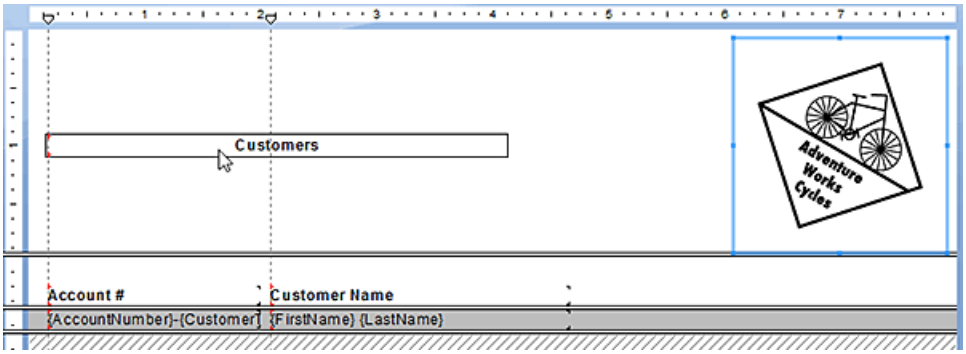
1. Open `C:ClassFiles/cry-2011-filter-report/Demos/Customer.rpt` or you may continue to use the report you already created `C:ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. On the **Experts** toolbar, click the **Database Expert** icon.
3. In the **Available Data Sources** pane, expand the **C:ClassFiles/Data/AdventureWorks.mdb** node and select the following tables:
   A. **Address**
   B. **CountryRegion**
   C. **StateProvince**
   D. **CustomerAddress**
   E. **SalesTerritory**



4. Select the **Links** tab and confirm the connections.

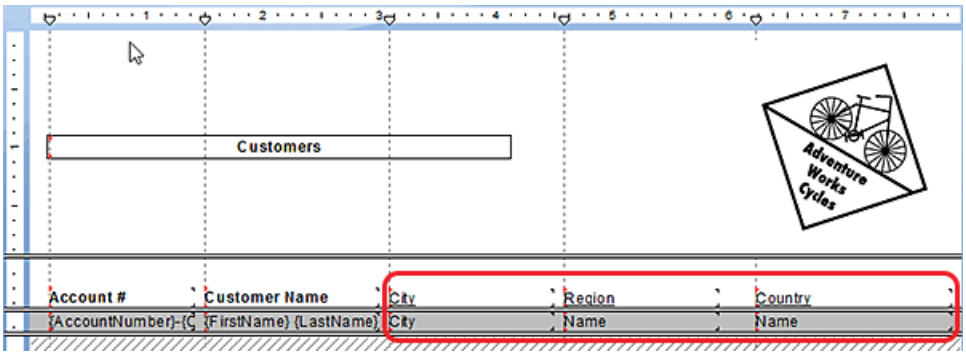


5. Click **OK**. In the **Refresh Report Data** message box, click **OK.**
6. In the report, remove the **CustomerID** and **Phone** fields including their field titles and guideline markers.
7. Move the remaining fields to the left.

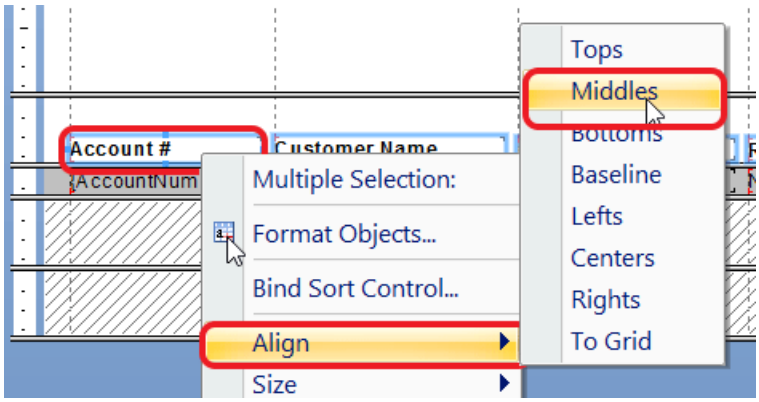


8. Using the **Field Explorer**, add the following fields:
   A. From the **Address** table, add the **City** field and keep the field title "City".
   B. From the **StateProvince** table, add the **Name** field and change the field title to "Region".
   C. From the **CountryRegion** table, add the **Name** field and change the field title to "Country".

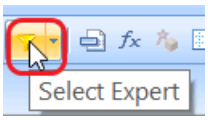
9. Preview the report.
10. Return to the **Design** tab and adjust the widths of the fields so that all fields are inside the body of the report.



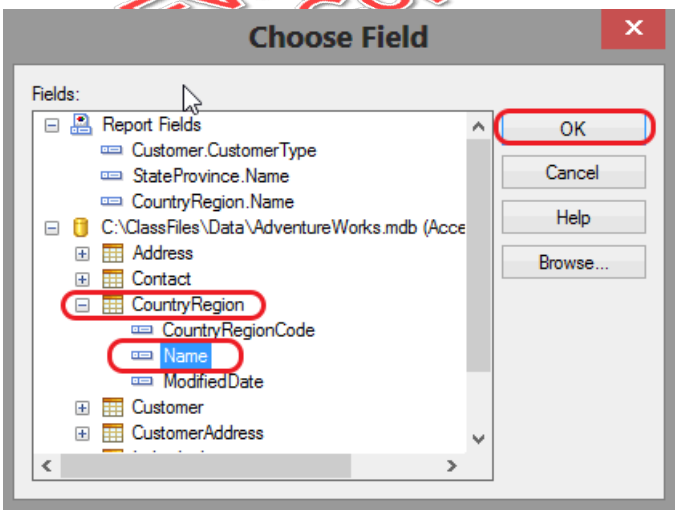
11. Select the new field titles and then click the **Bold** icon to bold the titles and the **Underline** icon to turn off underlining.
12. Select all field titles, right-click the **AccountNumber** field title, and select **Align > Middles**.



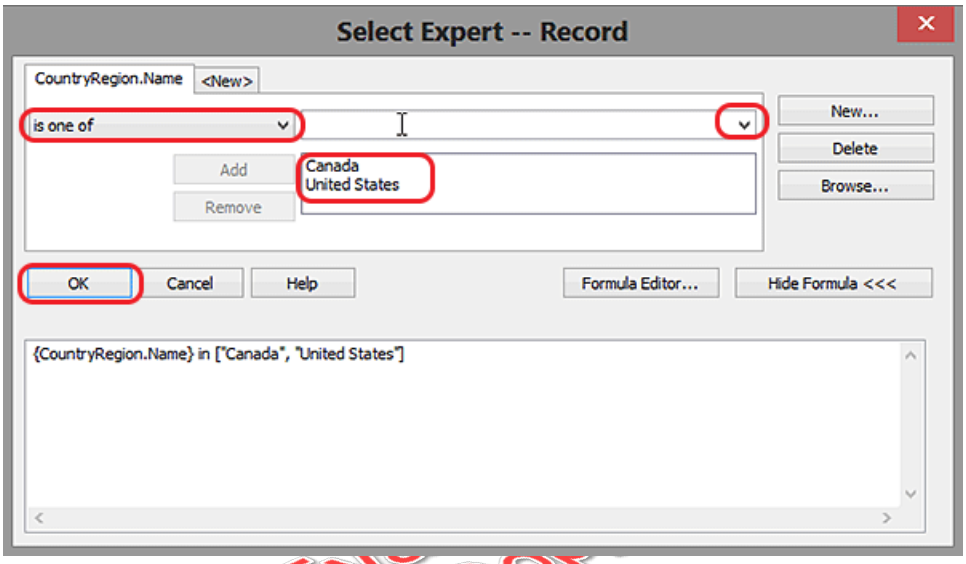
13. Click the **Select Expert** icon.



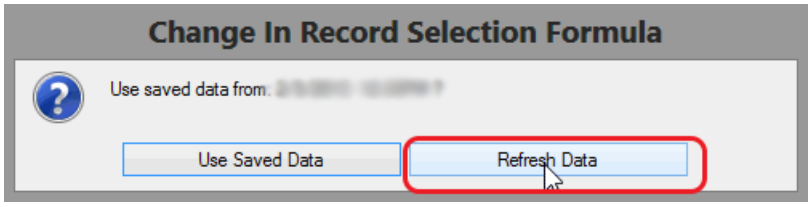
14. In the **Choose Field** dialog box, scroll down to the **CountryRegion** table and expand it. Select the **Name** field and click **OK**.



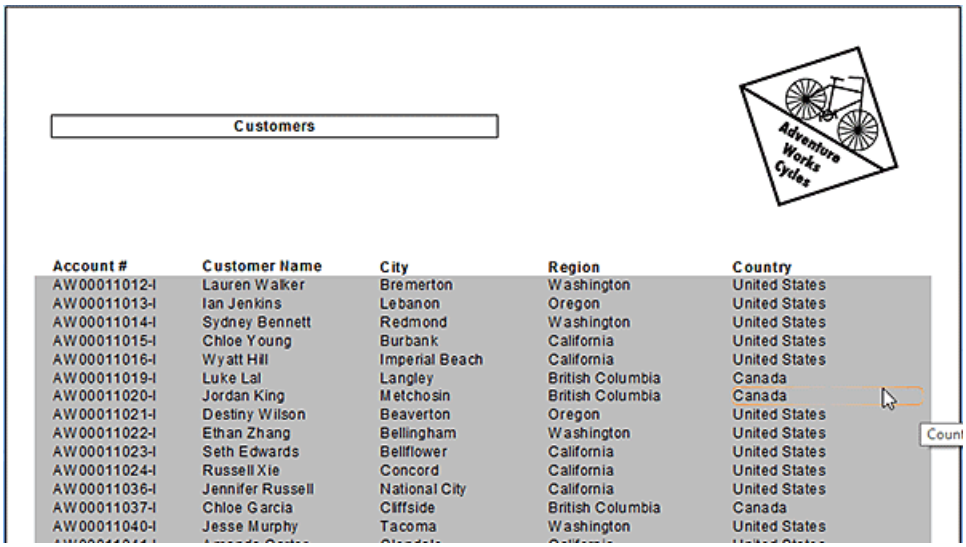
15. In the **Select Expert -- Record** dialog box, on the **CountryRegion.Name** tab, select "is one of" from the drop-down list. Then, in the drop-down list that appears to the right, select "Canada" and "United States". Click **OK**.



16. Preview the report. The **Change In Record Selection Formula** message box prompts you about which data to use. Click **Refresh Data**.



17. Review the data. Notice that the countries listed include only the United States and Canada, countries in North America.



Customers

Account #	Customer Name	City	Region	Country
AW00011012-I	Lauren Walker	Bremerton	Washington	United States
AW00011013-I	Ian Jenkins	Lebanon	Oregon	United States
AW00011014-I	Sydney Bennett	Redmond	Washington	United States
AW00011015-I	Chloe Young	Burbank	California	United States
AW00011016-I	Wyatt Hill	Imperial Beach	California	United States
AW00011019-I	Luke Lal	Langley	British Columbia	Canada
AW00011020-I	Jordan King	Metchosin	British Columbia	Canada
AW00011021-I	Destiny Wilson	Beaverton	Oregon	United States
AW00011022-I	Ethan Zhang	Bellingham	Washington	United States
AW00011023-I	Seth Edwards	Bellflower	California	United States
AW00011024-I	Russell Xie	Concord	California	United States
AW00011036-I	Jennifer Russell	National City	California	United States
AW00011037-I	Chloe Garcia	Cliffside	British Columbia	Canada
AW00011040-I	Jesse Murphy	Tacoma	Washington	United States

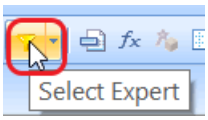
4.2. Create a Filter for Multiple Selection Criteria

Often we may need more complex filtering criteria to help get specific information from the database. In the next demo, we will apply multiple filters to the Customer report.

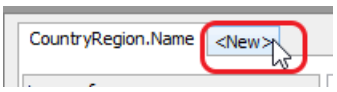
Demo - Adding an Additional Filter

Let's refine the selection in the Customer report to all North American customers who do not reside in the West Coast states and provinces.

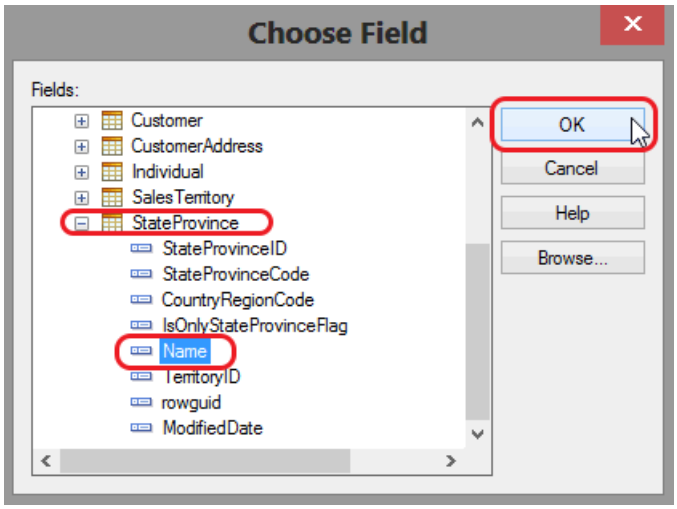
1. Open `C:ClassFiles/cry-2011-filter-report/Demos/Customer.rpt` or you may continue to use the report you had created `C:ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. Click the **Select Expert** icon.



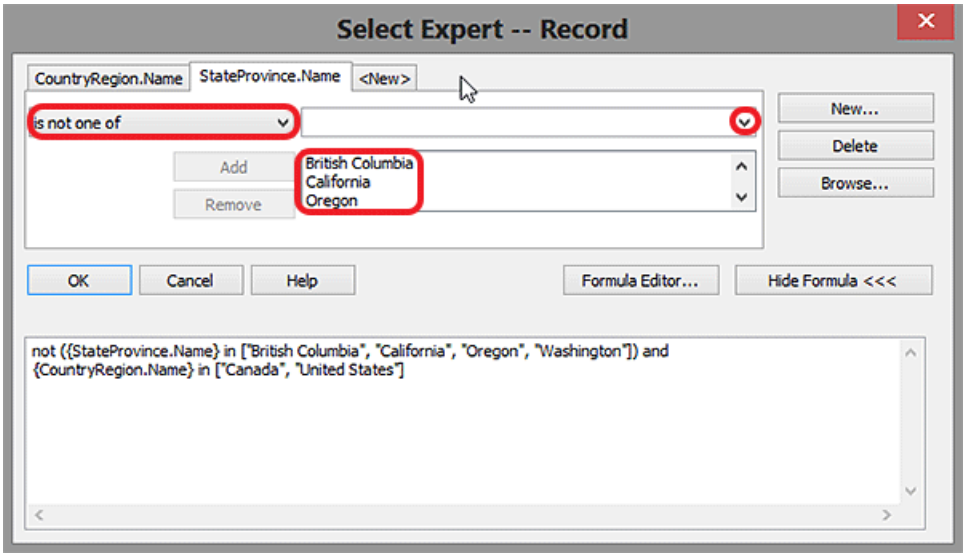
3. In the **Select Expert -- Record** dialog box, select the **New** tab.

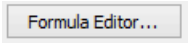


4. In the **Choose Field** dialog box, select the **StateProvince.Name** field and click **OK**.



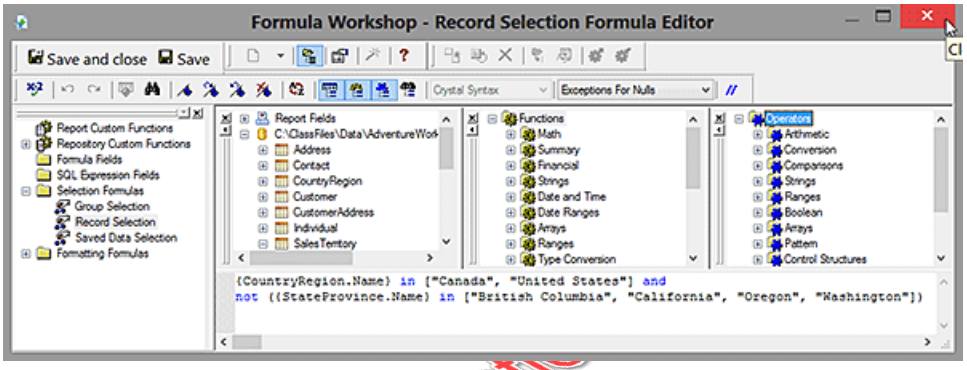
5. On the **StateProvince.Name** tab, select **is not one of** from the drop-down list.
6. In the new drop-down list, select the following:
   A. British Columbia
   B. California
   C. Oregon
   D. Washington



7. Explore the **Formula Editor...** by clicking the 

Formula Editor... You will not be typing or making any changes just yet. Right now just explore the options and then

close the **Formula Workshop** by clicking the  red X. As you progress in Crystal Reports, the **Formula Workshop** will be used more often as needed.



8. Click **OK** to return to the report.

9. Preview the report. In the **Change in Record Selection Formula** message box, click **Refresh Data**.

10. Review the report. Notice that the report now excludes customers in West Coast states and provinces.
11. Save the report.

Customers

Account #	Customer Name	City	Region	Country
AW00027282-I	Barry Perez	Calgary	Alberta	Canada
AW00019839-I	Carly Yuan	Calgary	Alberta	Canada
AW00022251-I	Martha She	Calgary	Alberta	Canada
AW00019826-I	Clarence Zhao	Calgary	Alberta	Canada
AW00024781-I	Carmen Garcia	Calgary	Alberta	Canada
AW00015175-I	Kristi Malhotra	Calgary	Alberta	Canada
AW00016873-I	Damien Deng	Calgary	Alberta	Canada
AW00028766-I	Joe Alonso	Calgary	Alberta	Canada
AW00024757-I	Alisha She	Calgary	Alberta	Canada
AW00021752-I	Rafael Li	Calgary	Alberta	Canada
AW00016921-I	Edwin Jai	Calgary	Alberta	Canada
AW00022154-I	Yolanda Yuan	Chalk Riber	Ontario	Canada
AW00011533-I	Ebony Gill	Birmingham	Alabama	United States
AW00027448-I	Marc Romero	Chandler	Arizona	United States

Exercise 4: Creating Filters

15 to 30 minutes

In this exercise, we will filter the Sales Order report to show all orders placed in 2003 for European customers.

1. Add the **SalesTerritory** table to the report and link it to the **SalesOrderHeader** table.
2. Create a filter on the **OrderDate** field that shows only orders made in 2003.
3. Create a filter that includes only customers from Europe. Hint: Use the Formula Workshop.

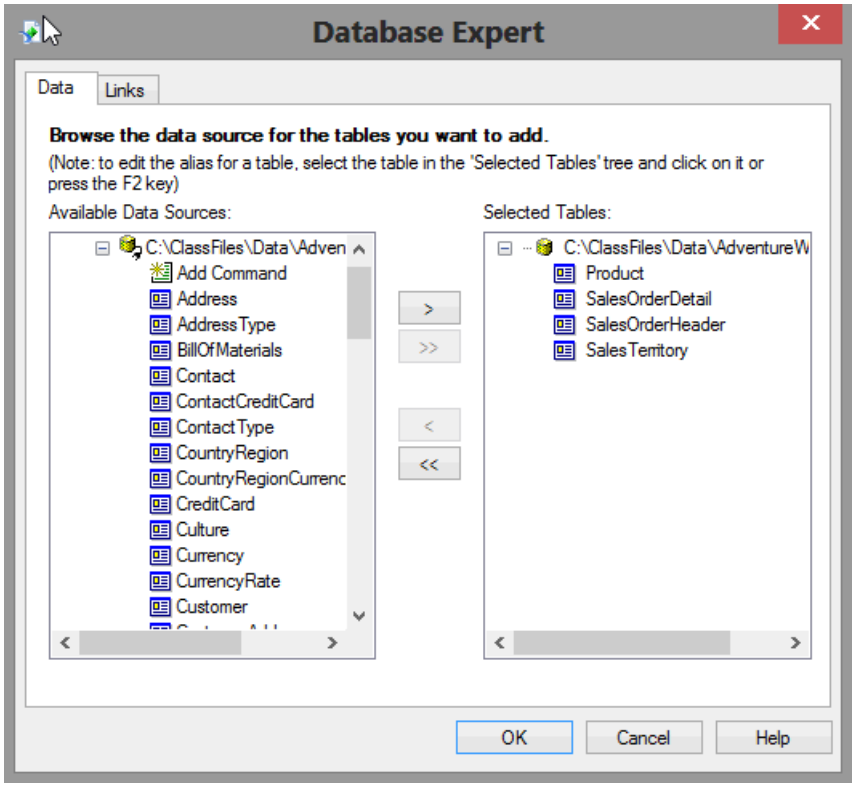
```
{SalesTerritory.Group}="Europe" and
```

4. Preview and save the report.

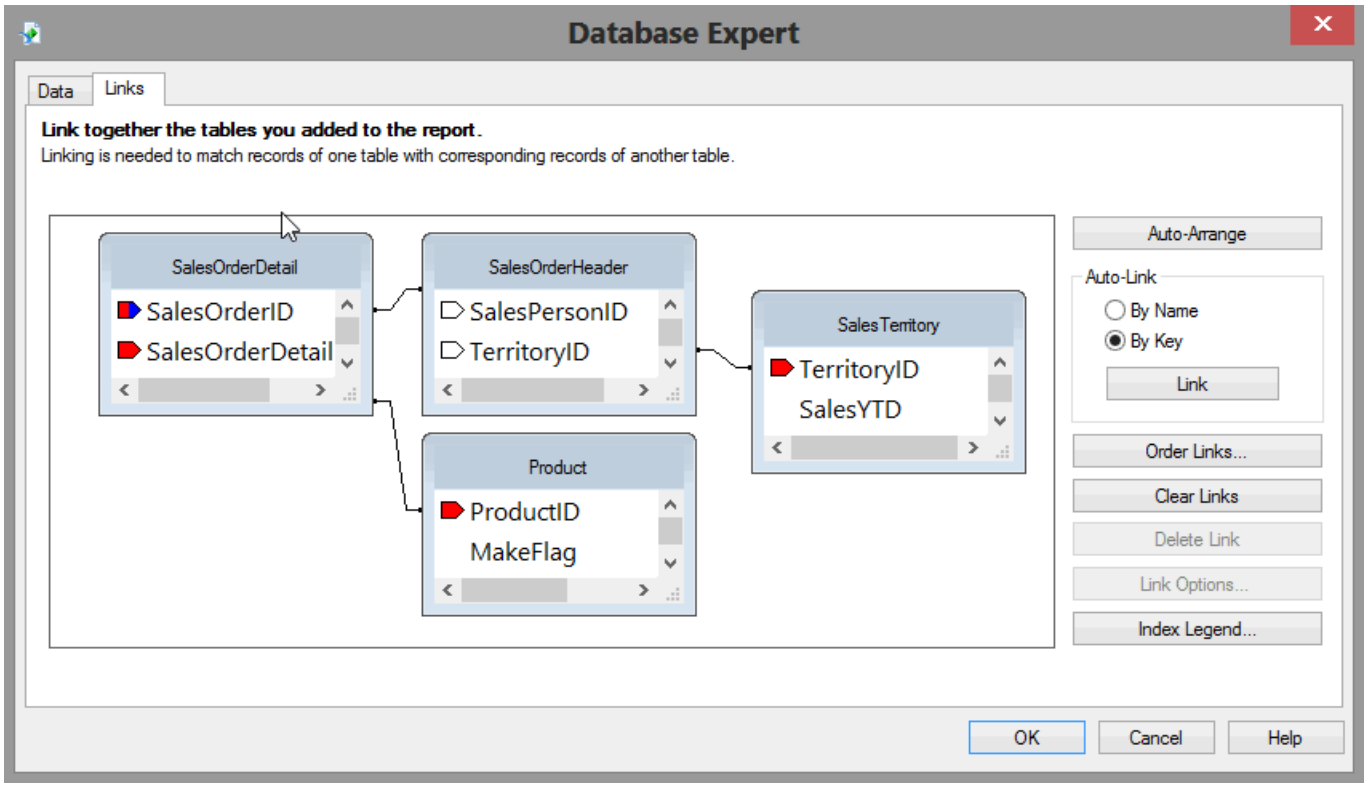
Solution

The following describes one possible solution to the exercise.

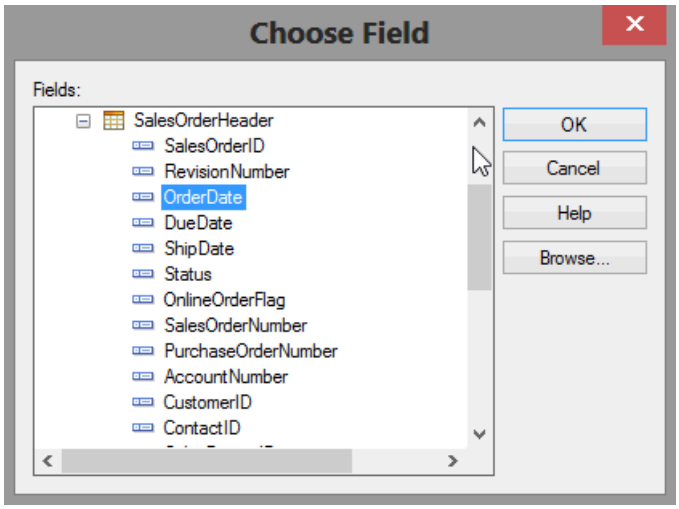
1. Open `C:/ClassFiles/cry2011-filter-report/Exercises/SalesOrder.rpt` and select the **Design** tab.
2. Click the **Database Expert** icon.
3. In the **Available Data Sources** pane, expand to the **C:/ClassFiles/Data/AdventureWorks.mdb** node, double-click **Sales Territory**, and click **OK**.



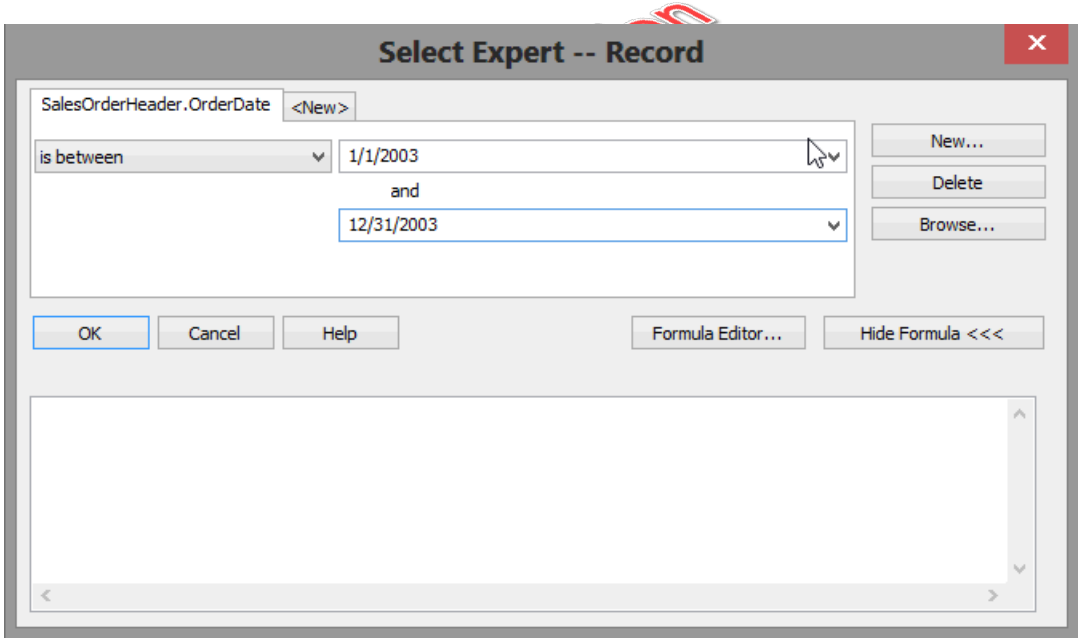
4. Select the **Links** tab, verify that the **SalesOrderHeader** table is linked to the **SalesTerritory** table by the **TerritoryID** field, and then click **OK**.



5. Click **Cancel** to close the **Refresh Report Data** message box.
6. Add the **SalesTerritory.Group** to the detail section.
7. Format to match.
8. Click the **Select Expert** icon.
9. In the **Choose Field** dialog box, scroll down to the **SalesOrderHeader** node, expand it, select **Order Date**, and click **OK**.

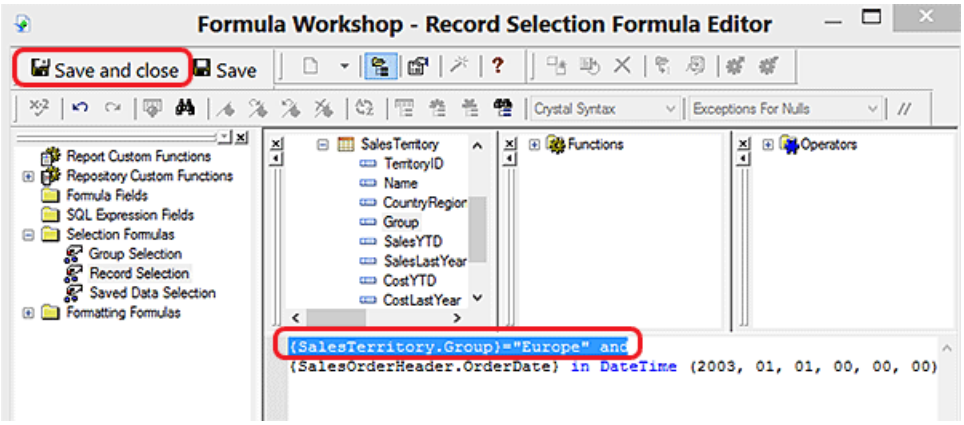


10. In the **Select Expert -- Record** dialog box on the **SalesOrderHeader.OrderDate** tab, select "is between" from the drop-down list. Note that two combo boxes appear to the right of the drop-down list.
11. In the top combo box, type "1/1/2003". Type "12/31/2003" in the second combo box.

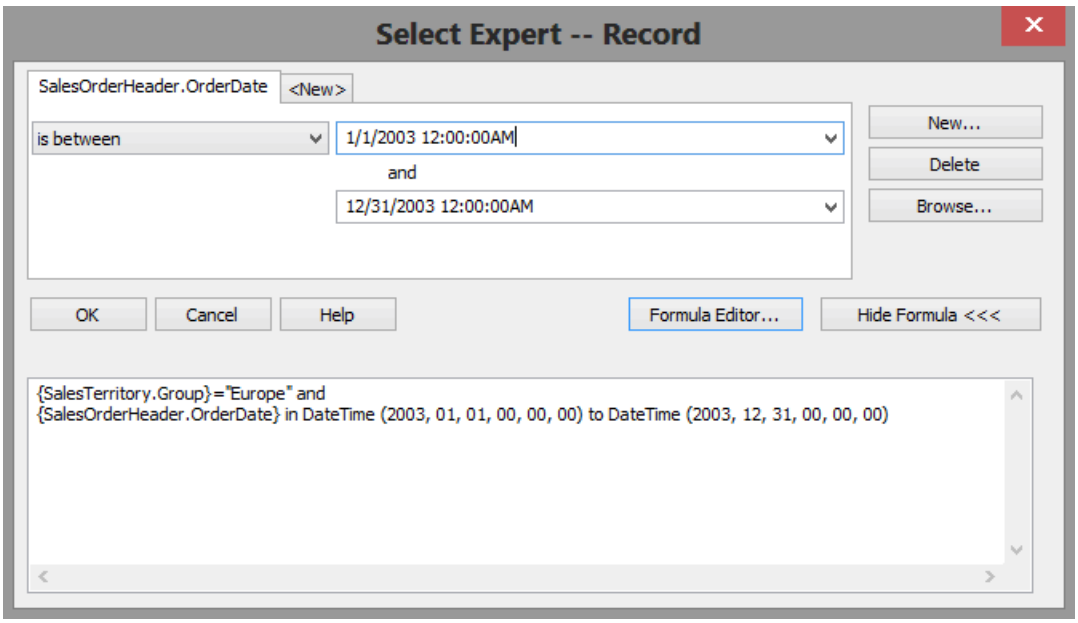


12. Click **Formula Editor...**.
13. In the **Formula Workshop** dialog box, type the following above the existing code.

```
{SalesTerritory.Group}="Europe" and
```



14. click **Save and close**.



15. Preview the report. In the **Change in Record Selection Formula** message box, click **Refresh Data**.

Order Number	Name of Product	Product #	Quantity	Unit Price	Group
SO61144	AWC Logo Cap	CA-1098	1	$8.99	Europe
SO61144	Water Bottle - 30 oz.	WB-H098	1	$4.99	Europe
SO61145	ML Mountain Tire	TI-M602	1	$29.99	Europe
SO61145	Mountain Tire Tube	TT-M928	1	$4.99	Europe
SO61145	All-Purpose Bike Stand	ST-1401	1	$159.00	Europe
SO61157	Touring-3000 Yellow, 44	BK-T18Y-44	1	$742.35	Europe
SO61157	Touring Tire	TI-T723	1	$28.99	Europe
SO61157	Touring Tire Tube	TT-T092	1	$4.99	Europe
SO61169	Road-750 Black, 52	BK-R19B-52	1	$539.99	Europe
SO61169	LL Road Tire	TI-R092	1	$21.49	Europe
SO61169	Road Tire Tube	TT-R982	1	$3.99	Europe
SO61169	Short-Sleeve Classic Jersey, XL	SJ-0194-X	1	$53.99	Europe
SO61170	Road-750 Black, 58	BK-R19B-58	1	$539.99	Europe
SO61170	Road Bottle Cage	BC-R205	1	$8.99	Europe
SO61170	Water Bottle - 30 oz.	WB-H098	1	$4.99	Europe
SO61170	Short-Sleeve Classic Jersey,	SJ-0194-S	1	$53.99	Europe

16. Save the report.

Conclusion

In this lesson, you learned:

- To use the **Select Expert**.
- To build a filter based on a single field.
- To build a filter based on multiple criteria.

LESSON 5
Sorting and Grouping Reports

Topics Covered

☑ The **Sort Expert**.

☑ The **Group Expert**.

☑ Summarizing records within groups.

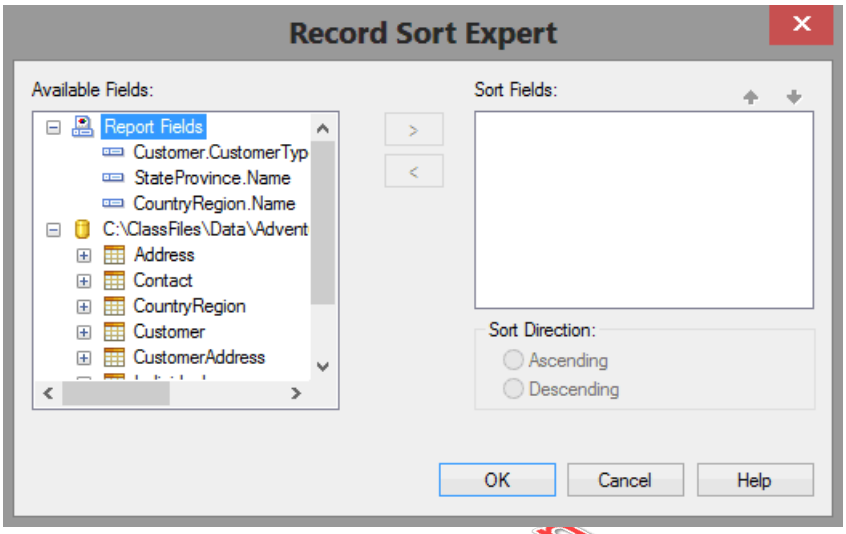
Introduction

Often, the data coming from the data source is not well organized; i.e., it is unsorted. Once data is sorted, we may find data that is repetitious. In these instances, we may want to group the data to reduce duplication.

Crystal Reports provides the tools we need to sort and group the data in our reports. The **Record Sort Expert** is used to create the sort order. The **Group Expert** is used to group the data and creates new sections in which we may organize summary data.

5.1. Using the Sort Expert

To sort data in a report, we first need to determine which field to base the sort on. Once this is decided, we can use the **Record Sort Expert** to proceed:

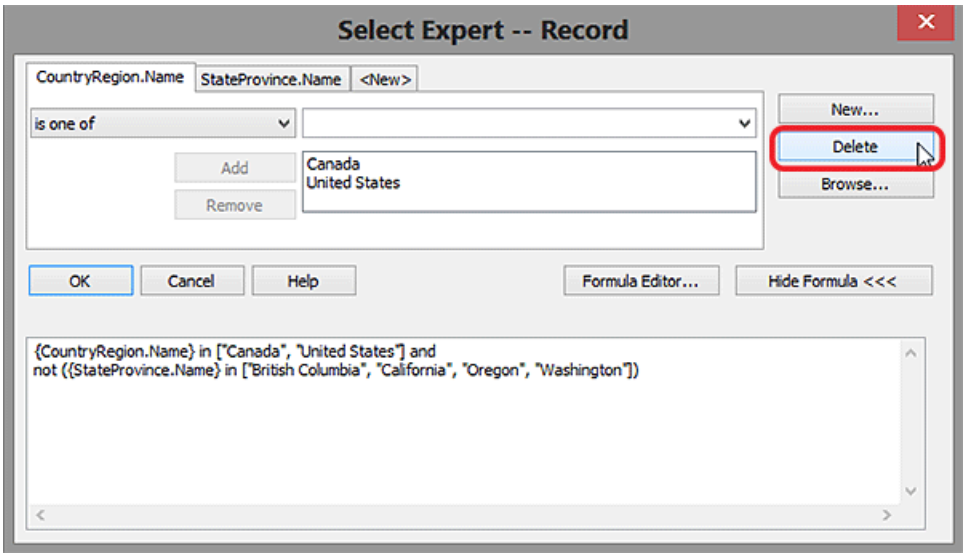


You can choose any number of fields to sort on, including fields that are not used in your report. In addition, once you select a field for sorting, you have the option to sort in either ascending or descending order. We'll see this in the next demo.

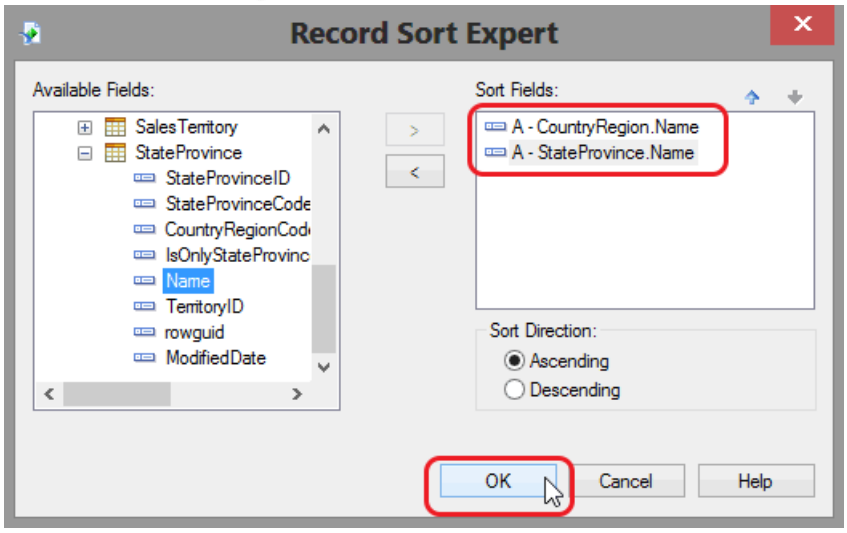
Demo - Sorting Records

Instead of filtering the Customer report by customers from different regions, let's sort it by country and region.

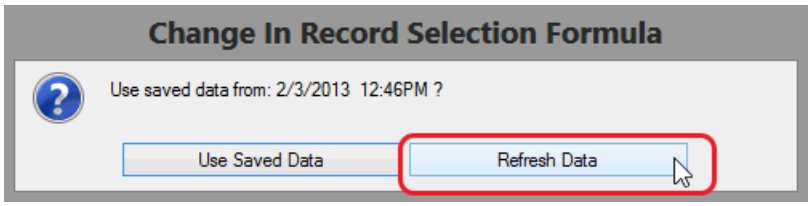
1. Open `C:/ClassFiles/cry2011-sorting-grouping/Demos/Customer.rpt` or use the report that you already created `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. Click the **Select Expert** icon.
3. In the **Select Expert -- Record** dialog box, on the **CountryRegion.Name** tab, click **Delete**. Do the same for the **StateProvince.Name** tab and then click **OK**.



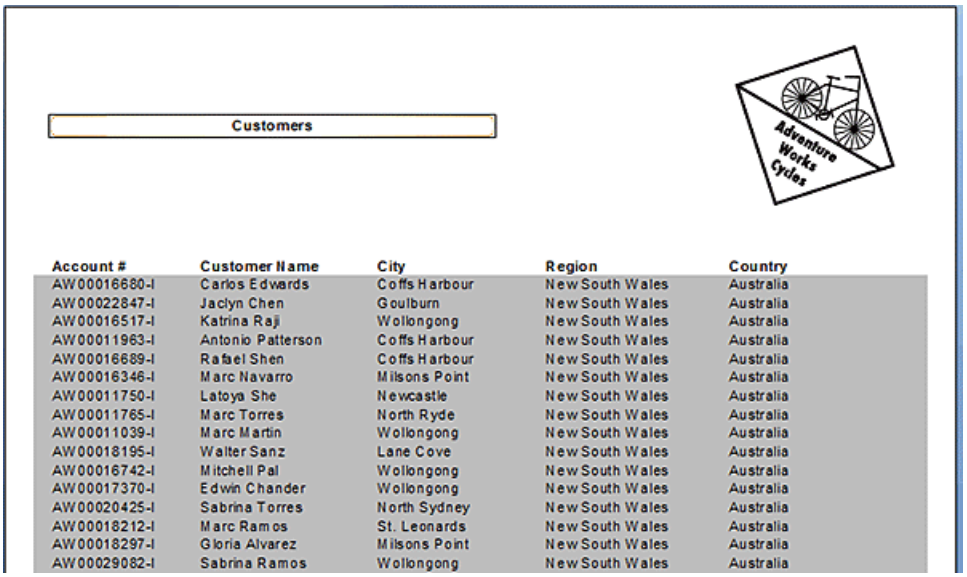
4. On the **Experts** toolbar, click the **Record Sort Expert** icon.
5. In the **Record Sort Expert** dialog box, expand the **CustomerRegion** node and double-click the **Name** field.
6. Next, under the **StateProvince** node, double-click the **Name** field and click **OK**.



7. Preview the report. If the **Change In Record Selection Formula** message box displays, click **Refresh Data**.



8. Your report may look similar to this.



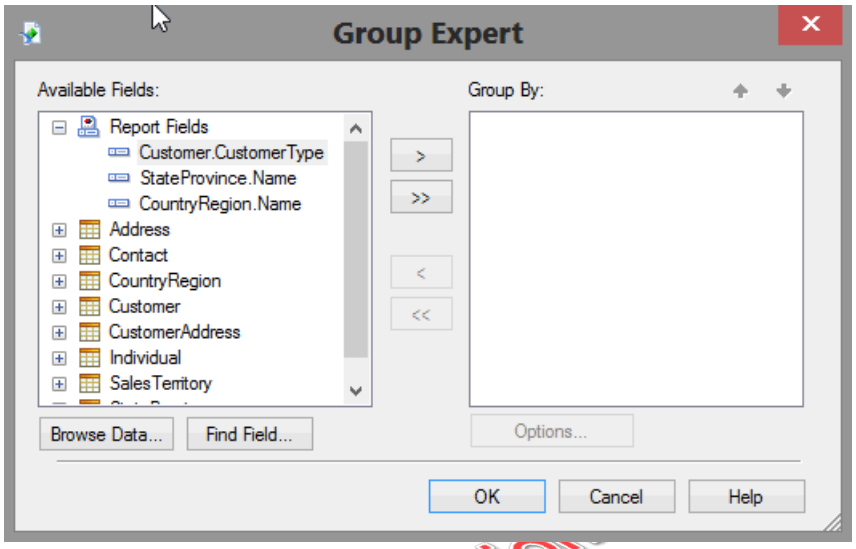
Customers

Account #	Customer Name	City	Region	Country
AW00016680-I	Carlos Edwards	Coffs Harbour	New South Wales	Australia
AW00022847-I	Jaclyn Chen	Goulburn	New South Wales	Australia
AW00016517-I	Katrina Raji	Wollongong	New South Wales	Australia
AW00011963-I	Antonio Patterson	Coffs Harbour	New South Wales	Australia
AW00016689-I	Rafael Shen	Coffs Harbour	New South Wales	Australia
AW00016346-I	Marc Navarro	Milsons Point	New South Wales	Australia
AW00011750-I	Latoya She	Newcastle	New South Wales	Australia
AW00011765-I	Marc Torres	North Ryde	New South Wales	Australia
AW00011039-I	Marc Martin	Wollongong	New South Wales	Australia
AW00018195-I	Walter Sanz	Lane Cove	New South Wales	Australia
AW00016742-I	Mitchell Pal	Wollongong	New South Wales	Australia
AW00017370-I	Edwin Chander	Wollongong	New South Wales	Australia
AW00020425-I	Sabrina Torres	North Sydney	New South Wales	Australia
AW00018212-I	Marc Ramos	St. Leonards	New South Wales	Australia
AW00018297-I	Gloria Alvarez	Milsons Point	New South Wales	Australia
AW00029082-I	Sabrina Ramos	Wollongong	New South Wales	Australia

5.2. Using the Group Expert

When we sort on some fields, we can end up with repeating data. Since these fields are available for sorting, we can go a step further and group the report on these fields to eliminate the duplication of values in the report layout.

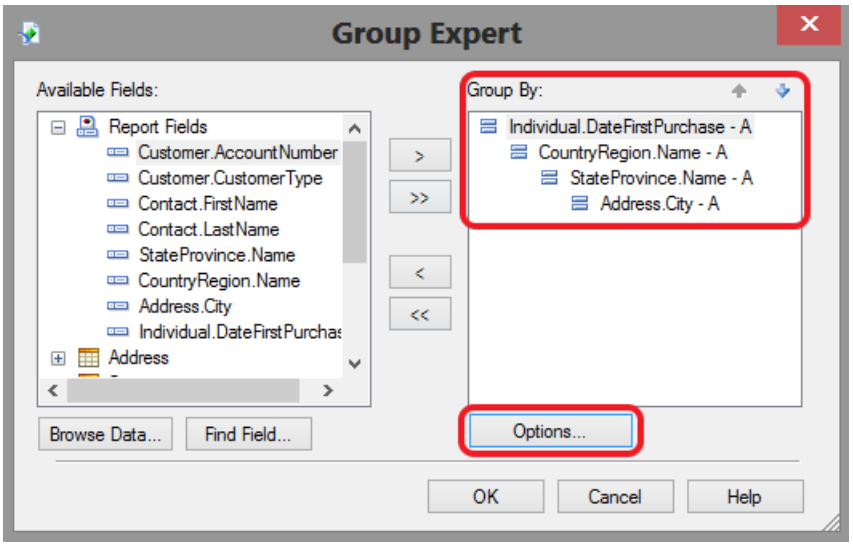
To group data in the report, we will use the **Group Expert**:



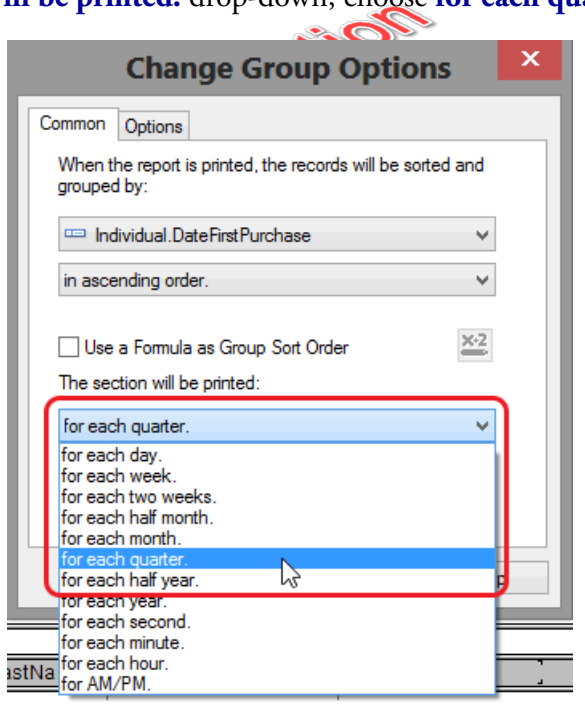
Demo - Grouping Records

We will now group the Customer report by country, region, and city.

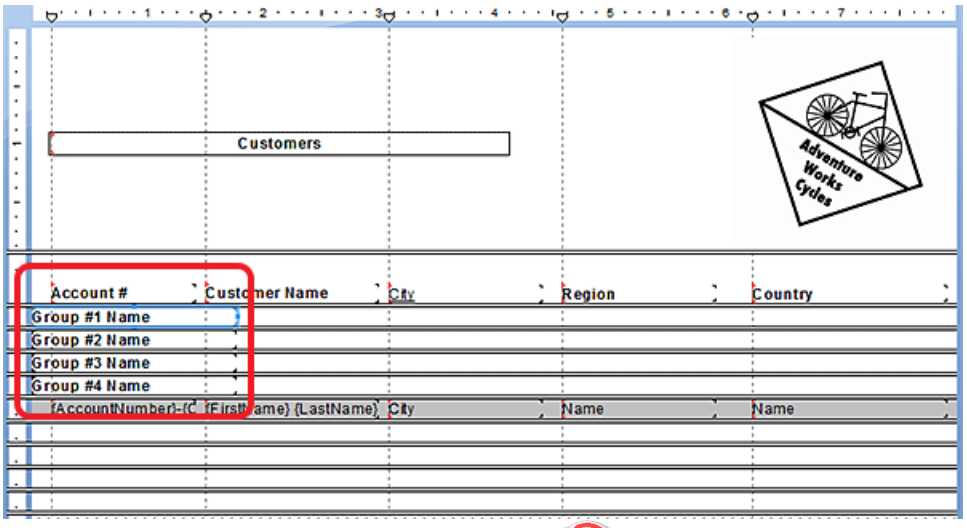
1. Open `C:/ClassFiles/cry2011-sorting-grouping/Demos/Customer_1.rpt` or use the report that you already created `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. On the **Experts** toolbar, click the **Group Expert** icon.
3. In the **Group Expert** dialog box, double-click the following fields in this order:
   A. **Individual.DateFirstPurchased**
   B. **CountryRegion.Name**
   C. **StateProvince.Name**
   D. **Address.City**



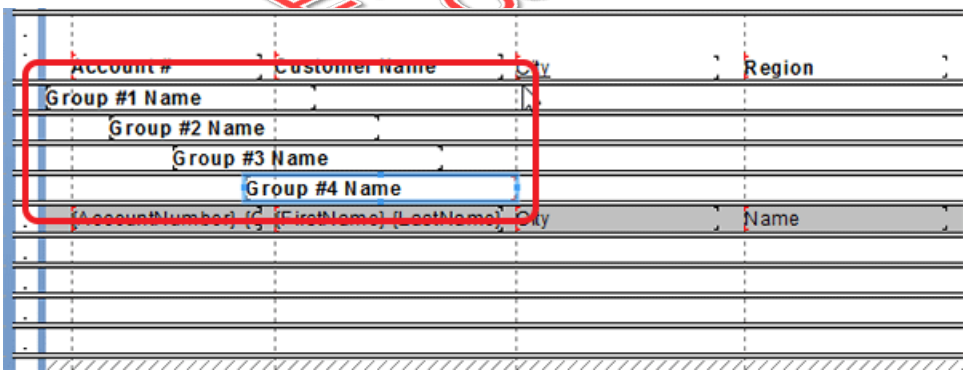
4. Select the **Individual.DateFirstPurchase - A** in the **Group By** area and click **Options**.
5. From **The section will be printed:** drop-down, choose **for each quarter.** Click **OK**.



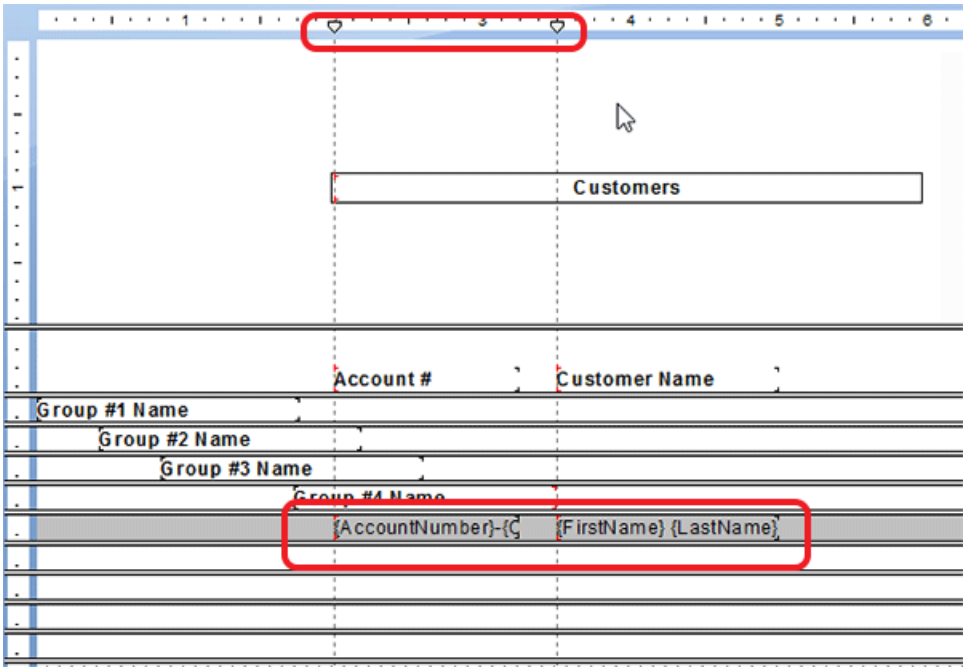
6. Click **OK**. You should see four sets of group headers and footers with a **Group Name** field for each.



7. Leave **Group #1 Name** alone. Stagger the other three **Group Name** fields to the right. The left edge of each should be about a half an inch from the left edge of the field above it.

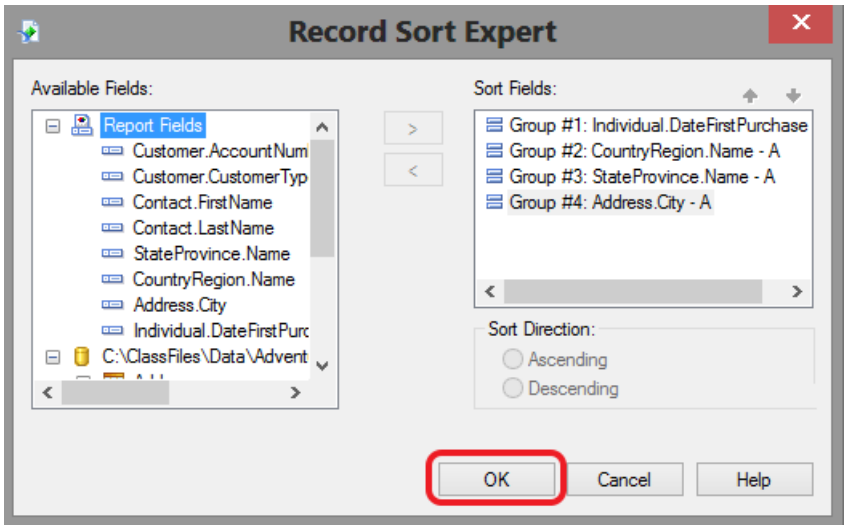


8. Remove the **Address.City**, **StateProvince.Name**, and **CountryRegion.Name** fields from the report including their field titles and guideline markers.
9. Use the guideline markers to move the remaining fields and their field titles to the right.

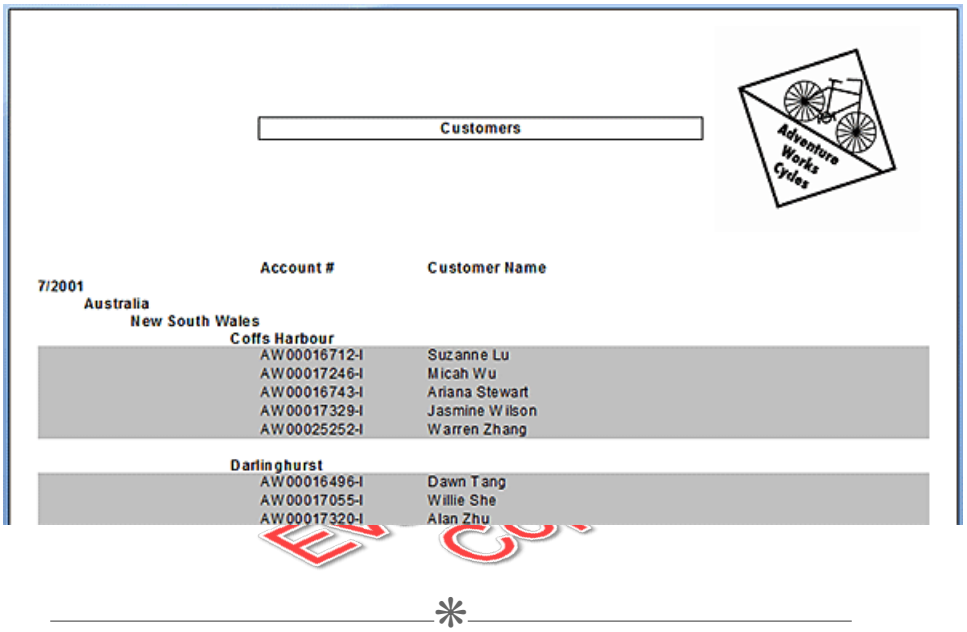


10. Click the **Record Sort Expert** icon.

11. In the **Record Sort Expert** dialog box, in the **Sort Fields** list box, double-click **A - CountryRegion.Name**, and **StateProvince.Name** to remove them. (These fields duplicate two of the grouping fields.) Click **OK**.

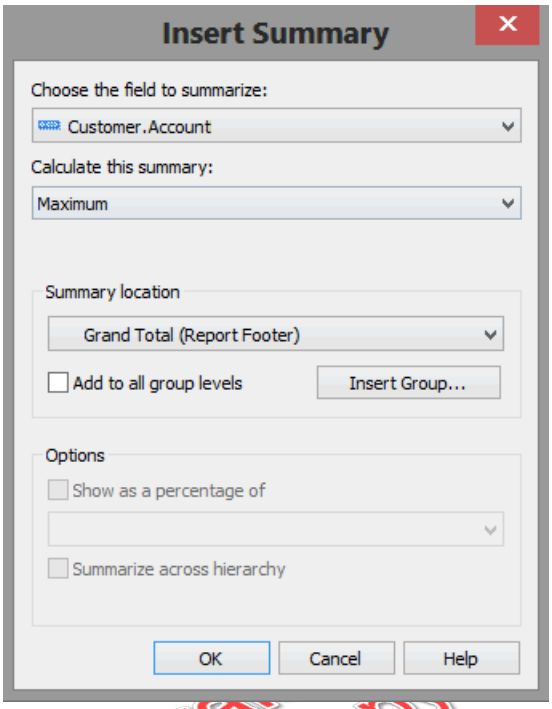


12. Preview the report.



5.3. Summarizing Records within Groups

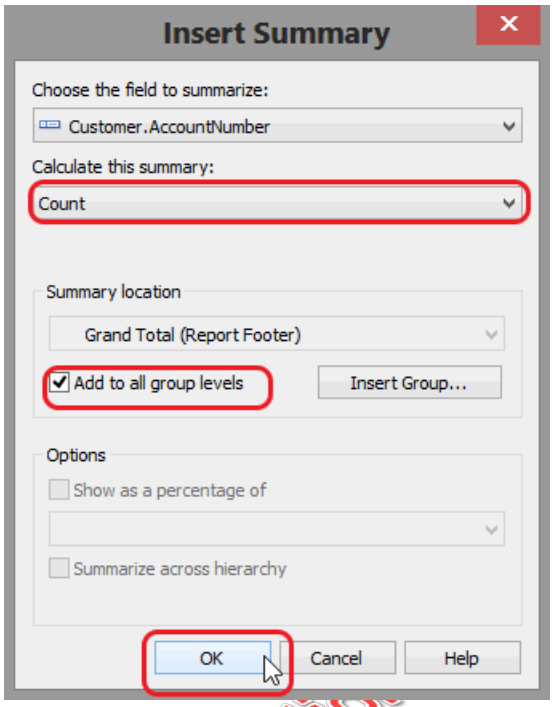
To better organize a report, you may filter, sort, and group the data on a report. Within the grouped data, you may go a step further and summarize the data at the group level. For example, instead of manually counting the number of customers per country or per city, we can let Crystal Reports do the work for us. To do this, we'll use the Σ **Insert Summary** dialog box:



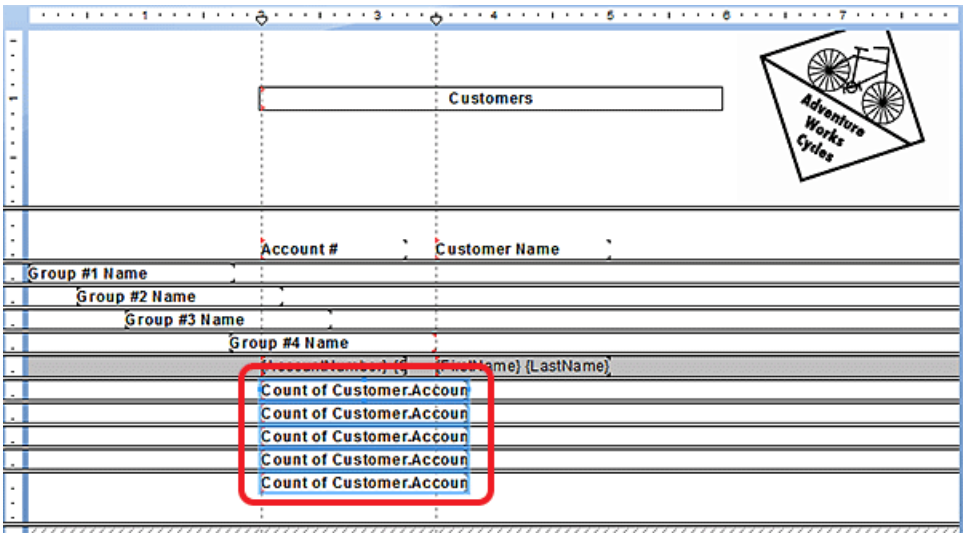
Demo - Adding Group Summary Counts

We will count the number of customers in each country on the Customer report and show those counts on the report.

1. Open `C:/ClassFiles/cry2011-sorting-grouping/Demos/Customer_2.rpt` or use the report that you already created `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. On the **Insert** toolbar, click the Σ **Insert Summary** icon.
3. In the **Insert Summary** dialog box, verify that the **Customer.AccountNumber** field is selected in the **Choose the field to summarize** drop-down list.
4. From the **Calculate this summary** drop-down list, select **Count**.
5. In the **Summary location** section, check the **Add to all group levels** check box and then click **OK**.



6. The summary fields are added to the **Group Footer** section. Move them so that they are under the **AccountNumber** field.



7. Preview the report. Review the last page of the report.
8. Save the report.

Spokane	
AW00014247-I	Hunter Allen
1	
Tacoma	
AW00023273-I	Benjamin Long
AW00016918-I	Alexandria Cox
AW00014402-I	Hailey Parker
AW00024672-I	Jeremy Cook
AW00013469-I	Bryce Bailey
5	
Walla Walla	
AW00018846-I	Deb Hughes
AW00026783-I	Juan Torres
AW00021935-I	Victoria Simmons
AW00025877-I	Alyssa Price
4	
Yakima	
AW00022057-I	Kyle Ross
AW00027057-I	Brooke Morris
AW00016076-I	Catherine Rogers
AW00026597-I	Madison Lewis
4	
89	
293	
567	
18,508	

Exercise 5: Sorting and Grouping

15 to 30 minutes

In the Sales Order report, group the data by sales order and sort by the product number within each order.

1. Remove all filters.
2. Group on the **SalesOrderNumber** field.
3. Sort on the **ProductNumber** field.
4. Count the number of line items per order.
5. Save the report and preview it.

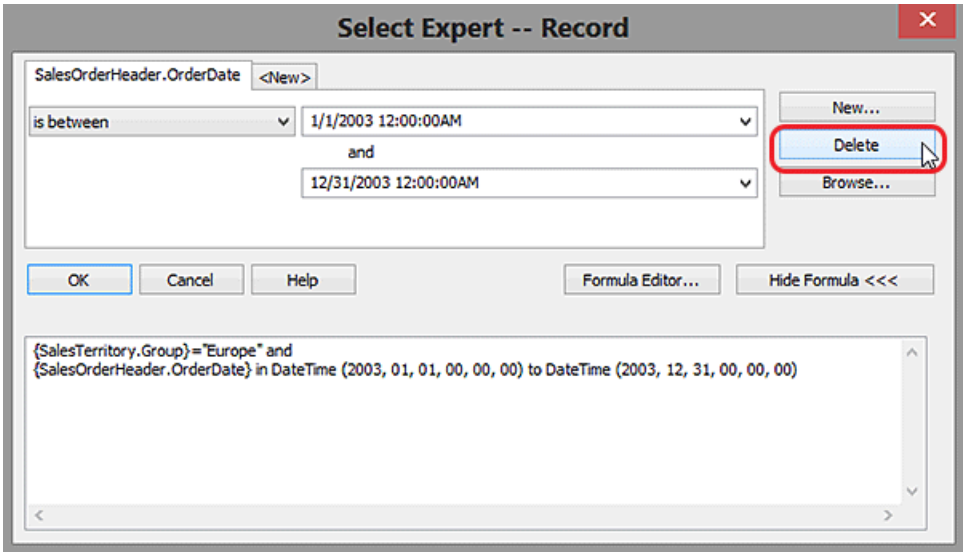
Solution

The following describes one possible solution to the exercise.

1. Open `C:/ClassFiles/cry2011-sorting-grouping/Exercises/SalesOrder.rpt` or use the report that you already created `C:/ClassFiles/StudentReports/salesOrder.rpt`. Select the **Design** tab.

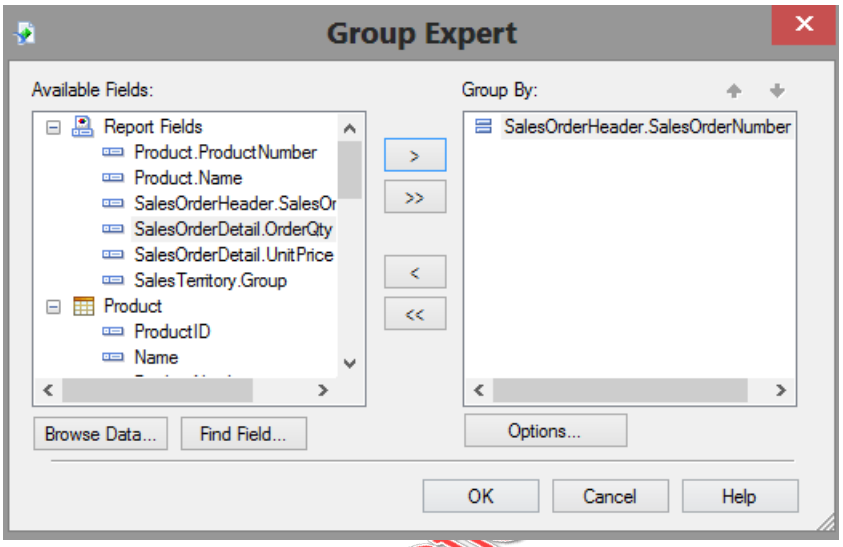
2. Click the **Select Expert** icon.

3. In the **Select Expert -- Record** dialog box, on the **SalesTerritory.Group** tab, click **Delete**. Do the same for the **SalesOrderHeader.OrderDate** tab and then click **OK**.

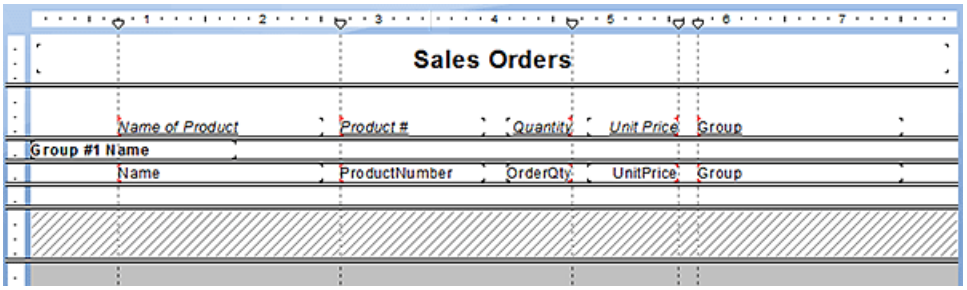


4. Click the **Group Expert** icon.

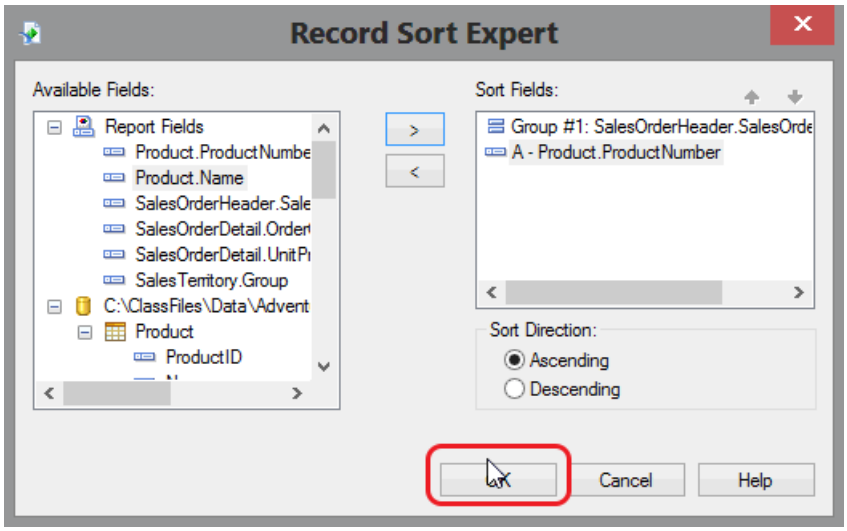
5. In the **Group Expert** dialog box, under the report fields, double-click the **SalesOrderHeader.SalesOrderNumber** field and then click **OK**.



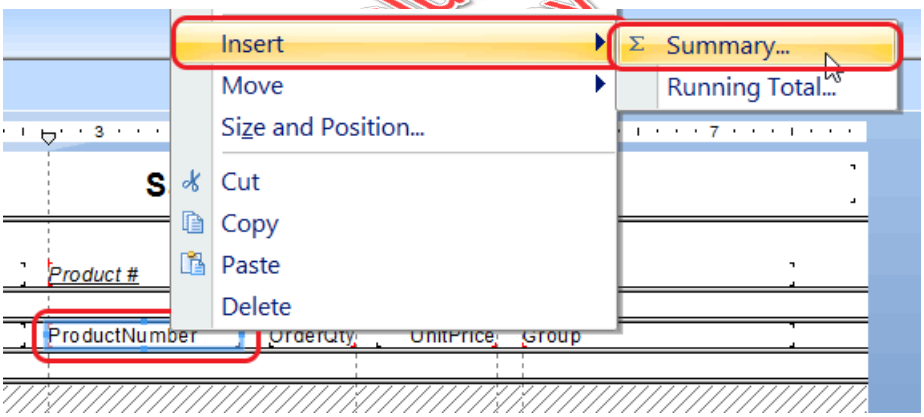
6. Delete the **SalesOrderNumber** field from the report including its field title and guideline marker. Adjust the remaining fields as necessary.



7. Click the **Record Sort Expert** icon.
8. In the **Record Sort Expert** dialog box, double-click the **Product.ProductNumber** field and then click **OK**.

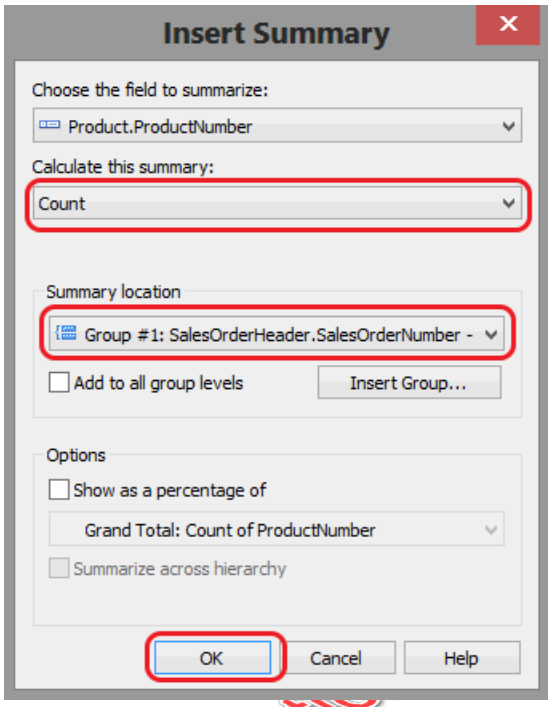


9. On the report, right-click the **ProductNumber** field and select **Insert > Summary**.

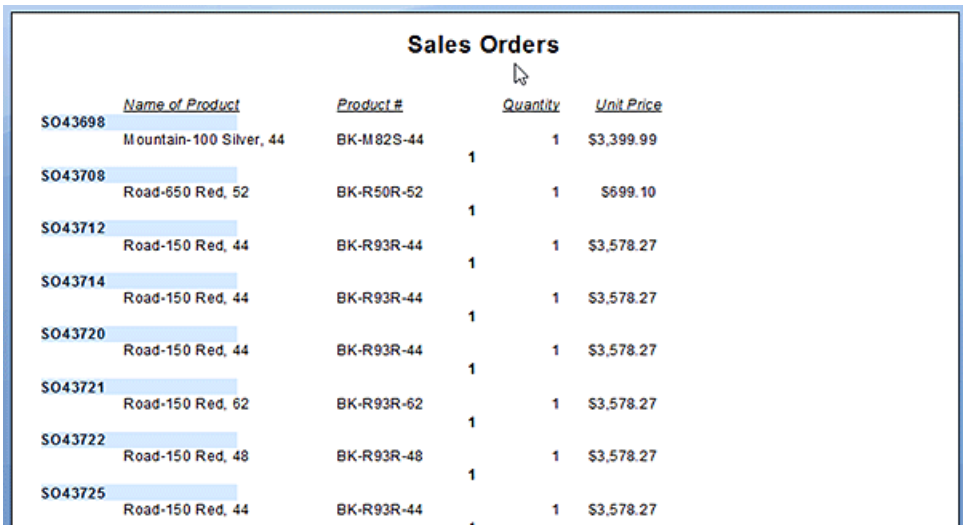


10. In the **Insert Summary** dialog box, from the **Calculate this summary** drop-down list, select **Count**.

11. From the **Summary location** drop-down list, select **Group #1: SalesOrderHeader.SalesOrderNumber - A** and then click **OK**.



12. Preview the report. If the **Change in Record Selection Formula** message box opens, click **Refresh Data**.



Sales Orders

	Name of Product	Product #	Quantity	Unit Price
SO43698	Mountain-100 Silver, 44	BK-M82S-44	1	$3,399.99
		1		
SO43708	Road-650 Red, 52	BK-R50R-52	1	$699.10
		1		
SO43712	Road-150 Red, 44	BK-R93R-44	1	$3,578.27
		1		
SO43714	Road-150 Red, 44	BK-R93R-44	1	$3,578.27
		1		
SO43720	Road-150 Red, 44	BK-R93R-44	1	$3,578.27
		1		
SO43721	Road-150 Red, 62	BK-R93R-62	1	$3,578.27
		1		
SO43722	Road-150 Red, 48	BK-R93R-48	1	$3,578.27
		1		
SO43725	Road-150 Red, 44	BK-R93R-44	1	$3,578.27

Note this is an inner page to show more detail.

Conclusion

In this lesson, you learned:

- To use the **Sort Expert**.
- To use the **Group Expert**.
- How to summarize records within groups.

LESSON 6
Using Basic Formulas

Topics Covered

☑ Formulas for various data types.

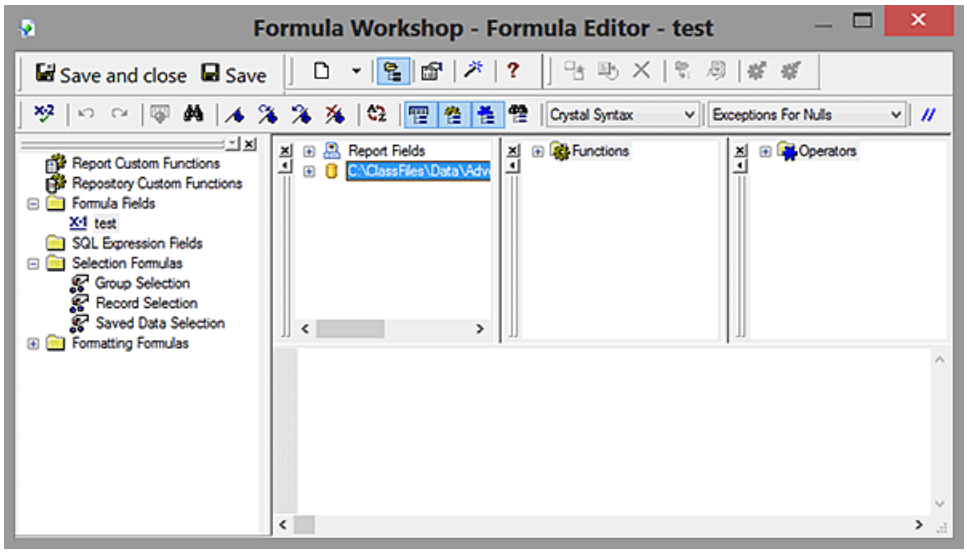
☑ Running totals.

☑ Conditional formulas.

Introduction

While the ability to add fields to text objects is useful, its application is limited. The ability to create formulas in Crystal Reports is much more robust. You can use formulas to combine (concatenate) first and last names and fields of different data types and apply special formatting. Data based on the report itself may also be presented using formulas..

To create a formula, use the **Formula Workshop**:



The **Formula Workshop** is used for all types of formulas. You can access it by selecting **Report > Formula Workshop** from the menu or by clicking the **Formula Workshop** icon in the **Experts** toolbar.

6.1. String Formulas

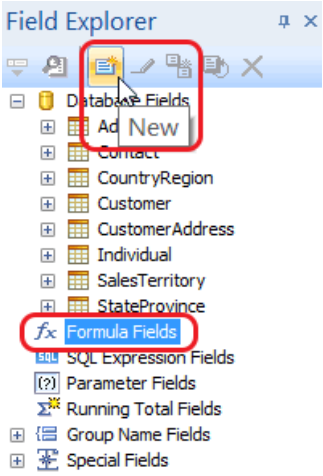
Often fields in a database are closely related to one another. For example, address fields. A database may have separate fields for the street name, the city, the state/region, etc. From the perspective of the database, it may be preferable to split these entries in order to maintain efficiency. However, from the reporting perspective, this does not always present well in the layout.

To resolve this difference, Crystal Reports provides the means to combine fields together using string formulas. The next demo explores how to use string formulas.

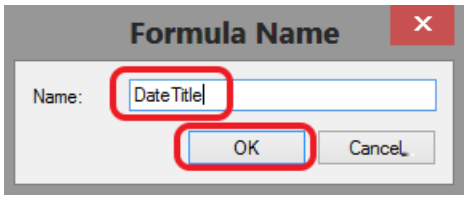
Demo - Adding String Formulas

We will improve the group headers in the Customer report.

1. Open `C:/ClassFiles/cry2011-formulas/Demos/Customer.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. To create a formula for showing the Date explanation:
   A. In the **Field Explorer**, select the **Formula Fields** node and click the **New** icon in the **Field Explorer** toolbar.



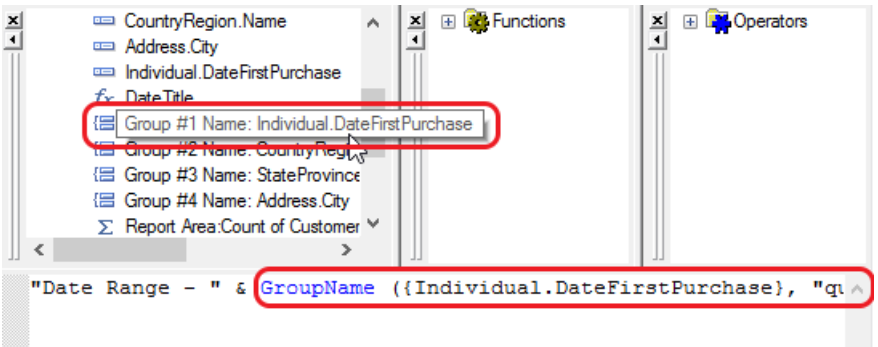
B. In the **Formula Name** dialog box, type “DateTitle” and click **OK**.



C. In the **Formula Workshop - Formula Editor - DateTitle** dialog box, in the formula text pane, type “Date Range - ” (include the quotes) followed by an ampersand (&).

```
"Date Range - " &
```

D. In the **Report Fields** pane, expand the **Report Fields** node and double-click the **Individual.DateFirstPurchase** field.



E. The text in the **Formula Editor** should look like this:

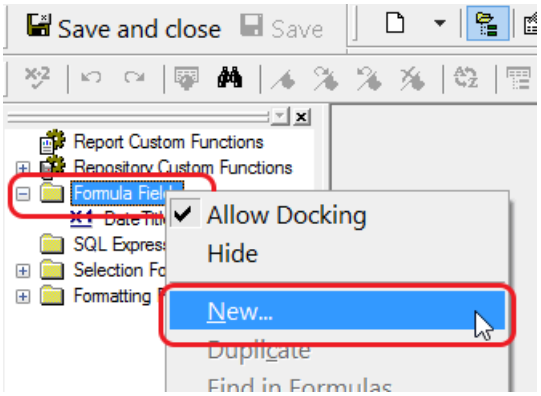
```
"Date Range - " & GroupName ({Individual.DateFirstPurchase}, "quarterly")
```

F. Click the **Check** icon in the toolbar. Crystal Reports should report no errors. Click **OK**.

G. Click **Save and close**.

3. To create a formula for the country description:

A. In the **Field Explorer**, right-click the **Formula Fields** node and select **New** from the menu.



B. In the **Formula Name** dialog box, type "CountryDescription" and click **OK**.

C. In the formula text pane, type "Country - " (include the quotes) followed by an ampersand (&).

D. In the **Report Fields** pane, double-click the **CountryRegion.Name** field. The text in the **Formula Editor** should look like this:

```
"Country - " & {CountryRegion.Name}
```

E. Click the **Check** icon to verify the formula. Crystal Reports should report no errors. Click **OK**.

F. Click **Save**.

4. To create a formula for the region description:

   A. In the **Formula Workshop** tree, right-click **Formula Fields** and select **New**.

   B. In the **Formula Name** dialog box, type "RegionDescription" and click **OK**.

   C. In the formula text pane, type "Region - " (include the quotes) followed by an ampersand (&).

   D. In the **Report Fields** pane, double-click the **StateProvince.Name** field. The text in the **Formula Editor** should look like this:

```
"Region -  " & {StateProvince.Name}
```

   E. Click the **Check** icon. No errors should be reported. Click **OK**.

   F. Click **Save**.

5. To create a formula for the city description:

   A. In the **Formula Workshop** tree, right-click **Formula Fields** and select **New**.

   B. In the **Formula Name** dialog box, type "CityDescription" and click **OK**.

C. In the formula text pane, type “City - ” (include the quotes) followed by an ampersand (&).

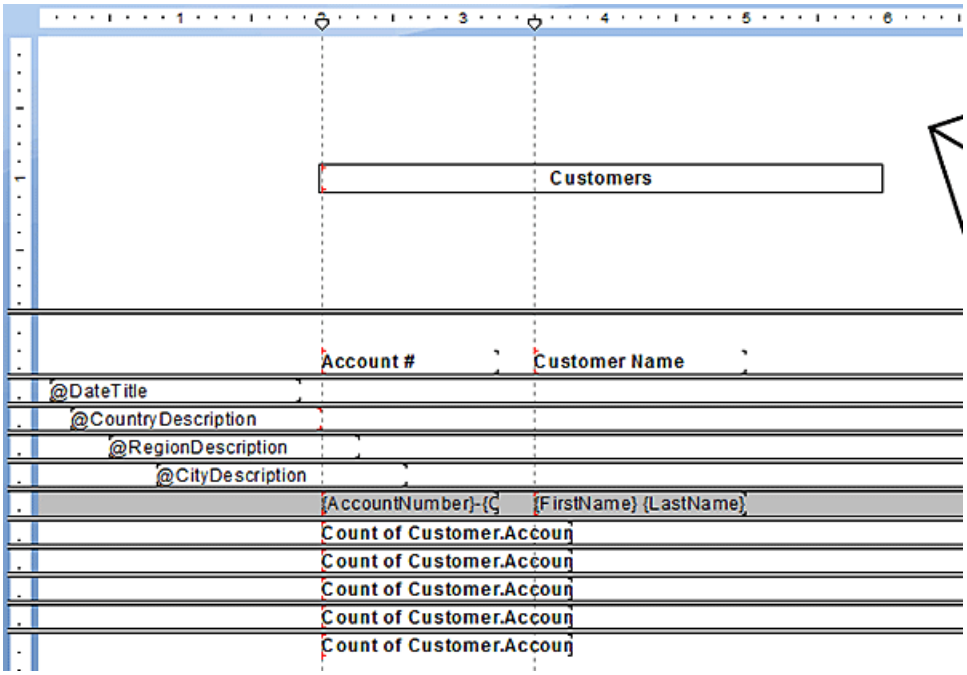
D. In the **Report Fields** pane, double-click the **Address.City** field. The text in the **Formula Editor** should look like this:

```
"City - " & {Address.City}
```

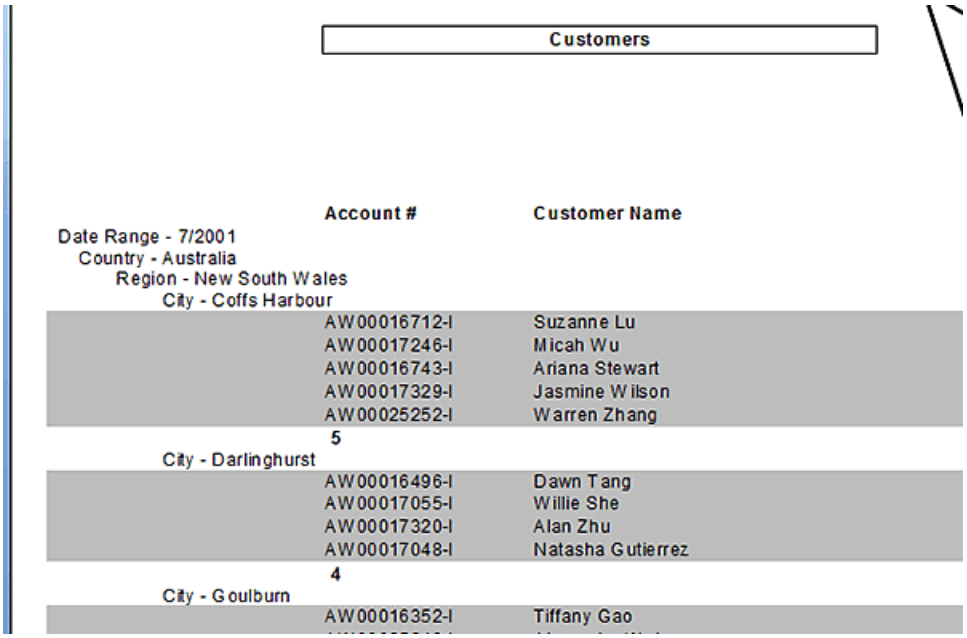
E. Click the **Check** icon. No errors should be reported. Click **OK**.

F. Click **Save**.

6. In the report, replace the Group Name fields in the **Group Header** with their corresponding formula fields. To do so, delete the Group Name field and then, in the **Field Explorer**, expand the **Formula Fields** node, and click and drag the corresponding field onto the report.



7. Preview the report. Adjust the various fields and objects so that they are completely visible.



Customers

	Account #	Customer Name
Date Range - 7/2001		
Country - Australia		
Region - New South Wales		
City - Coffs Harbour		
	AW00016712-I	Suzanne Lu
	AW00017246-I	Micah Wu
	AW00016743-I	Ariana Stewart
	AW00017329-I	Jasmine Wilson
	AW00025252-I	Warren Zhang
	5	
City - Darlinghurst		
	AW00016496-I	Dawn Tang
	AW00017055-I	Willie She
	AW00017320-I	Alan Zhu
	AW00017048-I	Natasha Gutierrez
	4	
City - Goulburn		
	AW00016352-I	Tiffany Gao

8. Save the report.

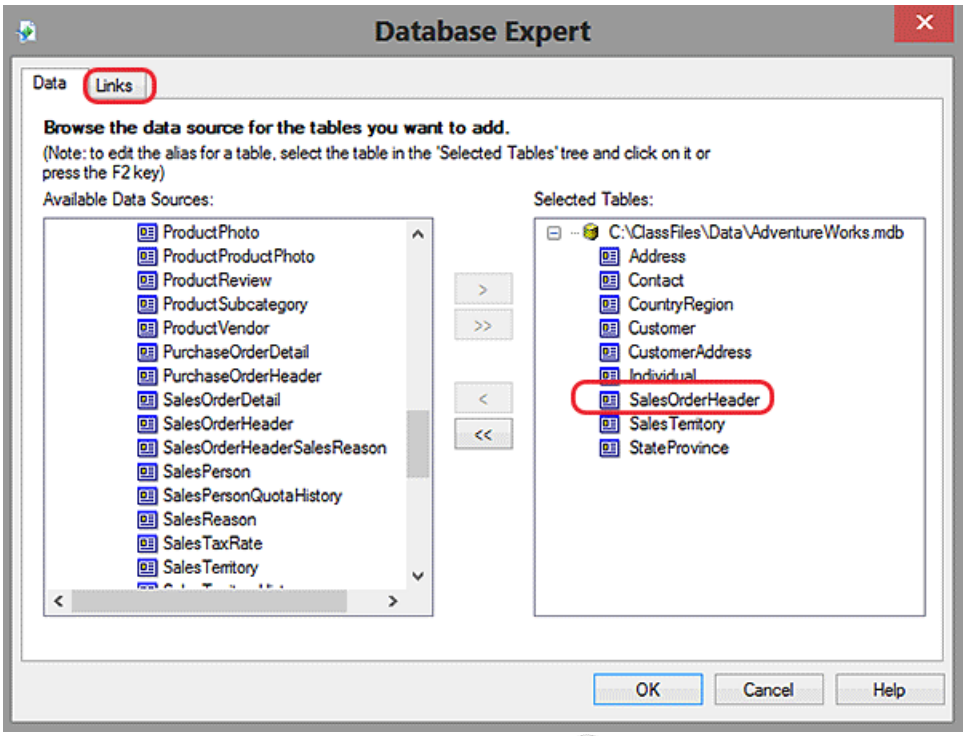
6.2. Numeric Formulas

Database tables usually do not contain fields calculated from other fields. Crystal Reports lets us perform these calculations using fields that are available in the report.

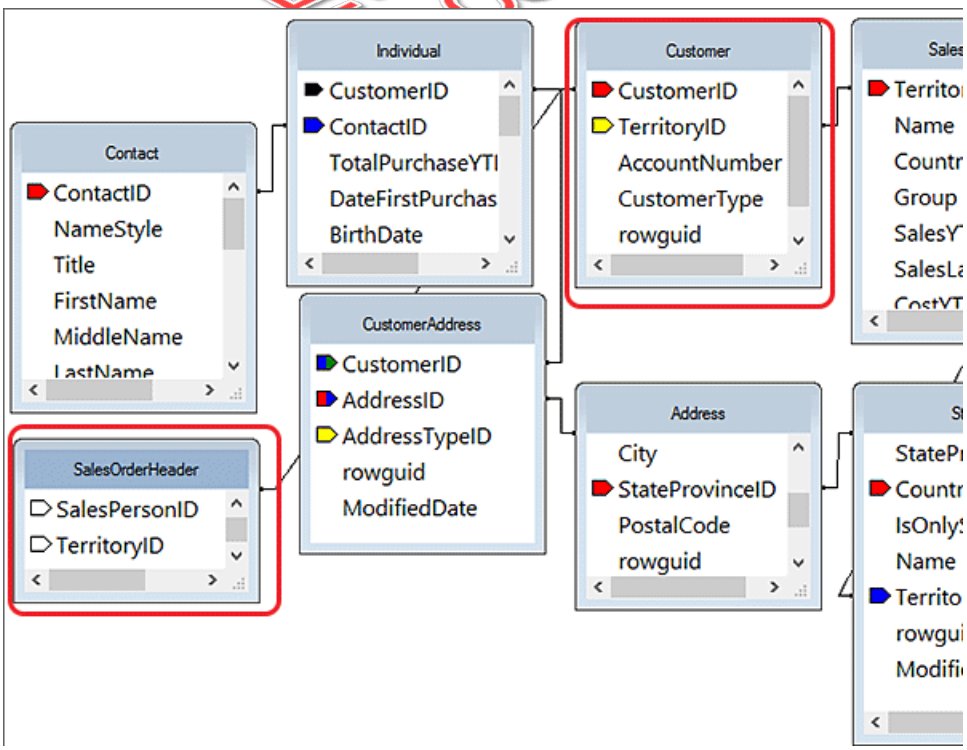
Demo - Using a Numeric Formula

Let's modify the Customer report to look at what customers spent on their purchases.

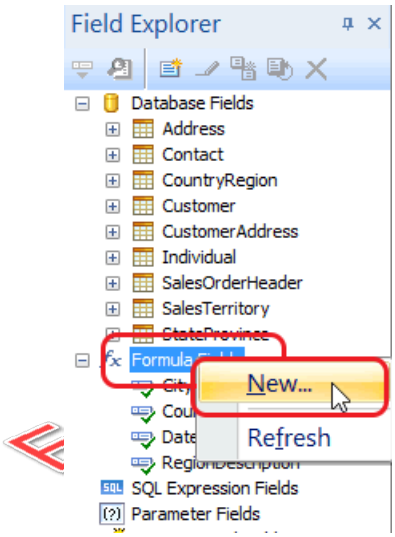
1. Open `C:/ClassFiles/cry2011-formulas/Demos/Customer_1.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. Click the **Database Expert** icon.
3. In the **Available Data Sources** pane, go to the **C:/ClassFiles/Data/AdventureWorks.mdb** node and double-click **SalesOrderHeader** to add it to the **Selected Tables** pane.



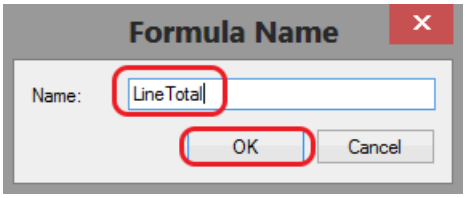
4. Select the **Links** tab and remove all links from the **SalesOrderHeader** table by right-clicking the links and selecting **Delete Link**.



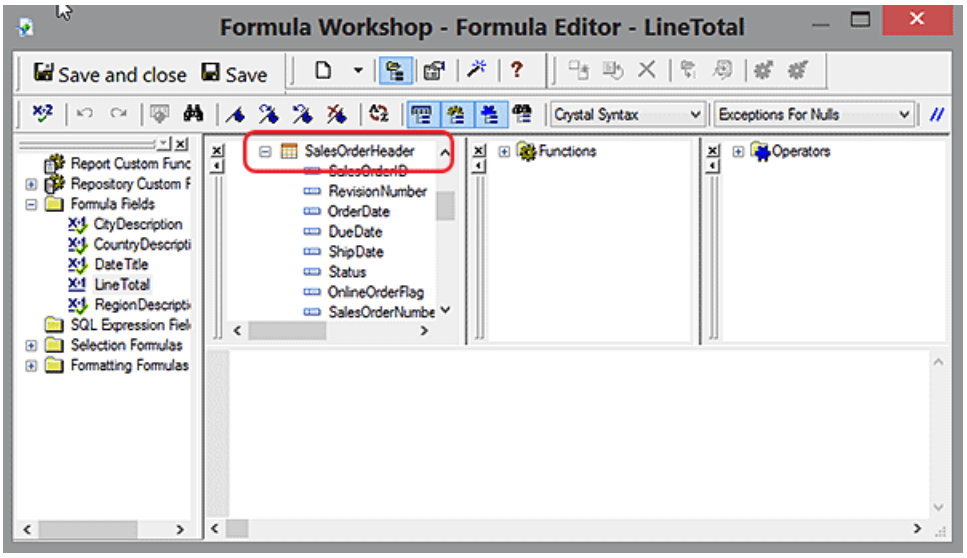
5. Create a link between the **Customer** and **SalesOrderHeader** tables using the **CustomerID** field.
6. Click **OK**. In the **Refresh Report Data** message box, click **OK**.
7. In the **Field Explorer**, right-click the **Formula Fields** node and select **New**.



8. In the **Formula Name** dialog box, type "LineTotal" and click **OK**.



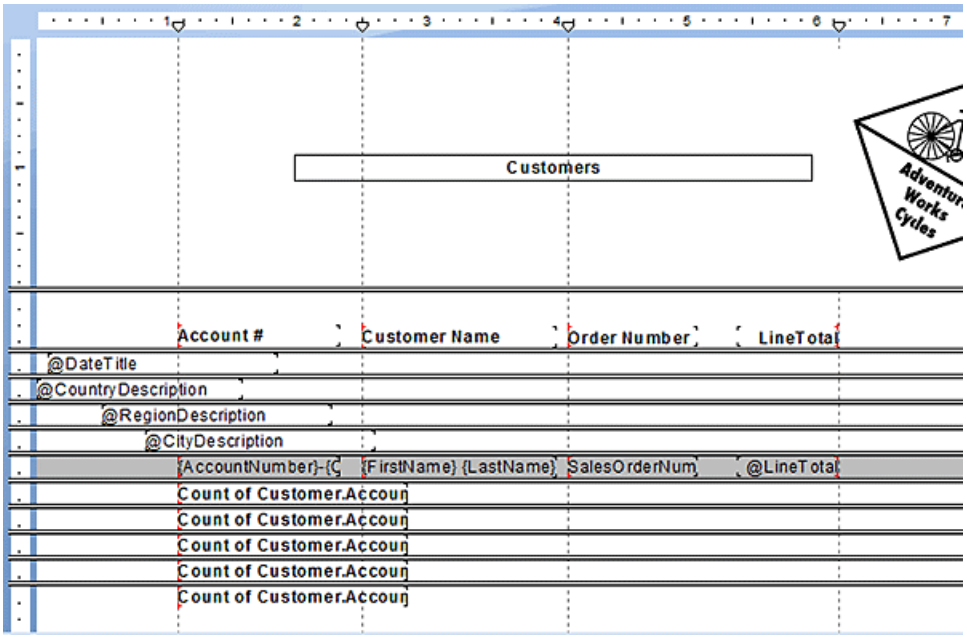
9. In the **Formula Workshop - Formula Editor - LineTotal** dialog box, expand the **C:/ClassFiles/Data/AdventureWorks.mdb** node in the **Report Fields** pane. Locate the **SalesOrderHeader** table node and expand it.



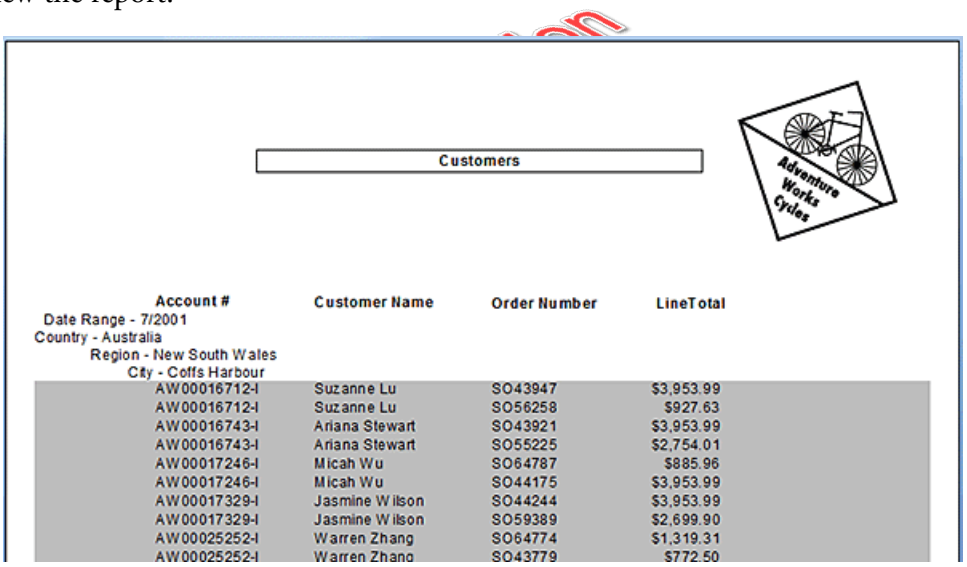
10. Double-click the **SubTotal**, **TaxAmt**, and **Freight** fields.
11. In the formula text pane, type plus signs between the fields. The formula should look like this:

```
{SalesOrderHeader.SubTotal} + {SalesOrderHeader.TaxAmt} + {SalesOrderHead ↵
er.Freight}
```


12. Click the **Check** icon. No errors should be reported. Click **OK**.
13. Click **Save and close**.
14. In the **Field Explorer**, expand the **Database Fields > SalesOrderHeader** node, then click and drag the **SalesOrderNumber** field to the **Details** section of the report.
15. From the **Formula Fields** node, click and drag the **Line Total** formula field to the **Details** section.
16. Change the **SalesOrderNumber** field title to "Order Number".
17. Right-click the **Account Number** field title and select **Format Painter**. Move the cursor to the **SalesOrderNumber** field title and click. Repeat for the **Line Total** field title.
18. Select all field titles, then right-click in the **AccountNumber** field title and select **Align > Middles**.
19. Adjust the fields so that all are contained inside the body of the report.



20. Preview the report.



6.3. Date/Time Formulas

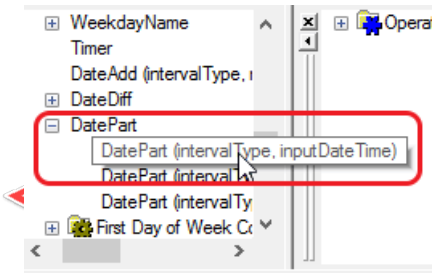
When working with dates and times in a report, it is not always the actual date or time we want. Instead, we may want to know the number of days between events, whether a deadline was met, or in which

month someone became a customer. Crystal Reports provides many Date/Time functions to assist you.

Demo - Adding a Date-based Formula

We will modify the Customer report to display the anniversary month for each customer.

1. Open `C:/ClassFiles/cry2011-formulas/Demos/Customer_2.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. In the **Field Explorer**, select the **Formula Fields** node and click the **New** icon in the **Field Explorer** toolbar.
3. In the **Formula Name** dialog box, type "AnniversaryMonth" and click **OK**.
4. In the **Formula Workshop - Formula Editor - AnniversaryMonth** dialog box, go to the **Functions** pane and expand the **Functions > Date and Time > DatePart** node.

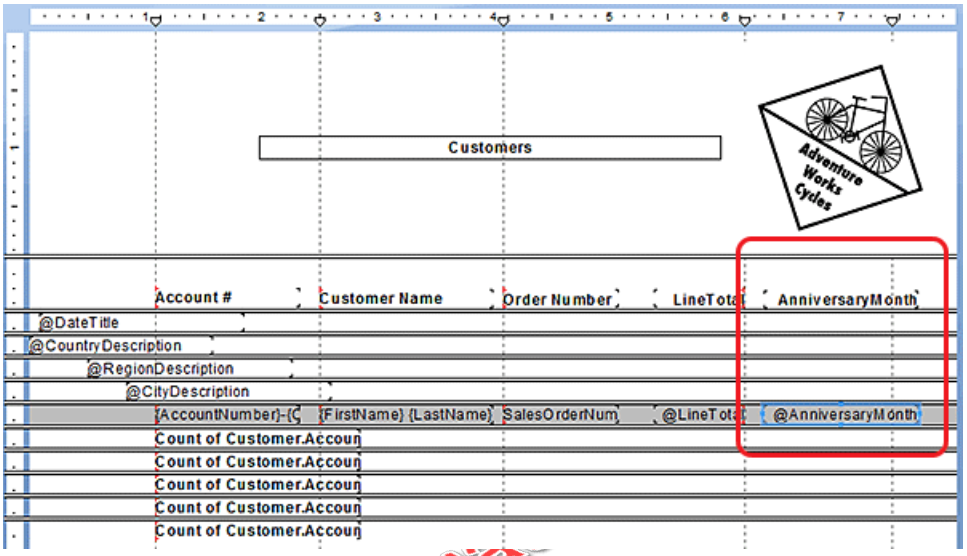


5. Double-click **DatePart (intervalType, inputDateTime)**.
6. In the formula text pane, verify that the cursor is in front of the comma, then type **"m"** (include the quotes) and move the cursor so that it is after the comma.
7. In the **Report Fields** pane, expand the **C:/ClassFiles/Data/AdventureWorks.mdb>Individual** node.
8. Double-click the **DateFirstPurchase** field.
9. Enclose the current expression in the MonthName function. The formula should look like this:

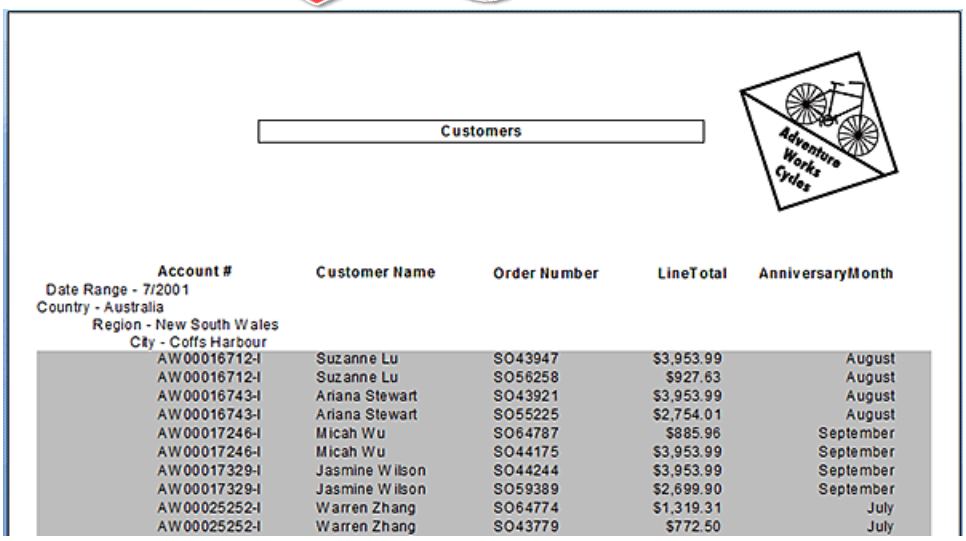
```
MonthName(DatePart ("m",{Individual.DateFirstPurchase}))
```

10. Click the **Check** icon. No errors should be reported. Click **Save and close**.
11. In the **Field Explorer**, click and drag the **Anniversary Month** formula field to the **Details** section next to the **Line Total** formula field.

12. Select the field title and then click the **Bold** and **Underline** icons.
13. Adjust the width of the **Anniversary Month** formula field so that it and its field title are completely contained inside the report. Make other adjustments as needed.

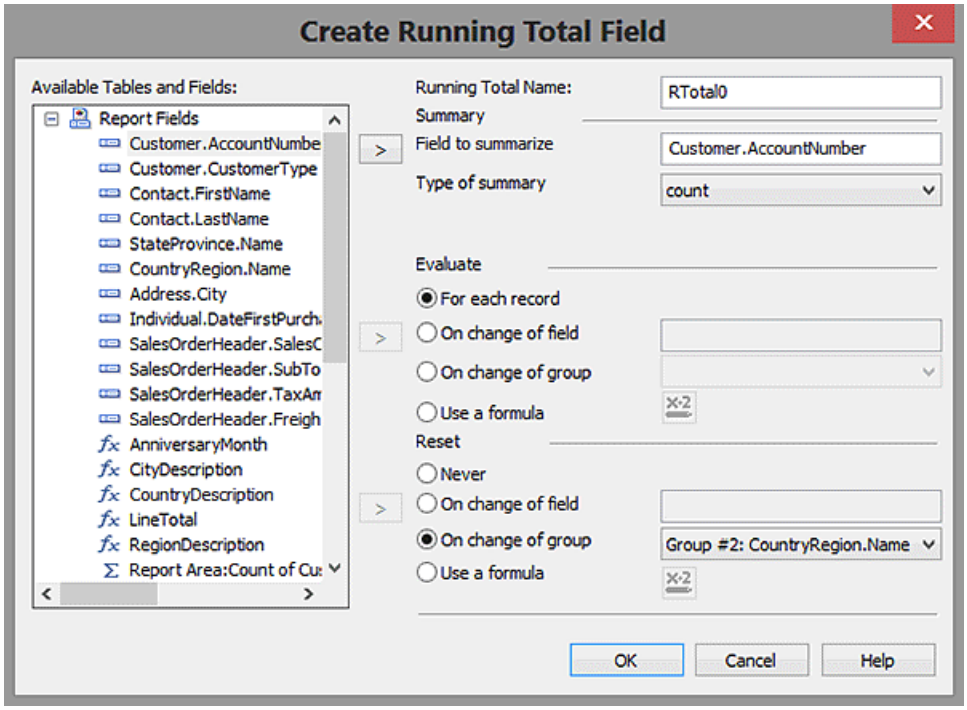


14. Preview and save the report.



6.4. Running Totals

You can track the accumulation of a value throughout a report or simply produce incremental values to display. Furthermore, you may want to track these values within groups, resetting the value back to zero at the start of the each group. Crystal Reports handles these calculations using running totals. To create a running total field, you will use the **Create Running Total Field** dialog box:

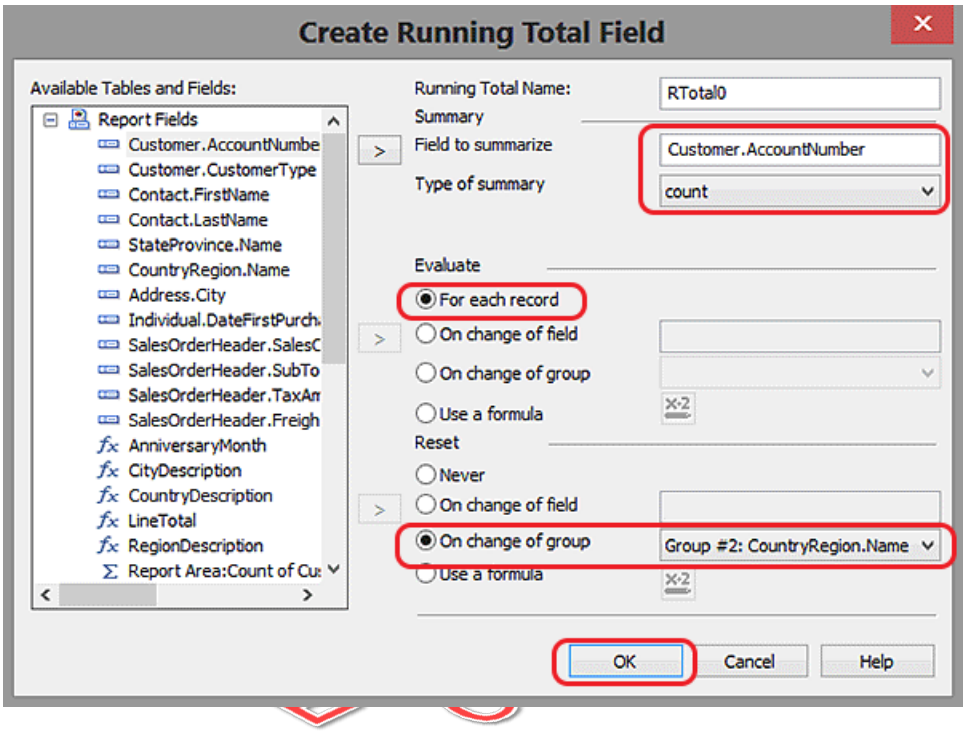


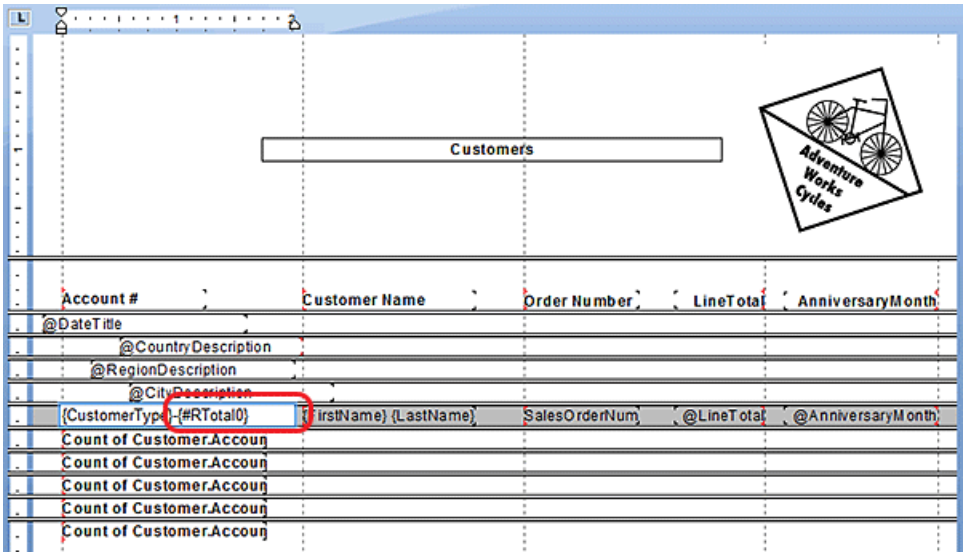
Demo - Adding Running Total Fields

In this demo, we will add a line number for each record in the report and a running total based on the **Line Total** formula field.

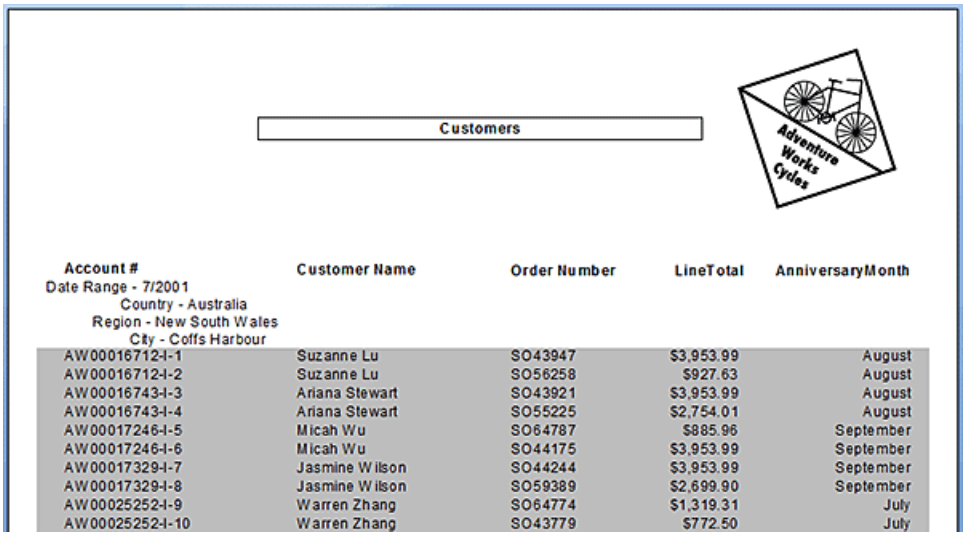
1. Open `C:/ClassFiles/cry2011-formulas/Demos/Customer_3.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. Move fields to the right to make the **AccountNumber Text Object** wider.
3. In the **Field Explorer**, Right-click **Running Total Fields** and choose **New**.
4. In the **Create Running Total Field** dialog box, Confirm that **Customer.AccountNumber** is the **Field to summarize** select "**count**" from the **Type of summary** drop-down list. If not, choose the field.

5. In the **Evaluate** section, ensure the **For each record** radio button is selected.
6. In the **Reset** section, select **On change of group** and then select "Group #2: CountryRegion.Name - A" from the drop-down list.



7. Click **OK**.
8. Move the **RTotal0** running total field to the right of the **Account Number in** the Text Object.
9. 

10. Preview the report. Make adjustments as necessary.



Customers

Account #	Customer Name	Order Number	LineTotal	AnniversaryMonth
Date Range - 7/2001				
Country - Australia				
Region - New South Wales				
City - Coffs Harbour				
AW00016712-I-1	Suzanne Lu	SO43947	$3,953.99	August
AW00016712-I-2	Suzanne Lu	SO56258	$927.63	August
AW00016743-I-3	Ariana Stewart	SO43921	$3,953.99	August
AW00016743-I-4	Ariana Stewart	SO55225	$2,754.01	August
AW00017246-I-5	Micah Wu	SO64787	$885.96	September
AW00017246-I-6	Micah Wu	SO44175	$3,953.99	September
AW00017329-I-7	Jasmine Wilson	SO44244	$3,953.99	September
AW00017329-I-8	Jasmine Wilson	SO59389	$2,699.90	September
AW00025252-I-9	Warren Zhang	SO64774	$1,319.31	July
AW00025252-I-10	Warren Zhang	SO43779	$772.50	July

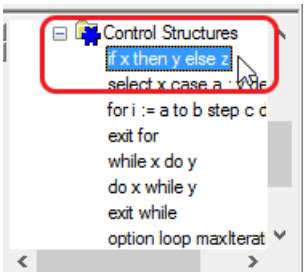
6.5. Conditional Formulas

Sometimes rather than display actual data, we may want to provide an indicator based on the values in a field. We may also want to create formulas based on comparing two fields or comparing the values in a field with a particular value. We can do this using conditional statements in our formulas. The conditional statement we need, the If-Then-Else clause, can be used to create indicator fields which display when certain conditions have been met.

Demo - Adding a Conditional Formula

We will add a marker to the Customer report to the left of the LineTotal to indicate which total is greater than $3,500.

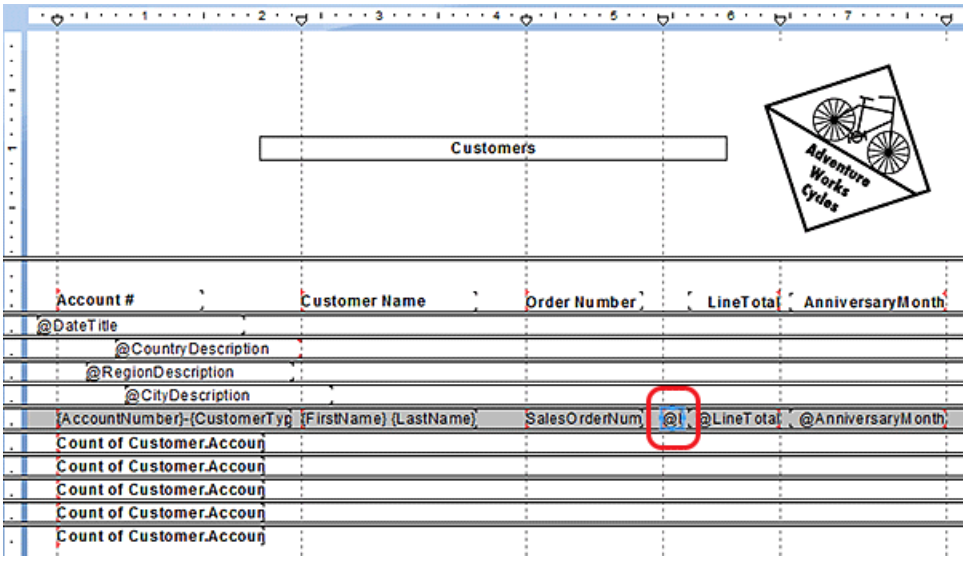
1. Open `C:/ClassFiles/cry2011-formulas/Demos/Customer_4.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`. Select the **Design** tab.
2. In the **Field Explorer**, select the **Formula Fields** node and click the **New** icon.
3. In the **Formula Name** dialog box, type "LT>3500" and click **OK**.
4. In the **Formula Workshop - Formula Editor -LT>3500** dialog box, in the **Operators** pane, expand the **Operators > Control Structures** node and double-click "if x then y else z".



5. After verifying that the cursor in the formula text pane is between "if" and "then", go to the **Report Fields** pane and double-click the **LineTotal** field.
6. Following the LineTotal field, type " **> 3500**".
7. Move your cursor after "then" and type **"X"** (include the quotes). After "else", type **""**. The formula should look like this:

```
if {@LineTotal}>3500 then "X" else ""
```

8. Click the **Check** icon to verify that there are no errors.
9. Click **OK** and then click **Save and close**.
10. Move the the **LineTotal** field to the right a bit.
11. Click and drag the **LT>3500** formula field to the left of the **LineTotal** running total field in the **Details** section of the report and delete its field title.



12. Preview and save the report.

Customers

Adventure Works Cycles

Account #	Customer Name	Order Number		LineTotal	AnniversaryMonth
Date Range - 7/2001					
Country - Australia					
Region - New South Wales					
City - Coffs Harbour					
AW00016712-I-1	Suzanne Lu	SO43947	X	$3,953.99	August
AW00016712-I-2	Suzanne Lu	SO56258		$927.63	August
AW00016743-I-3	Ariana Stewart	SO43921	X	$3,953.99	August
AW00016743-I-4	Ariana Stewart	SO55225		$2,754.01	August
AW00017246-I-5	Micah Wu	SO64787		$885.96	September
AW00017246-I-6	Micah Wu	SO44175	X	$3,953.99	September
AW00017329-I-7	Jasmine Wilson	SO44244	X	$3,953.99	September
AW00017329-I-8	Jasmine Wilson	SO59389		$2,699.90	September
AW00025252-I-9	Warren Zhang	SO64774		$1,319.31	July

Exercise 6: Formulas in Reports

15 to 30 minutes

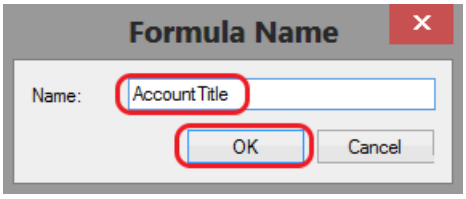
For the Sales Order report, we will show the total sales amount and use a running total for our sales total. We'll also enhance the group fields.

1. Replace **Group #1 Name** in the **Group Header** with a formula field that better describes the group. Confirm, or switch the group to **SalesOrderHeader.AccountNumber**.
2. Create a formula for the total line amount for each line in the report. Add a summary field for the sales order total to the **Group Footer**.
3. Create a running total field that accumulates the line totals per sales order.

Solution

The following describes one possible solution to the exercise.

1. Open `C:/ClassFiles/cry2011-formulas/Exercises/SalesOrder.rpt` and select the **Design** tab.
2. In the **Field Explorer**, right-click the **Formula Fields** node and select **New**.
3. In the **Formula Name** dialog box, type "**AccountTitle**" and click **OK**.



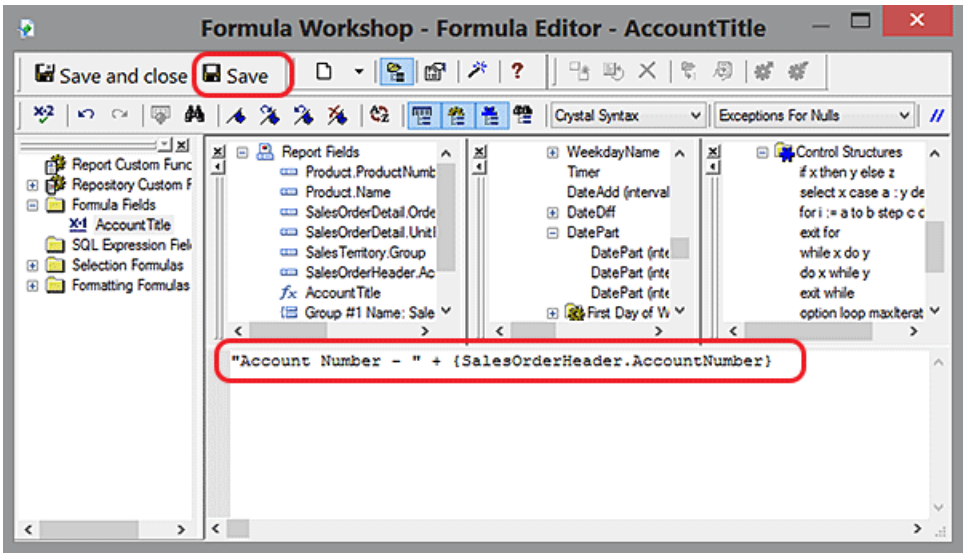
4. In the **Formula Workshop - Formula Editor - AccountTitle** dialog box, type the following in the formula text pane:

```
"Account Number - " + {SalesOrderHeader.AccountNumber}
```

or

```
"Account Number - " & {SalesOrderHeader.AccountNumber}
```

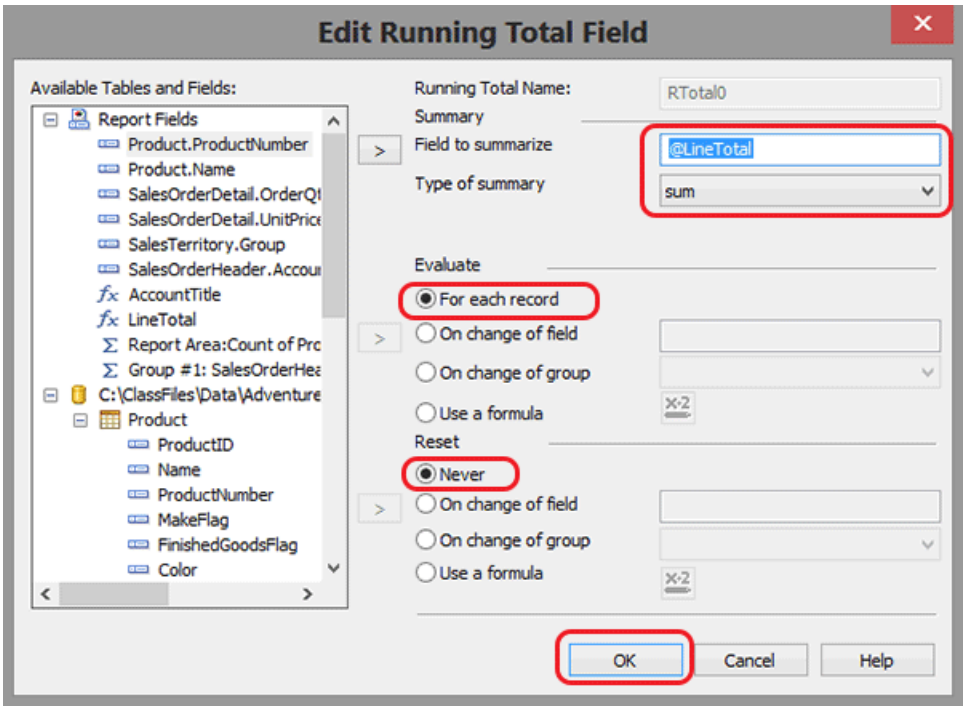

5. Click the **Check** icon to verify there are no errors and then click **OK**.



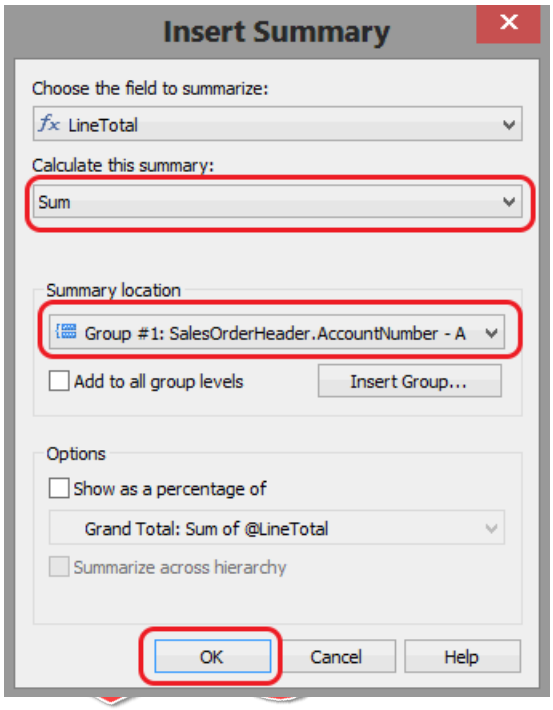
6. Click **Save**.
7. In the **Formula Workshop** tree, right-click the **Formula Fields** node and select **New**.
8. In the **Formula Name** dialog box, type “LineTotal” and click **OK**.
9. In the formula text pane, type the following:

```
{SalesOrderDetail.OrderQty} * {SalesOrderDetail.UnitPrice}
```

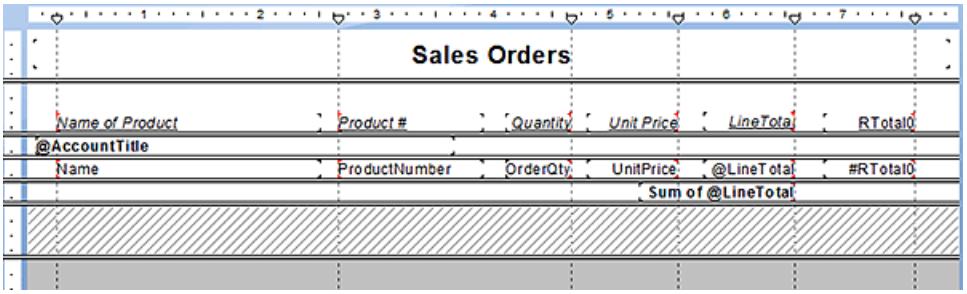
10. Click the **Check** icon to verify there are no errors and then click **OK**.
11. Click **Save and close**.
12. Remove the current group fields from the **Group Header**.
13. Click and drag the **AccountTitle** formula field to the far-left side of **Group Header #1**. Click the **Bold** icon.
14. Move the existing fields in the **Details** section to the left to allow for two more fields to the right.
15. Click and drag the **Line Total** formula field to the right of the **Unit Price** field in the **Details** section.
16. Select the **Line Total** field title and click the **Italics** icon.
17. Using **Crystal Reports 2008**: right-click the **LineTotal** formula field and select **Insert > Running Total**.
18. Using **Crystal Reports 2011**: in the **Field Explorer**, right-click **Running Total Fields** and choose **New**.
19. In the **Edit Running Total Field** dialog box, confirm that **@LineTotal** is filled in in the **Field to summarize** field and that "**sum**" is selected from the **Type of summary** drop-down list for **Type of summary**.



20. Click **OK**.
21. Place the Running Total **RTotal0** to the right of the **LineTotal**.
22. Select **@Line**Total in the Detail section.
23. In the **Insert Summary** dialog box, ensure that "Sum" is selected in the **Calculate this summary**: drop-down list.



24. In the **Summary location** drop-down list, select "Group #1: SalesOrderHeader.AccountNumber - A" and then click **OK**.



25. Preview the report. Adjust fields as needed to ensure that all field values and field titles are completely visible.

Sales Orders

Name of Product	Product #	Quantity	Unit Price	LineTotal	RTotal0
Account Number - 10-4020-000014					
Water Bottle - 30 oz.	WB-H098	4	$2.99	$11.98	$11.98
Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$164.38
Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$316.78
Classic Vest, S	VE-C304-S	3	$38.10	$114.30	$431.08
Classic Vest, M	VE-C304-M	5	$38.10	$190.50	$621.58
Women's Tights, S	TG-W091-S	5	$48.74	$243.72	$865.29
Women's Tights, L	TG-W091-L	2	$48.74	$97.49	$962.78
Short-Sleeve Classic Jersey, XL	SJ-0194-X	8	$32.39	$259.15	$1,221.93
Short-Sleeve Classic Jersey, XL	SJ-0194-X	3	$32.39	$97.18	$1,319.11
Short-Sleeve Classic Jersey, XL	SJ-0194-X	2	$32.39	$64.79	$1,383.90
Short-Sleeve Classic Jersey, L	SJ-0194-L	2	$32.39	$64.79	$1,448.69
Women's Mountain Shorts, S	SH-W890-S	3	$41.99	$125.98	$1,574.67
Women's Mountain Shorts, S	SH-W890-S	4	$41.99	$167.98	$1,742.65
Women's Mountain Shorts, S	SH-W890-S	6	$41.99	$251.96	$1,994.61
Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,078.60
Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,162.59
Women's Mountain Shorts, M	SH-W890-M	1	$41.99	$41.99	$2,204.58
Women's Mountain Shorts, L	SH-W890-L	12	$40.59	$487.13	$2,691.71
Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$2,859.69
Women's Mountain Shorts, L	SH-W890-L	1	$41.99	$41.99	$2,901.68
Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$3,069.66
HL Mountain Seat/Saddle	SE-M940	2	$31.58	$63.17	$3,132.83

26. Save the report.

Conclusion

In this lesson, you learned:

- How to create formulas for various data types.
- How to create running totals.
- How to create and use conditional formulas.

LESSON 7
Advanced Formatting

Topics Covered

☑ Splitting sections into multiple sections.

☑ Summary reports.

☑ Formatting with lines and box objects.

☑ The **Highlighting Expert**.

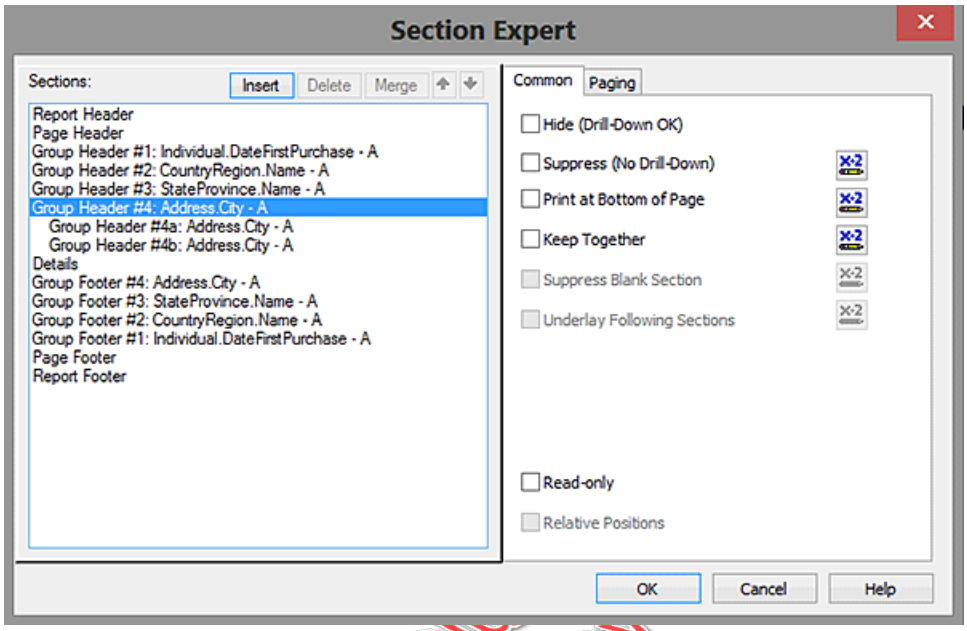
Introduction

Reports are essentially a collection of strings, numbers, and dates from a data repository. While good data is important, it's just as important to present information that is appealing in a useful way. Because of this, formatting is critical in accomplishing the purpose of a report.

7.1. Using Multiple Sections

The default report sections or those that get added when groups are created are always present and may not be deleted. The creation of new sections often helps to improve formatting.

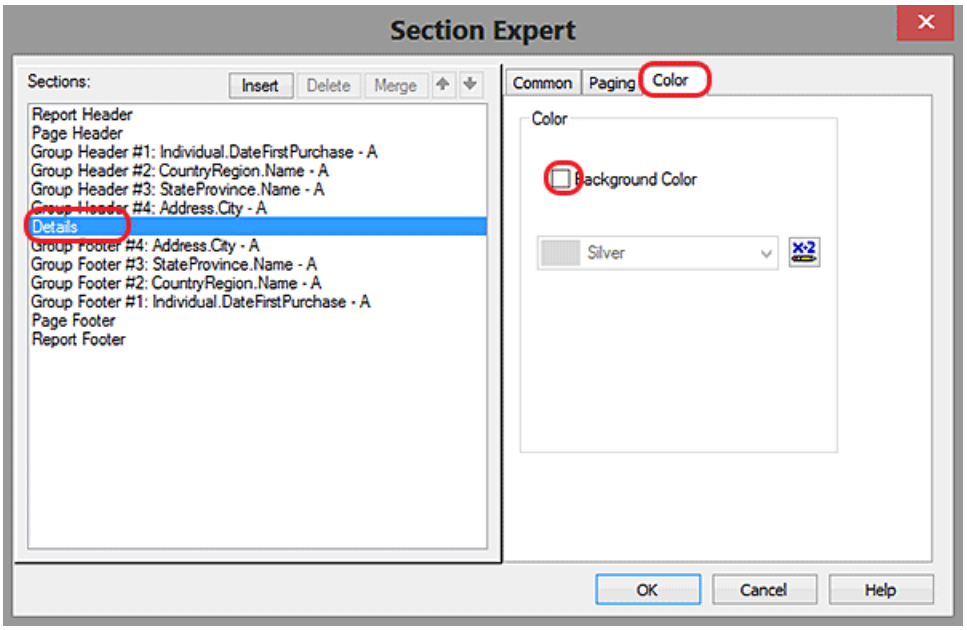
To alter and add new sections, use the **Section Expert**:



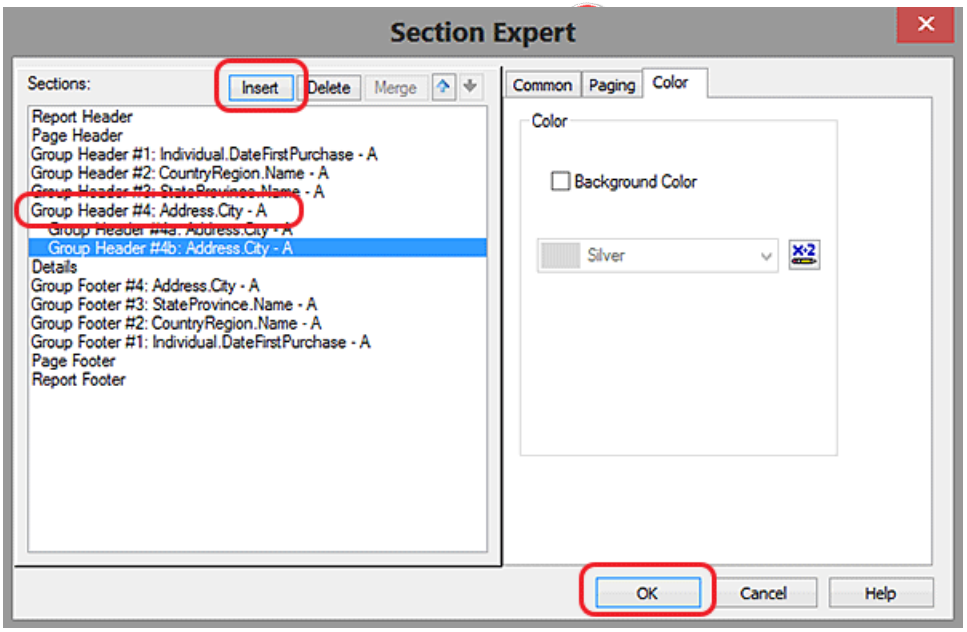
Demo - Using Multiple Sections

In the Customer report, the field titles are currently in the **Page Header**. However, since we added some groups to the report, the field titles appear to be out of place. We will use the multiple-section feature to help improve this aspect of the report.

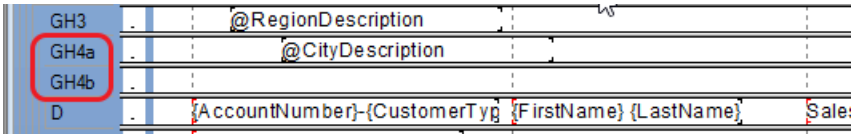
1. Open `C;/ClassFiles/cry2011-advanced-formatting/Demos/Customer.rpt` or use the report that you already built `C:/ClassFiles/Student/reports/Customers.rpt`. Select the **Design** tab.
2. On the **Experts** toolbar, click the **Section Expert** icon.
3. In the **Sections** list box, select **Details**.
4. Select the **Color** tab on the right side of the dialog box. Uncheck the **Background Color** check box.



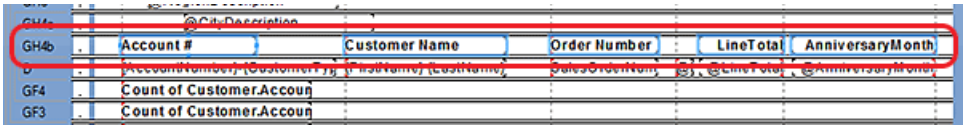
5. In the **Sections** list box, select **Group Header #4** and then click **Insert**. Click **OK**.



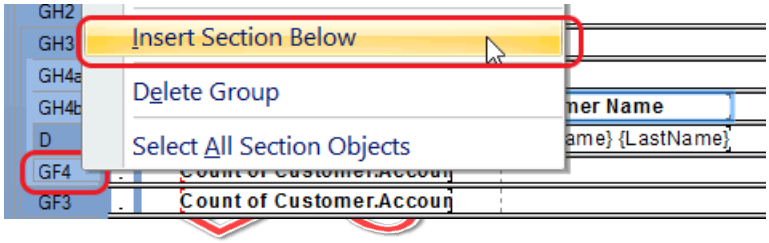
6. Notice that the **Group Header #4** section has been split into two sections.



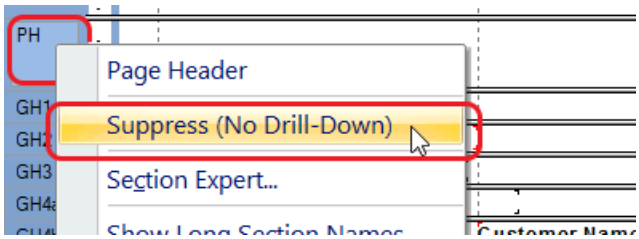
7. Select all field titles in the **Page Header** and use the **down arrow** (press 5 times) to move them down to **Group Header #4b**.



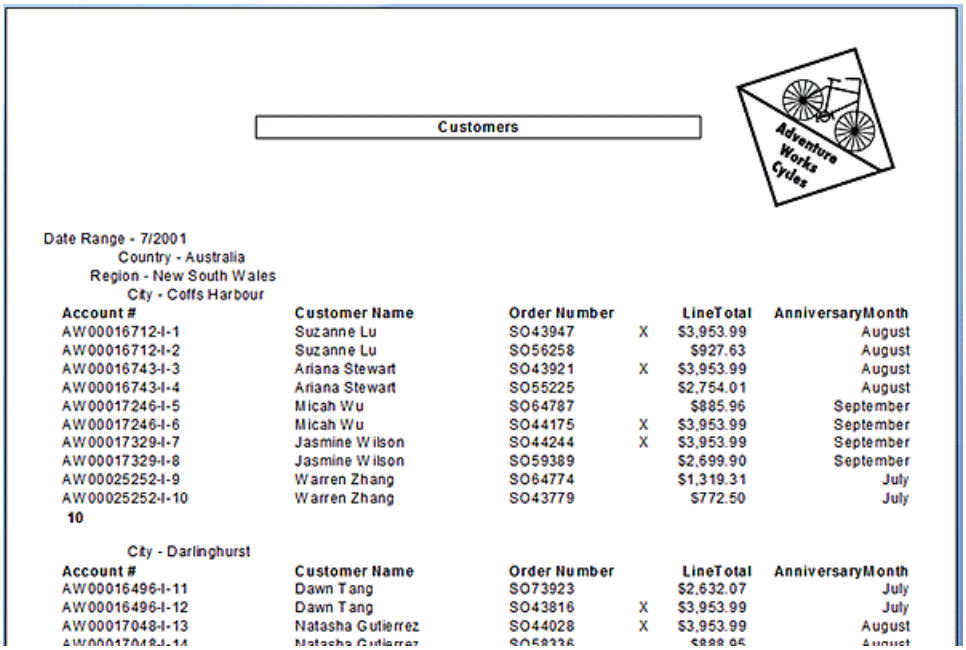
8. Right-click **Group Footer #4** and select **Insert Section Below**.



9. Right-click the **Page Header** and select **Suppress (No Drill-Down)**.



10. Preview and save the report.



Customers

Date Range - 7/2001
Country - Australia
Region - New South Wales
City - Coffs Harbour

Account #	Customer Name	Order Number		LineTotal	AnniversaryMonth
AW00016712-I-1	Suzanne Lu	SO43947	X	$3,953.99	August
AW00016712-I-2	Suzanne Lu	SO56258		$927.63	August
AW00016743-I-3	Ariana Stewart	SO43921	X	$3,953.99	August
AW00016743-I-4	Ariana Stewart	SO55225		$2,754.01	August
AW00017246-I-5	Micah Wu	SO64787		$885.96	September
AW00017246-I-6	Micah Wu	SO44175	X	$3,953.99	September
AW00017329-I-7	Jasmine Wilson	SO44244	X	$3,953.99	September
AW00017329-I-8	Jasmine Wilson	SO59389		$2,699.90	September
AW00025252-I-9	Warren Zhang	SO64774		$1,319.31	July
AW00025252-I-10	Warren Zhang	SO43779		$772.50	July
10					

City - Darlinghurst

Account #	Customer Name	Order Number		LineTotal	AnniversaryMonth
AW00016496-I-11	Dawn Tang	SO73923		$2,632.07	July
AW00016496-I-12	Dawn Tang	SO43816	X	$3,953.99	July
AW00017048-I-13	Natasha Gutierrez	SO44028	X	$3,953.99	August

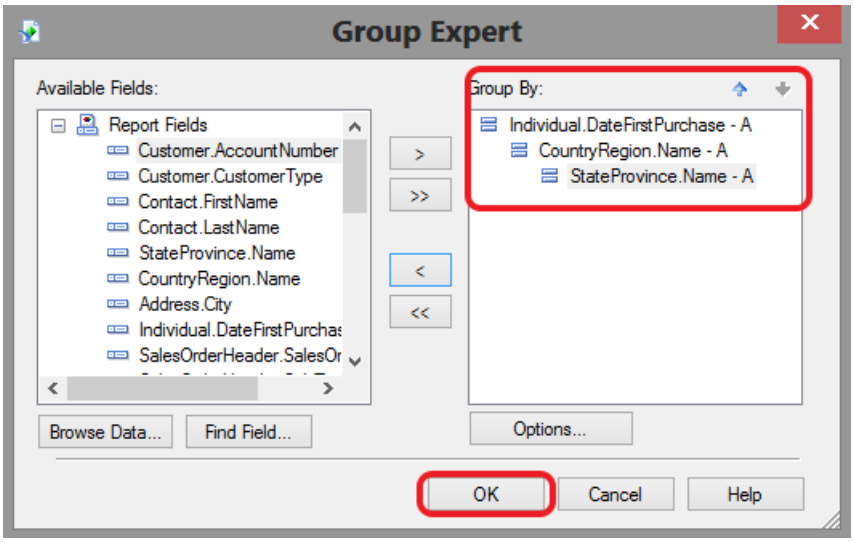
7.2. Summary Reports

One benefit of report formatting is that we can often reuse a single report to produce what appears to our users to be multiple reports. A prime example is the presentation of a summary report along with a detailed report. In Crystal Reports, summary and detailed reports can be produced from the same physical report file using section suppression.

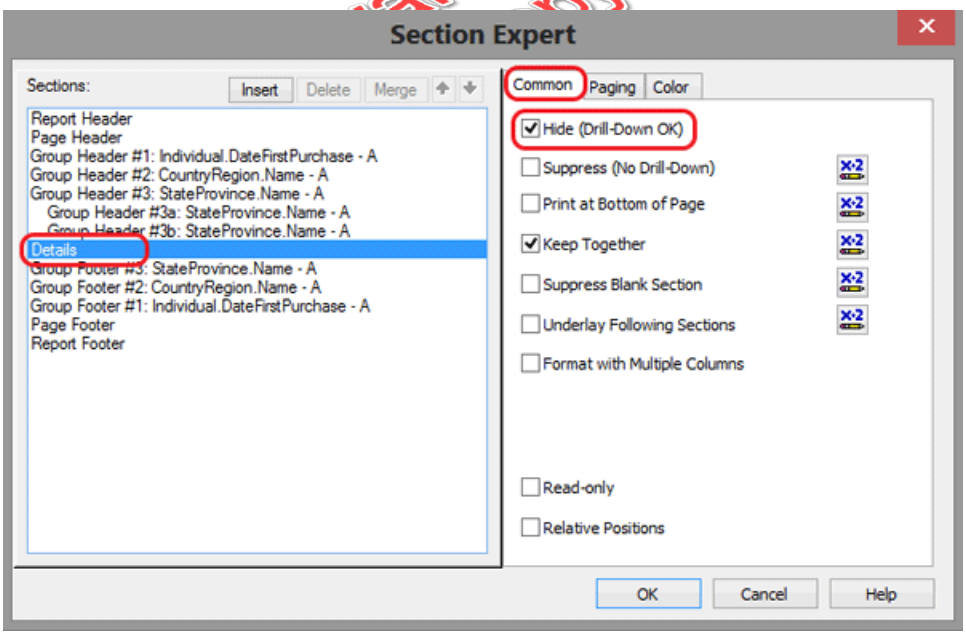
Demo - Creating a Summary Report

In this demo, we will create a summary report that shows total sales by country and region.

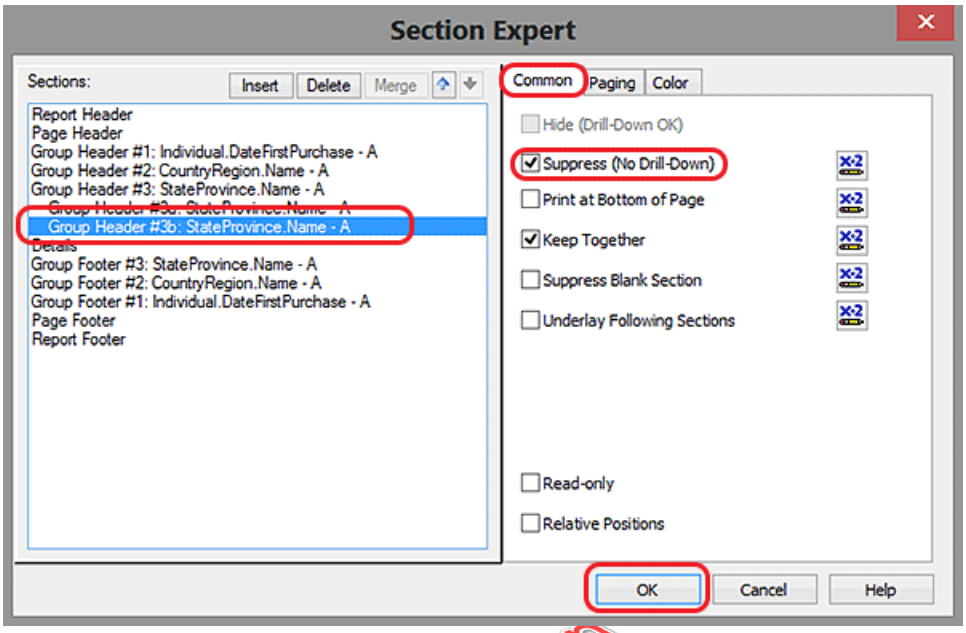
1. Open `C;/ClassFiles/cry2011-advanced-formatting/Demos/Customer_1.rpt` or use the report that you already built `C:/ClassFiles/Student/reports/Customers.rpt`. Select the **Design** tab.
2. Click the **Section Expert** icon. Create a new **Group Header #3**. Click **OK**.
3. Move all of the titles from **Group Header #4b** to **Group Header #3b**.
4. Click the **Group Expert** icon.
5. Click the **Group Expert** icon. Remove the **Address.City** Group.



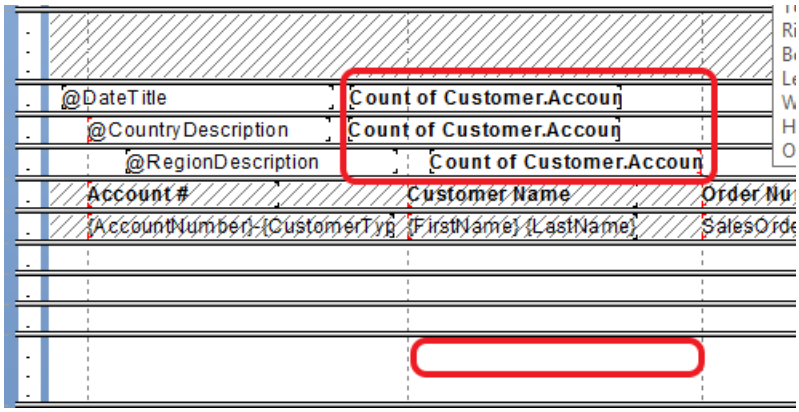
6. Click **OK**.
7. Click the **Section Expert** icon.
8. In the **Sections** list, select **Details** and uncheck the **Hide (Drill-Down OK)** check box on the **Common** tab.



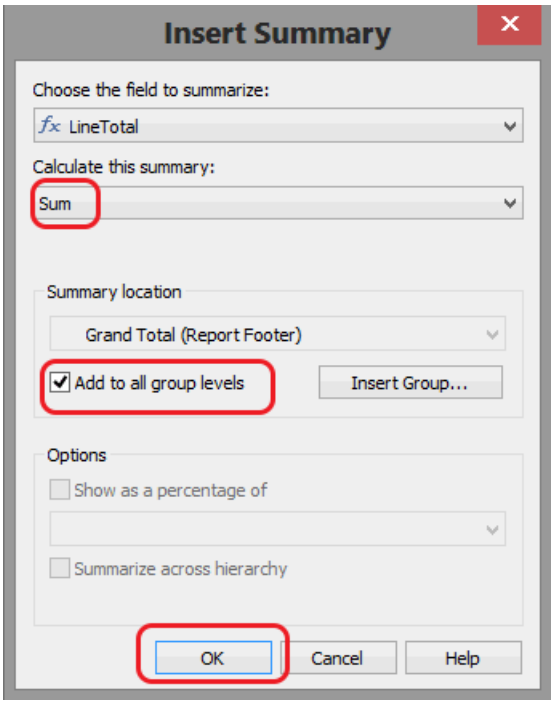
9. In the **Sections** list, select **Group Header #3b** and check the **Suppress (No Drill-Down)** check box.



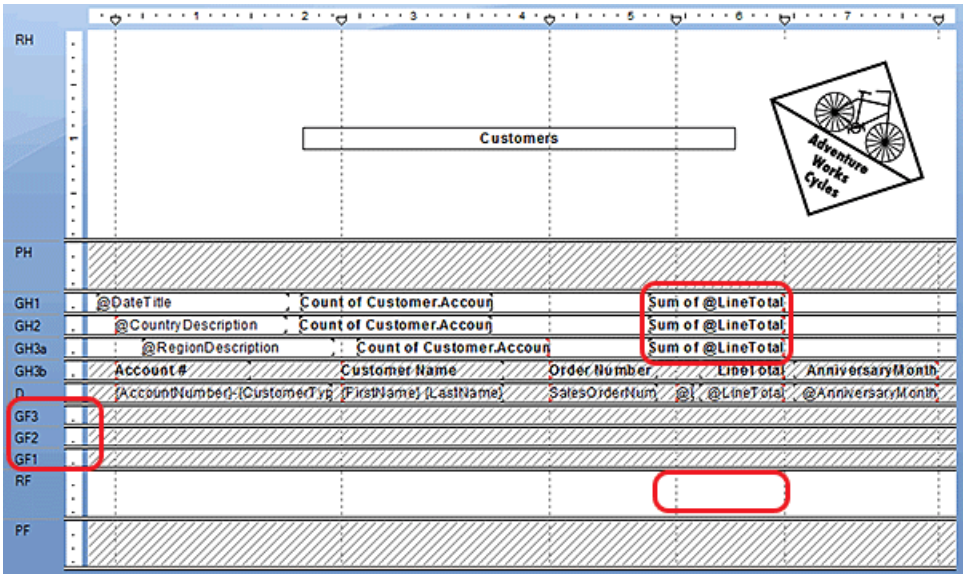
10. Click **OK**.
11. Move each of the **Count of Customer. AccountNumbers** up to the header area just to the right of the title/description. Delete the Report Footer summary.



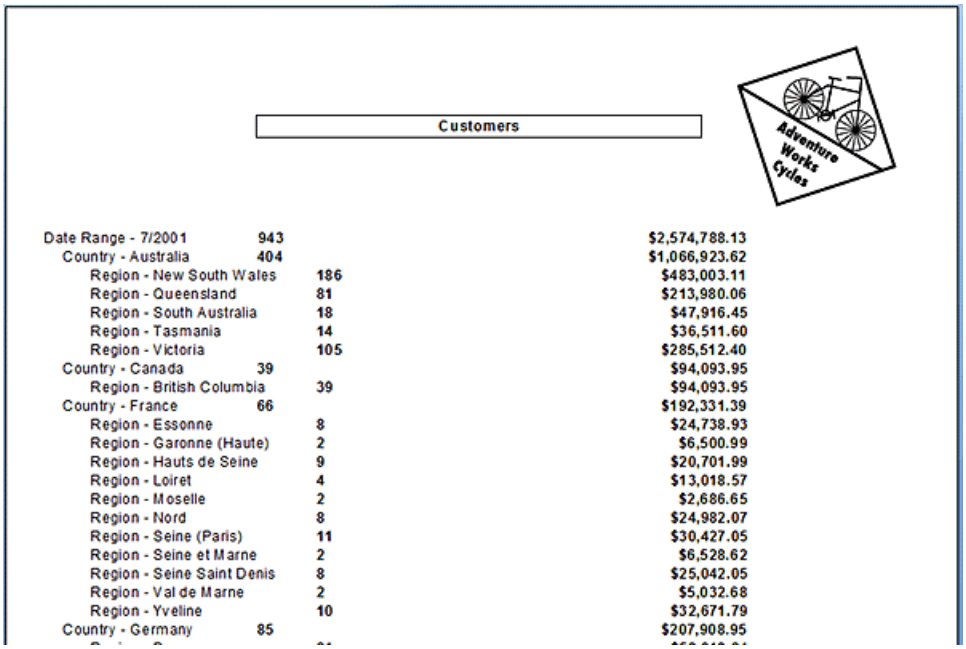
12. Select the **LineTotal** formula field and select **Insert > Summary**.
13. In the **Insert Summary** dialog box, ensure "Sum" is selected in the **Calculate this summary** drop-down list, check the **Add to all group levels** check box, and then click **OK**.



14. Move each of the **Count of Customer. AccountNumbers** up to the header area just to the right of the title/description. Delete the Report Footer summary.
15. Adjust the text objects to ensure they are completely visible.
16. Click the **Section Expert** icon. Check the **Suppress (No Drill-Down)** check box for the following sections: **Group Footer #3**, **Group Footer #2**, **Group Footer #1**. Click **OK**.



17. Preview the report.



Customers

Date Range - 7/2001	943		$2,574,788.13
Country - Australia	404		$1,066,923.62
Region - New South Wales		186	$483,003.11
Region - Queensland		81	$213,980.06
Region - South Australia		18	$47,916.45
Region - Tasmania		14	$36,511.60
Region - Victoria		105	$285,512.40
Country - Canada	39		$94,093.95
Region - British Columbia		39	$94,093.95
Country - France	66		$192,331.39
Region - Essonne		8	$24,738.93
Region - Garonne (Haute)		2	$6,500.99
Region - Hauts de Seine		9	$20,701.99
Region - Loiret		4	$13,018.57
Region - Moselle		2	$2,686.65
Region - Nord		8	$24,982.07
Region - Seine (Paris)		11	$30,427.05
Region - Seine et Marne		2	$6,528.62
Region - Seine Saint Denis		8	$25,042.05
Region - Val de Marne		2	$5,032.68
Region - Yveline		10	$32,671.79
Country - Germany	85		$207,908.95

7.3. Lines and Boxes

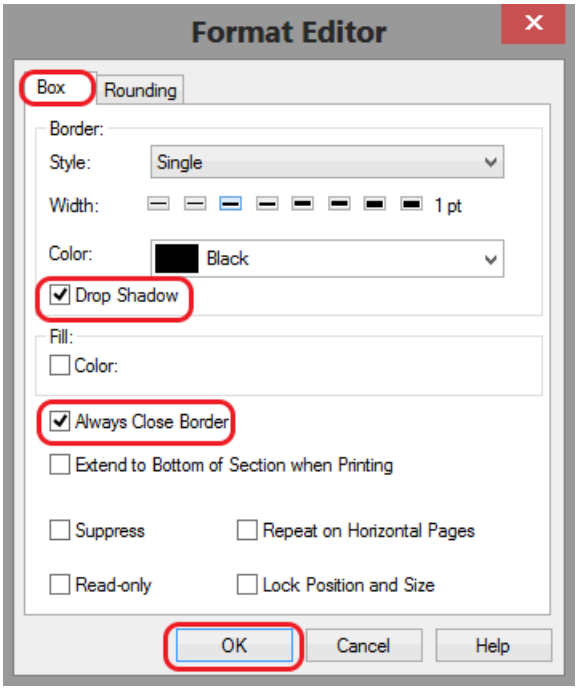
Lines and boxes can be used to visually separate data in your report. This helps the data stand out and can improve readability. Please use as needed because too many lines and boxes can deter attention away from the data and look unprofessional.

Demo - Using Lines and Boxes in Formatting

In the Customer summary report, we will use a box object to section off the summary information by Country and Region.

1. Open `C;/ClassFiles/cry2011-advanced-formatting/Demos/Customer_2.rpt` or use the report that you already built `C:/ClassFiles/Student/reports/Customers.rpt`. Select the **Design** tab.
2. On the **Insert** toolbar, click the **Insert Box** icon. Place the cursor in the top-left corner of **Group Header #2** and then click and drag to the bottom-right corner of **Group Footer #2**. Release the mouse button.
3. Right-click the box object and select **Format Box**.

4. In the **Format Editor**, on the **Box** tab, check the **Drop Shadow** check box. Verify that the **Always Close Border** check box is checked. Click **OK**.

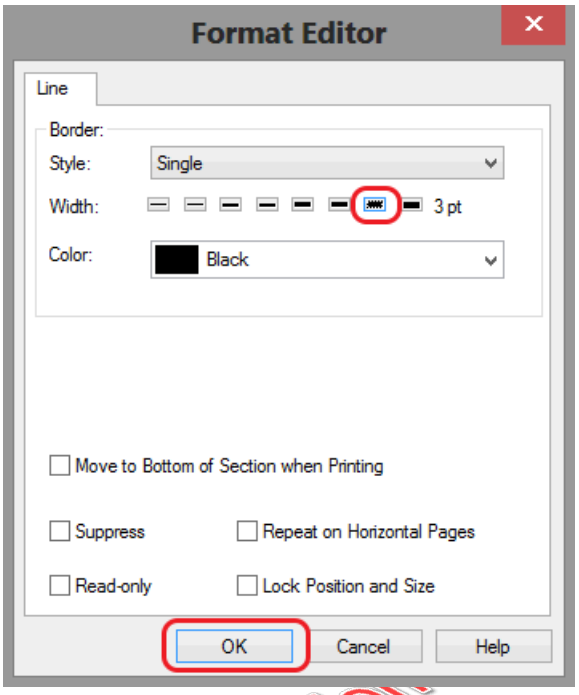


Right-click the **Group Footer #2** section and choose **Don't Suppress**.

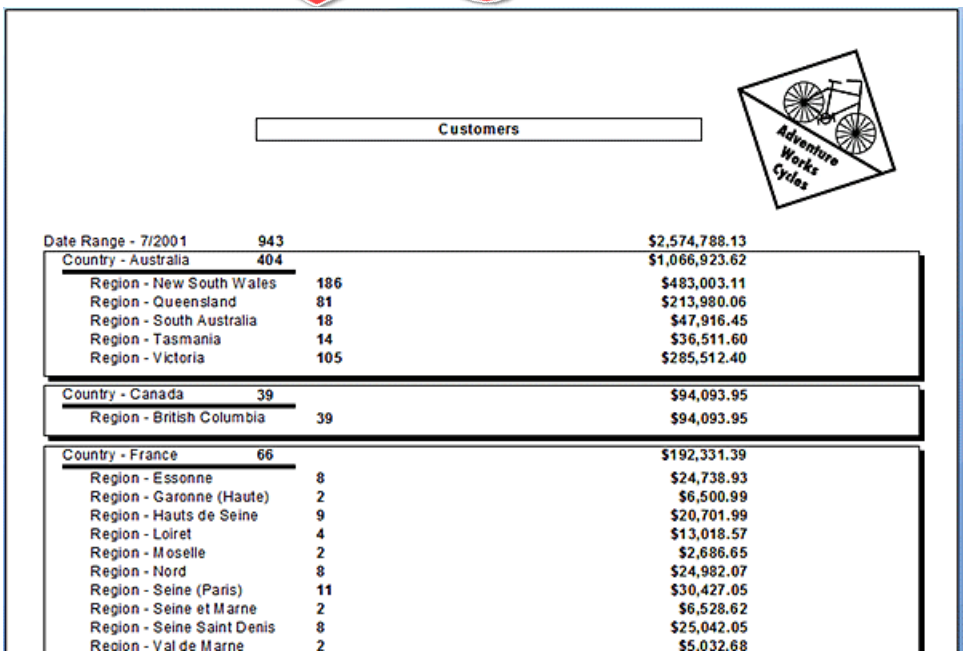
5. On the **Insert** toolbar, click the **Insert Line** icon. Place the cursor under the left side of the **CountryDescription** formula field and then click and drag to the right side of the field. Release the mouse button.

6. Right-click the line object and select **Format Line**.

7. In the **Format Editor**, change the **Width** to 3 pt. Click **OK**.



8. Preview the report. Adjust the line object to fit the **CountryDescription** formula field if needed.



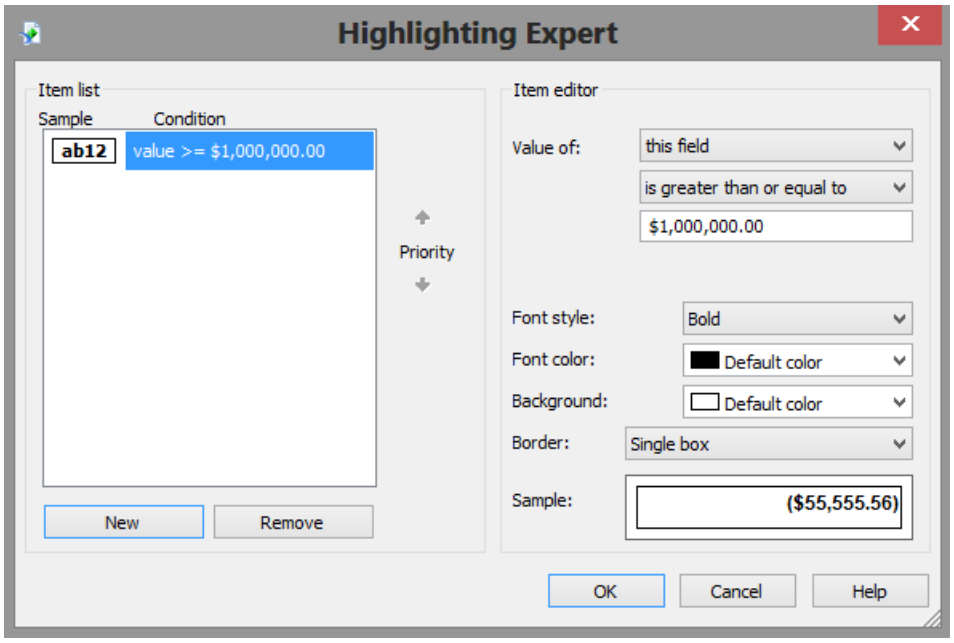
Customers

Date Range - 7/2001	943	$2,574,788.13
Country - Australia	404	$1,066,923.62
Region - New South Wales	186	$483,003.11
Region - Queensland	81	$213,980.06
Region - South Australia	18	$47,916.45
Region - Tasmania	14	$36,511.60
Region - Victoria	105	$285,512.40
Country - Canada	39	$94,093.95
Region - British Columbia	39	$94,093.95
Country - France	66	$192,331.39
Region - Essonne	8	$24,738.93
Region - Garonne (Haute)	2	$6,500.99
Region - Hauts de Seine	9	$20,701.99
Region - Loiret	4	$13,018.57
Region - Moselle	2	$2,686.65
Region - Nord	8	$24,982.07
Region - Seine (Paris)	11	$30,427.05
Region - Seine et Marne	2	$6,528.62
Region - Seine Saint Denis	8	$25,042.05
Region - Val de Marne	2	$5,032.68

9. Save the report.

7.4. The Highlighting Expert

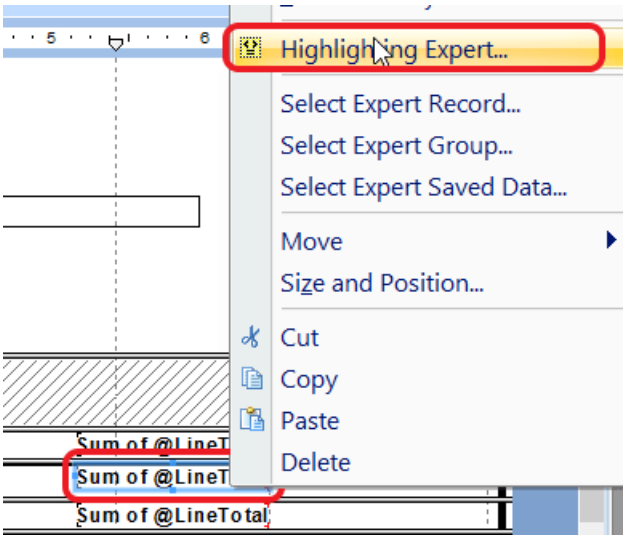
Conditional formulas are used to mark records that satisfied a particular condition. The **Highlighting Expert** in Crystal Reports provides another way to accomplish the same purpose:



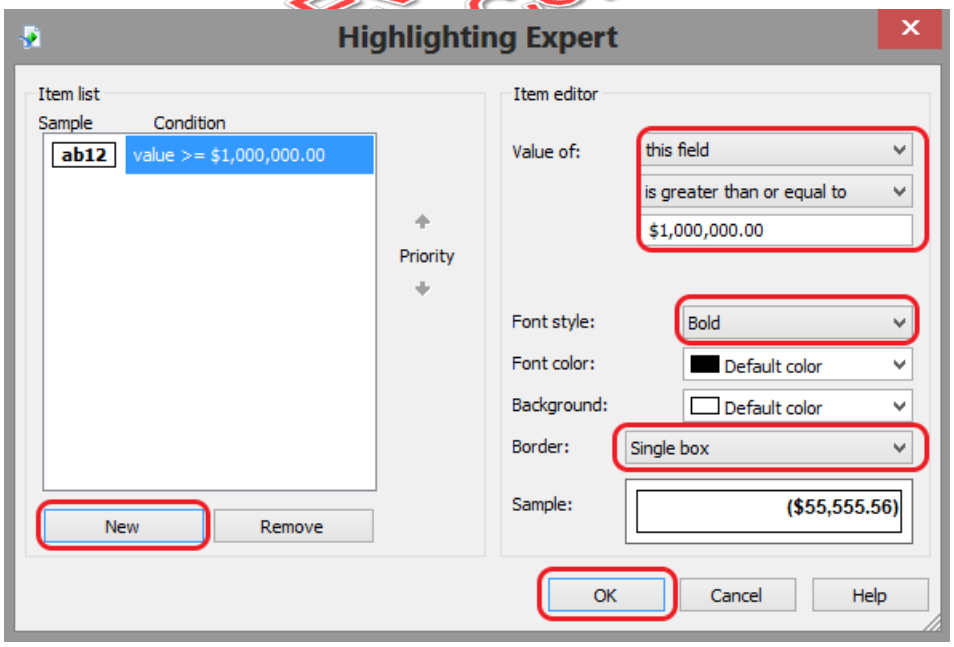
Demo - Using the Highlighting Expert

We will use the **Highlighting Expert** to show countries with revenue greater than $1,000,000 with special formatting.

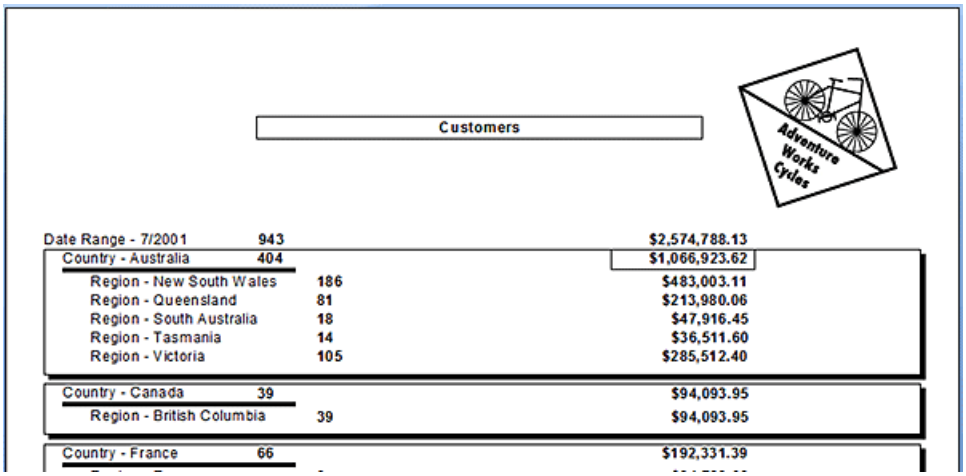
1. Open `C;/ClassFiles/cry2011-advanced-formatting/Demos/Customer_3.rpt` or use the report that you already built `C:/ClassFiles/Student/reports/Customers.rpt`. Select the **Design** tab.
2. Right-click the **Sum of @LineTotal** in **Group Header #2** and select **Highlighting Expert**.



3. In the **Highlighting Expert** dialog box, click the **New** button.
4. In the **Item editor** section, change the selection in the second **Value of** drop-down list to "is greater than or equal to" and change the text box to "1000000".
5. From the **Font Style** drop-down list, select "Bold" and form the **Border** drop-down list, select "Single Box". Click **OK**.



6. Preview the report. Notice that records over $1,000,000 are Bold with a box.



Customers

Date Range - 7/2001	943		$2,574,788.13
Country - Australia	404		$1,066,923.62
Region - New South Wales		186	$483,003.11
Region - Queensland		81	$213,980.06
Region - South Australia		18	$47,916.45
Region - Tasmania		14	$36,511.60
Region - Victoria		105	$285,512.40
Country - Canada	39		$94,093.95
Region - British Columbia		39	$94,093.95
Country - France	66		$192,331.39

7. Save the report.

Exercise 7: Advanced Formatting

15 to 30 minutes

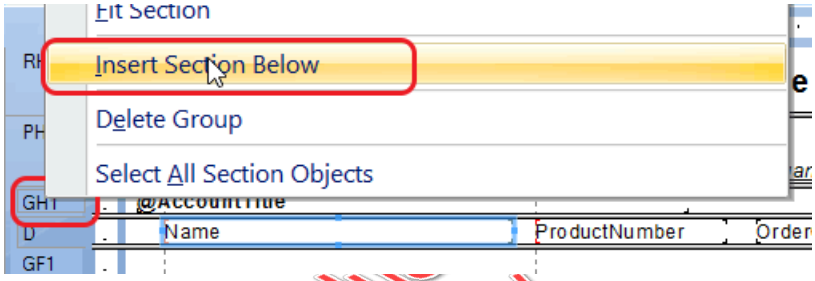
We will make some visual enhancements to the Sales Order report.

1. Move the field titles so that they are directly above their corresponding fields.
2. Place the account number and titles in a box object. (Use the **Format Editor** to ensure that the box spans the entire **Details** section when previewed and printed.)
3. Place a line above the **Sales Order** summary field in the **Group Footer #1** section.
4. Highlight the **Product Name** field for products that had a quantity of 10 or greater.

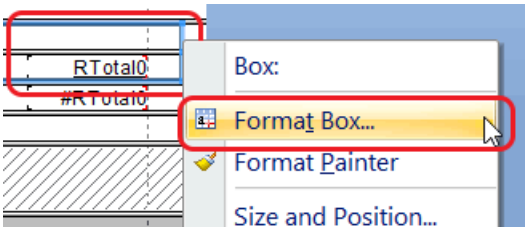
Solution

The following describes one possible solution to the exercise.

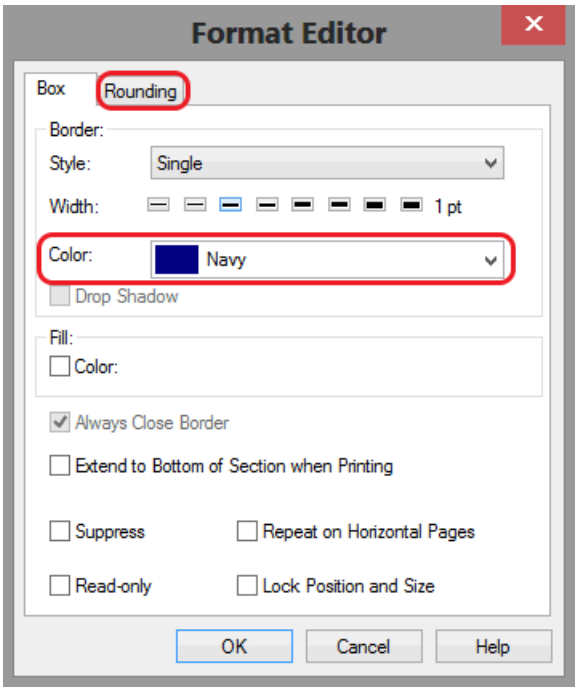
1. Open `C;/ClassFiles/cry2011-advanced-formatting/Exercises/SalesOrder.rpt`. Select the **Design** tab.
2. Right-click the **Group Header#1** section and select **Insert Section Below**.



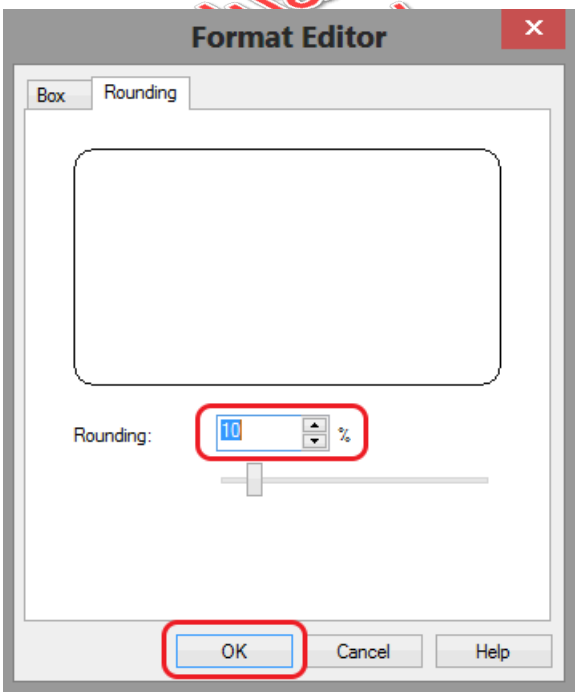
3. Select all field titles form the **Page Header** and move them to **Group Header #1b**.
4. Click the **Insert Box** icon. Place the cursor at the upper-left corner of the Group **Header #1a** and then click and drag to the lower-right corner of the Group **Header #1b**. Release the mouse button.
5. Right-click the box object and select **Format Box**.



6. Choose **Navy** from the Color drop-down and then click the **Rounding** tab.



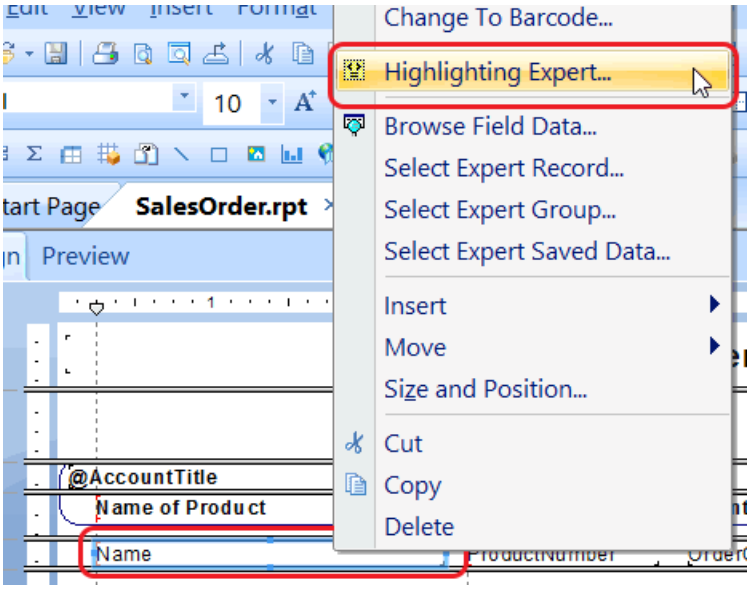
7. Type **10** in the **Rounding box**. Click **OK**.



8. Increase the height of **Group Footer #1** and move the summary fields down to the lower edge of the section.

9. Click the **Insert Line** icon. Place the cursor above and to the left of the **Line Total** summary field. Click and drag to the right side of the field. Release the mouse button. Format to taste.

10. Right-click the **Product.Name** field and select **Highlighting Expert**.

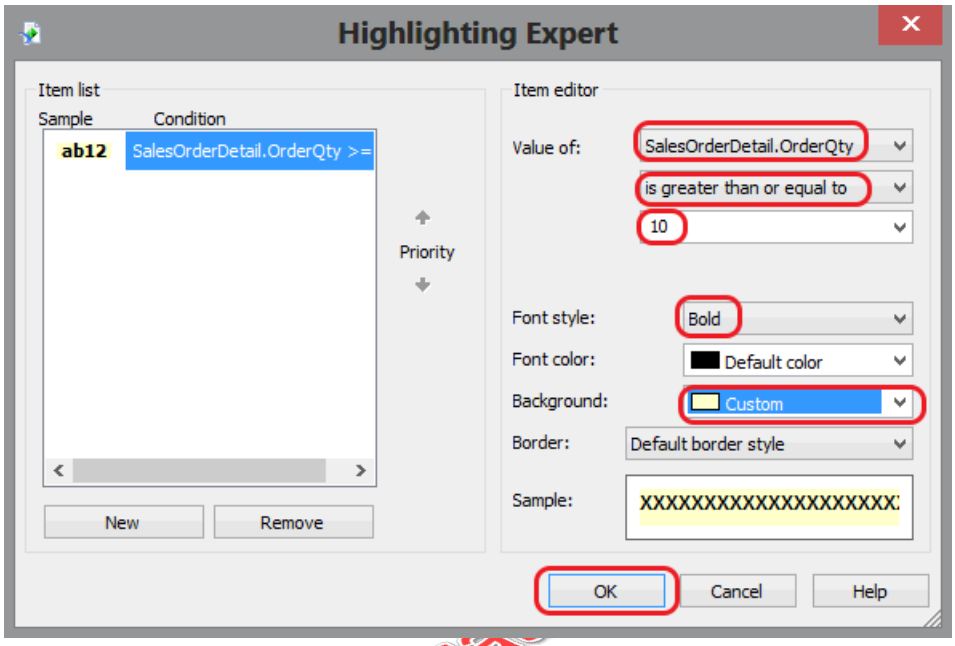


11. In the **Highlighting Expert** dialog box, click **New**.

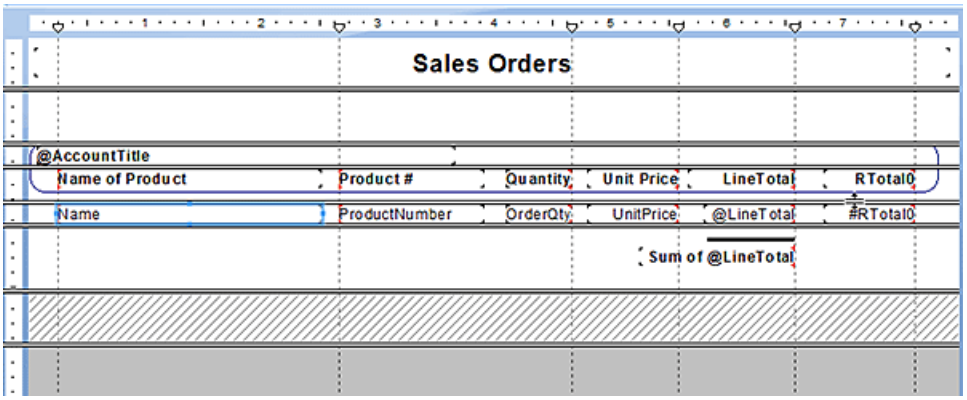
12. In the **Item editor** section, in the first **Value of** drop-down list, select "SalesOrderDetail.OrderQty".

13. In the **Item editor** section, in the second **Value of** drop-down list, select "is greater than or equal to".

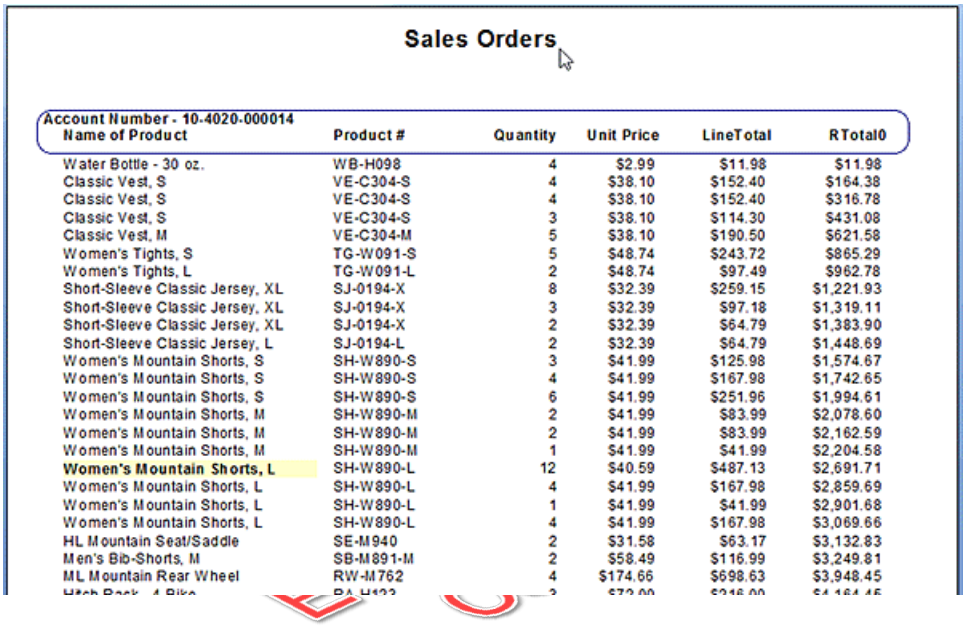
14. In the **Item editor** section, in the third **Value of** drop-down list, select "10".



15. Change **Font style** to "**Bold**".
16. Change **Background** to a **Custom pale yellow** (you choose the color). Click **OK**.
17. Adjust all objects as needed.



18. Preview and save the report.



Sales Orders

Account Number - 10-4020-000014 Name of Product	Product #	Quantity	Unit Price	LineTotal	RTotal0
Water Bottle - 30 oz.	WB-H098	4	$2.99	$11.98	$11.98
Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$164.38
Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$316.78
Classic Vest, S	VE-C304-S	3	$38.10	$114.30	$431.08
Classic Vest, M	VE-C304-M	5	$38.10	$190.50	$621.58
Women's Tights, S	TG-W091-S	5	$48.74	$243.72	$865.29
Women's Tights, L	TG-W091-L	2	$48.74	$97.49	$962.78
Short-Sleeve Classic Jersey, XL	SJ-0194-X	8	$32.39	$259.15	$1,221.93
Short-Sleeve Classic Jersey, XL	SJ-0194-X	3	$32.39	$97.18	$1,319.11
Short-Sleeve Classic Jersey, XL	SJ-0194-X	2	$32.39	$64.79	$1,383.90
Short-Sleeve Classic Jersey, L	SJ-0194-L	2	$32.39	$64.79	$1,448.69
Women's Mountain Shorts, S	SH-W890-S	3	$41.99	$125.98	$1,574.67
Women's Mountain Shorts, S	SH-W890-S	4	$41.99	$167.98	$1,742.65
Women's Mountain Shorts, S	SH-W890-S	6	$41.99	$251.96	$1,994.61
Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,078.60
Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,162.59
Women's Mountain Shorts, M	SH-W890-M	1	$41.99	$41.99	$2,204.58
Women's Mountain Shorts, L	SH-W890-L	12	$40.59	$487.13	$2,691.71
Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$2,859.69
Women's Mountain Shorts, L	SH-W890-L	1	$41.99	$41.99	$2,901.68
Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$3,069.66
HL Mountain Seat/Saddle	SE-M940	2	$31.58	$63.17	$3,132.83
Men's Bib-Shorts, M	SB-M891-M	2	$58.49	$116.99	$3,249.81
ML Mountain Rear Wheel	RW-M762	4	$174.66	$698.63	$3,948.45

Conclusion

In this lesson, you learned:

- How to split sections into multiple sections.
- How to create and use summary reports.
- How to format with lines and box objects.
- How to use the **Highlighting Expert**.

LESSON 8
Exporting and Distribution

Topics Covered

☑ Exporting file formats.

☑ The Crystal Reports Viewer.

Introduction

While viewing your report in the Crystal Reports application may be useful to you, not everyone in your organization will have Crystal Reports. How then, will you distribute your report? An obvious answer is to print it; however, this may not be the best option for your users.

Your users may want to take the data from your report and present it using a variety of applications and file formats. While your users could sit down at their computers and type in all the values from your report, this is impractical. Crystal Reports provides a better way. With Crystal Reports, you can export the results of your report in a variety of formats.

8.1. Exporting to Excel

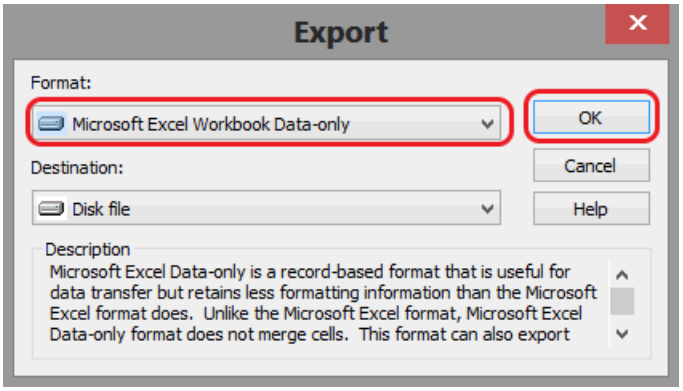
Many reports built with Crystal Reports may be in a tabular format. Given this type of format, it may be worthwhile to extract the data and look at it using a spreadsheet application such as Microsoft Excel. Crystal Reports can export report data to an Excel spreadsheet. For Crystal Reports 2011, reports can be exported in both Excel 2003 and Excel 2007/2010 formats.

Demo - Export to Excel 2007/2010

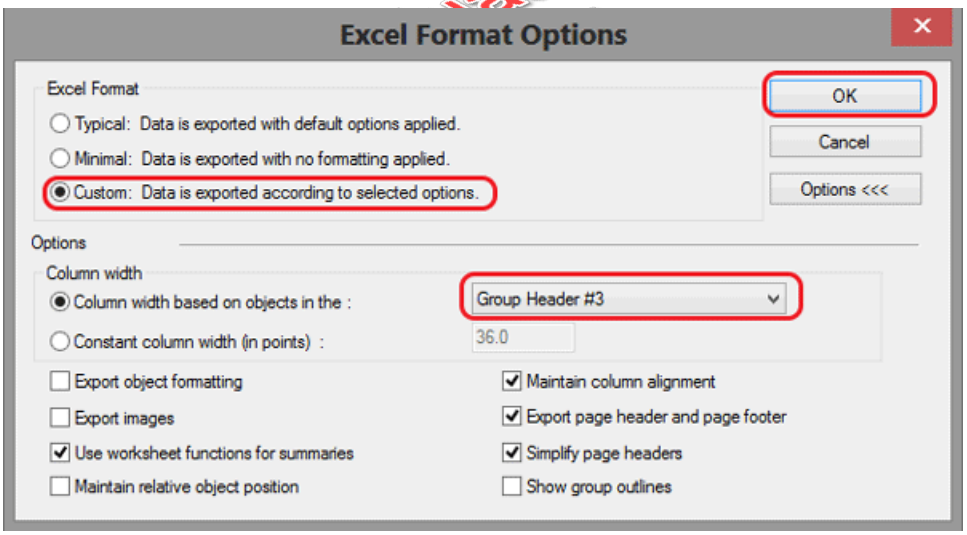
We will export data from the Customer report to a Microsoft Excel file.

1. Open `C:/ClassFiles/cry2011-export-distribute/Demos/Customer.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`.
2. On the **Standard** toolbar, click the **Export** icon.

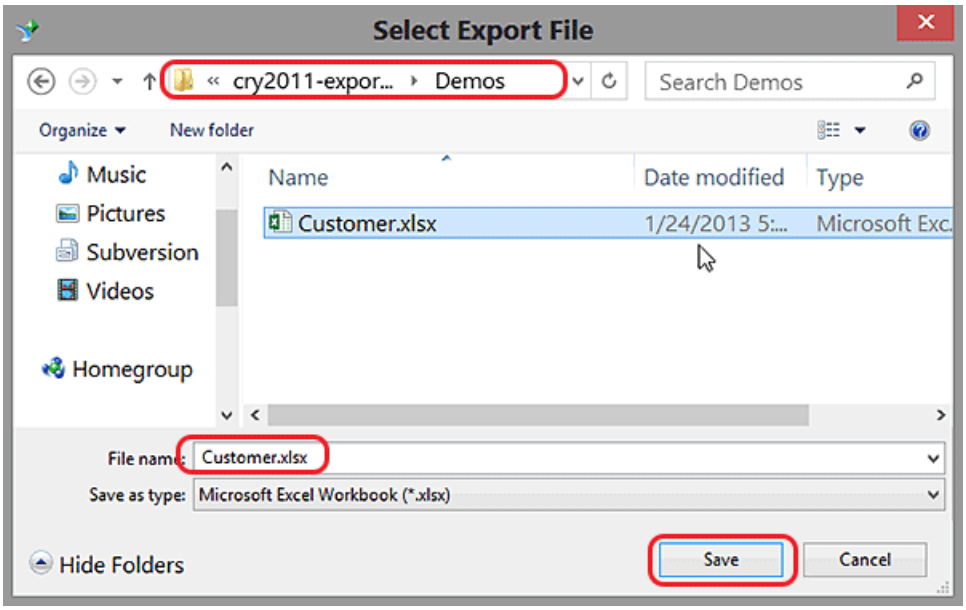
3. In the **Export** dialog box, select **Microsoft Excel Workbook Data-only** from the **Format** drop-down list. Click **OK**.



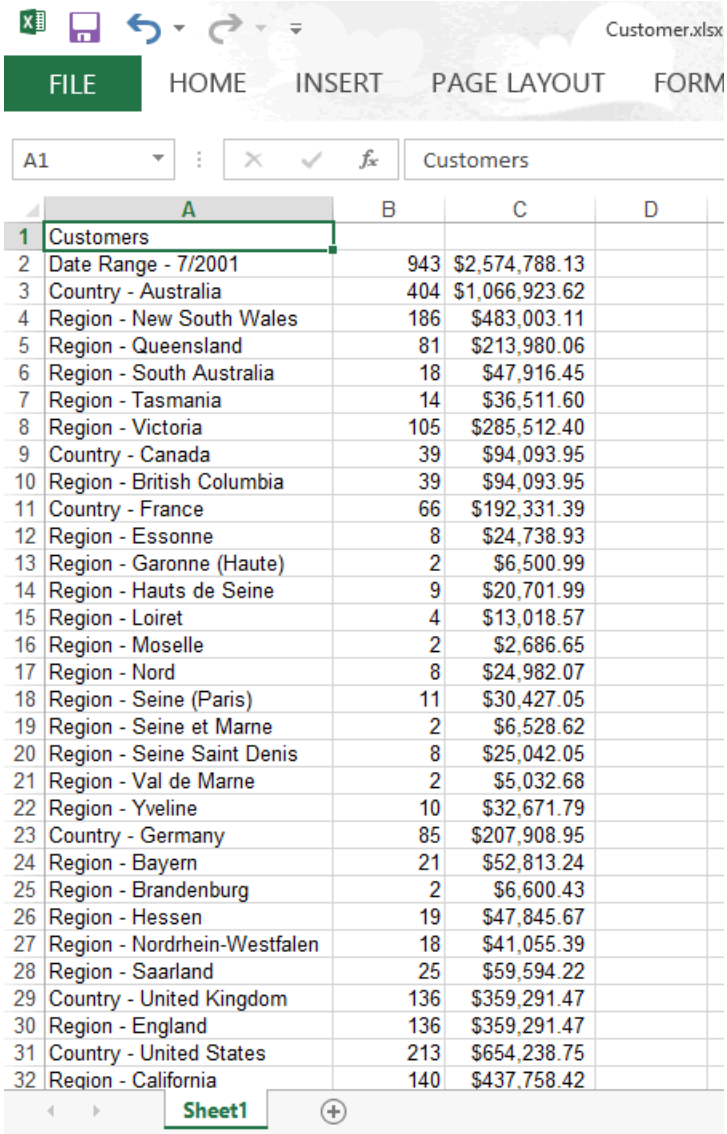
4. In the **Excel Format Options** dialog box, select **Custom: Data is exported according to selected options**. Change the **Column Width** to match **Group Header #3**. Click **OK**.



5. In **Select Export File** dialog box, navigate to `C:/ClassFiles/cry2011-export-distribute/Demos/`. In the **File name** text box, accept "Customer.xlsx" and click **Save**.



6. After the export finishes, open Microsoft Excel and navigate to the newly created file and open it. Adjust the column width.



	A	B	C	D
1	Customers			
2	Date Range - 7/2001	943	$2,574,788.13	
3	Country - Australia	404	$1,066,923.62	
4	Region - New South Wales	186	$483,003.11	
5	Region - Queensland	81	$213,980.06	
6	Region - South Australia	18	$47,916.45	
7	Region - Tasmania	14	$36,511.60	
8	Region - Victoria	105	$285,512.40	
9	Country - Canada	39	$94,093.95	
10	Region - British Columbia	39	$94,093.95	
11	Country - France	66	$192,331.39	
12	Region - Essonne	8	$24,738.93	
13	Region - Garonne (Haute)	2	$6,500.99	
14	Region - Hauts de Seine	9	$20,701.99	
15	Region - Loiret	4	$13,018.57	
16	Region - Moselle	2	$2,686.65	
17	Region - Nord	8	$24,982.07	
18	Region - Seine (Paris)	11	$30,427.05	
19	Region - Seine et Marne	2	$6,528.62	
20	Region - Seine Saint Denis	8	$25,042.05	
21	Region - Val de Marne	2	$5,032.68	
22	Region - Yveline	10	$32,671.79	
23	Country - Germany	85	$207,908.95	
24	Region - Bayern	21	$52,813.24	
25	Region - Brandenburg	2	$6,600.43	
26	Region - Hessen	19	$47,845.67	
27	Region - Nordrhein-Westfalen	18	$41,055.39	
28	Region - Saarland	25	$59,594.22	
29	Country - United Kingdom	136	$359,291.47	
30	Region - England	136	$359,291.47	
31	Country - United States	213	$654,238.75	
32	Region - California	140	$437,758.42	

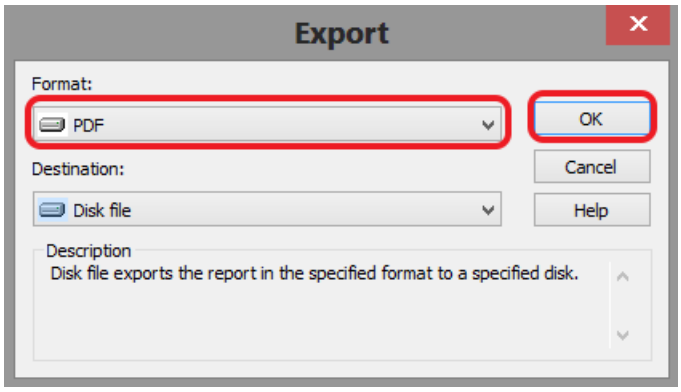
8.2. Exporting to PDF

Instead of printing your report, you may want to save paper and export it to a common file type. This is often a PDF file, which Crystal Reports provides as an export option. This export feature can be very useful, especially when not everyone will have a full version of Adobe Acrobat readily available to create PDF documents.

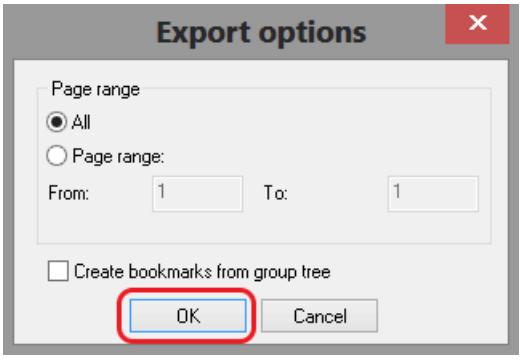
Demo - Export to a PDF File

Using our Customer report, output the results as a PDF file.

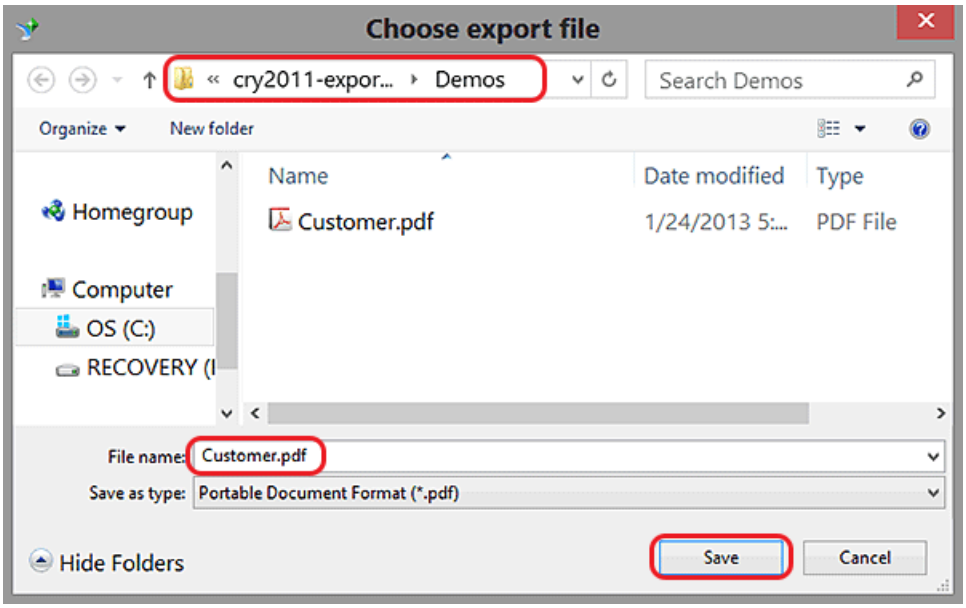
1. Open `C:/ClassFiles/cry2011-export-distribute/Demos/Customer.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`.
2. Click the **Export** icon.
3. In the **Export** dialog box, from the **Format** drop-down list, select "PDF". Click **OK**.



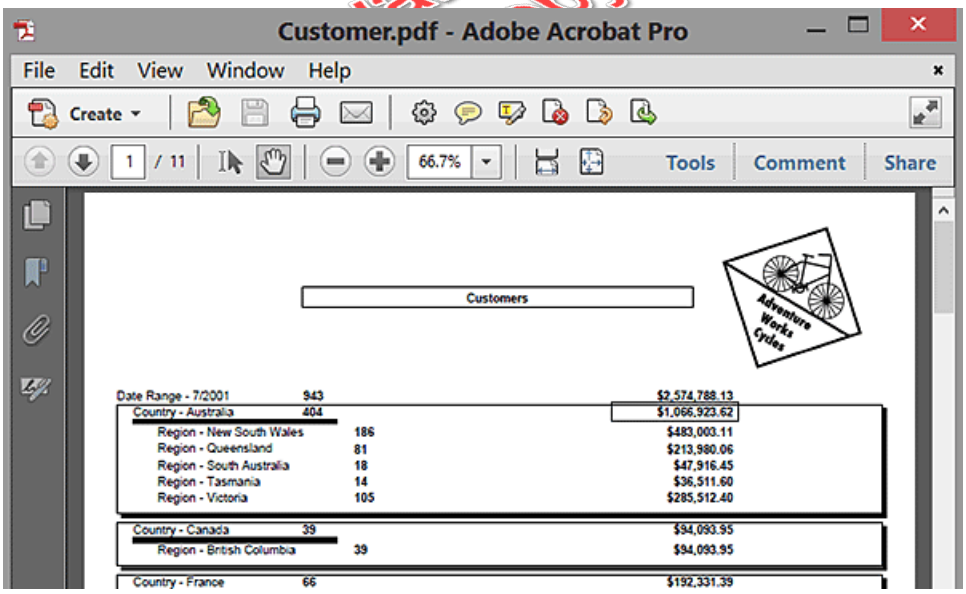
4. In the **Export options** dialog box, click **OK**.



5. In the **Choose export file** dialog box, navigate to `C:/ClassFiles/cry2011-export-distribute/Demos/`. In the **File name** text box, accept "Customer.pdf" and click **Save**.



6. After the export finishes, open Adobe Acrobat Reader and navigate to the newly created file and open it.



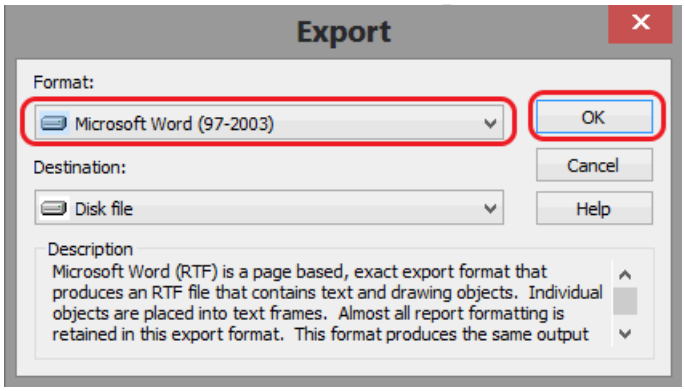
8.3. Exporting to Word

In your organization, when people talk about reports, they are not necessarily referring to what Crystal Reports produces. Instead, they may be looking at a full progress report about some activity within your organization built in a product such as Microsoft Word. Still, these reports may need to incorporate your output. In these cases, you can export your data to a file that can be used in Microsoft Word.

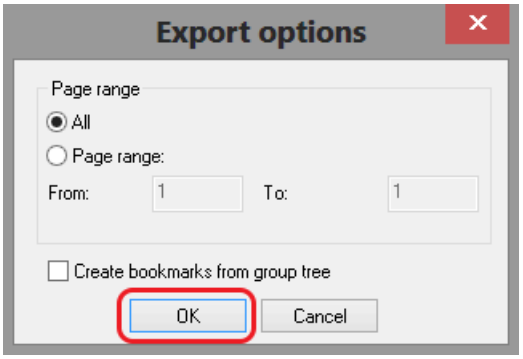
Demo - Export to a Rich Text File

Using the Customer report, export the output of the report to a Microsoft Word file.

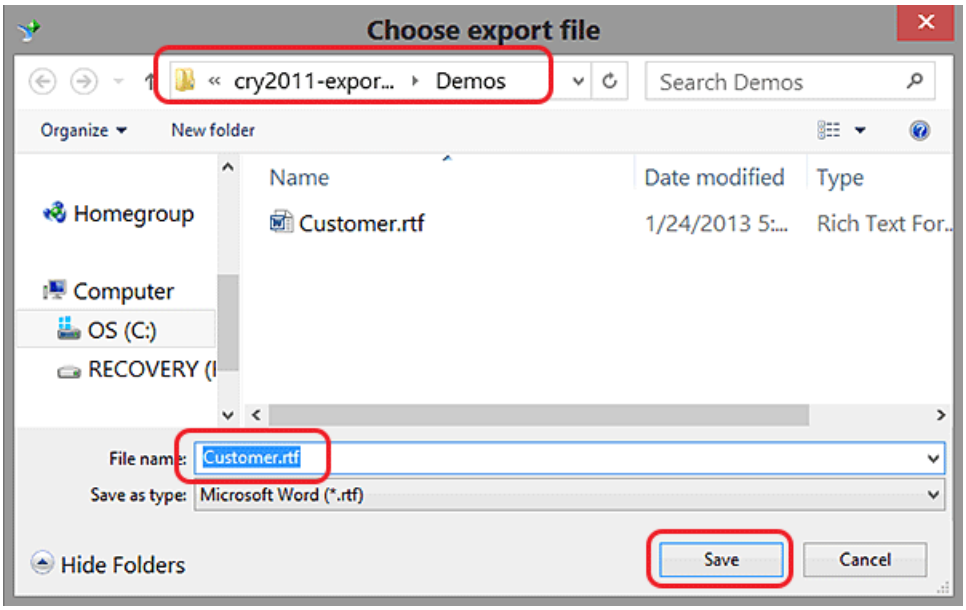
1. Open `C:/ClassFiles/cry2011-export-distribute/Demos/Customer.rpt` or you may use the report that you already built `C:/ClassFiles/StudentReports/Customers.rpt`.
2. Click the **Export** icon.
3. In the **Export** dialog box, from the **Format** drop-down list, select "Microsoft Word (97-2003)". Click **OK**.



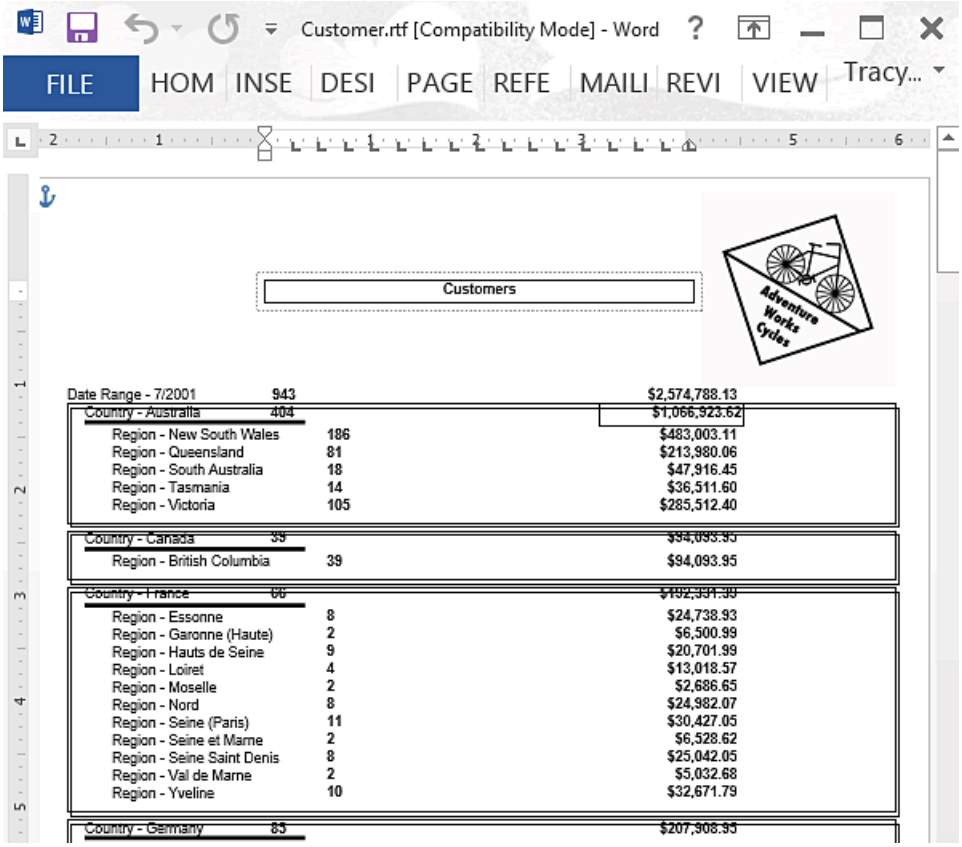
4. In the **Export options** dialog box, click **OK**.



5. In the **Choose export file** dialog box, navigate to `C:/ClassFiles/cry2011-export-distribute/Demos/`. In the **File name** text box, accept "Customer.rtf" and click **Save**.



6. After the export finishes, open Microsoft Word and navigate to the newly created file and open it.



Customers

Date Range - 7/2001	943	$2,574,788.13
Country - Australia	404	$1,066,923.62
Region - New South Wales	186	$483,003.11
Region - Queensland	81	$213,980.06
Region - South Australia	18	$47,916.45
Region - Tasmania	14	$36,511.60
Region - Victoria	105	$285,512.40
Country - Canada	39	$94,093.95
Region - British Columbia	39	$94,093.95
Country - France	66	$192,331.39
Region - Essonne	8	$24,738.93
Region - Garonne (Haute)	2	$6,500.99
Region - Hauts de Seine	9	$20,701.99
Region - Loiret	4	$13,018.57
Region - Moselle	2	$2,686.65
Region - Nord	8	$24,982.07
Region - Seine (Paris)	11	$30,427.05
Region - Seine et Marne	2	$6,528.62
Region - Seine Saint Denis	8	$25,042.05
Region - Val de Marne	2	$5,032.68
Region - Yveline	10	$32,671.79
Country - Germany	85	$207,908.95

Exercise 8: Exporting Reports

10 to 20 minutes

Export the output of the Sales Order report to a Microsoft Excel file and a PDF file.

1. Export the report to a Microsoft Excel file.
2. Export the report to a PDF file.

Solution

1. To export the report output to a Microsoft Excel file:

   A. Open `C:/ClassFiles/cry2011-export-distribute/Exercises/SalesReport.rpt`.

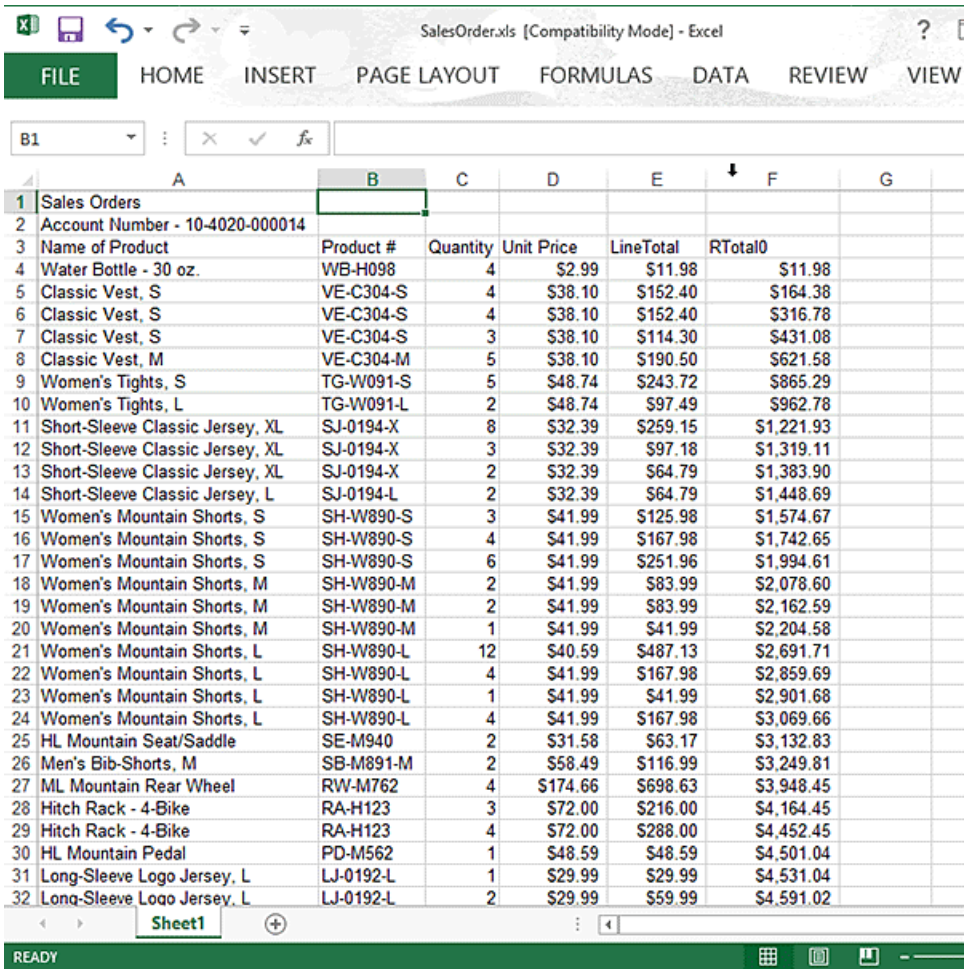
   B. Click the **Export** icon.

   C. In the **Export** dialog box, select **Microsoft Excel Workbook Data-only** from the **Format** drop-down list. Click **OK**.

   D. In the **Excel Format Options** dialog box, select **Typical: Data is exported with default options applied**. Click **OK.**

   E. In **Select Export File** dialog box, navigate to `C:/ClassFiles/cry2011-export-distribute/Exercises/`. In the **File name** text box, accept "SalesOrder.xlsx" and click **Save**.

   F. After the export finishes, open Microsoft Excel and navigate to the newly created file and open it. Adjust the column width if needed.



	A	B	C	D	E	F	G
1	Sales Orders						
2	Account Number - 10-4020-000014						
3	Name of Product	Product #	Quantity	Unit Price	LineTotal	RTotal0	
4	Water Bottle - 30 oz.	WB-H098	4	$2.99	$11.98	$11.98	
5	Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$164.38	
6	Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$316.78	
7	Classic Vest, S	VE-C304-S	3	$38.10	$114.30	$431.08	
8	Classic Vest, M	VE-C304-M	5	$38.10	$190.50	$621.58	
9	Women's Tights, S	TG-W091-S	5	$48.74	$243.72	$865.29	
10	Women's Tights, L	TG-W091-L	2	$48.74	$97.49	$962.78	
11	Short-Sleeve Classic Jersey, XL	SJ-0194-X	8	$32.39	$259.15	$1,221.93	
12	Short-Sleeve Classic Jersey, XL	SJ-0194-X	3	$32.39	$97.18	$1,319.11	
13	Short-Sleeve Classic Jersey, XL	SJ-0194-X	2	$32.39	$64.79	$1,383.90	
14	Short-Sleeve Classic Jersey, L	SJ-0194-L	2	$32.39	$64.79	$1,448.69	
15	Women's Mountain Shorts, S	SH-W890-S	3	$41.99	$125.98	$1,574.67	
16	Women's Mountain Shorts, S	SH-W890-S	4	$41.99	$167.98	$1,742.65	
17	Women's Mountain Shorts, S	SH-W890-S	6	$41.99	$251.96	$1,994.61	
18	Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,078.60	
19	Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,162.59	
20	Women's Mountain Shorts, M	SH-W890-M	1	$41.99	$41.99	$2,204.58	
21	Women's Mountain Shorts, L	SH-W890-L	12	$40.59	$487.13	$2,691.71	
22	Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$2,859.69	
23	Women's Mountain Shorts, L	SH-W890-L	1	$41.99	$41.99	$2,901.68	
24	Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$3,069.66	
25	HL Mountain Seat/Saddle	SE-M940	2	$31.58	$63.17	$3,132.83	
26	Men's Bib-Shorts, M	SB-M891-M	2	$58.49	$116.99	$3,249.81	
27	ML Mountain Rear Wheel	RW-M762	4	$174.66	$698.63	$3,948.45	
28	Hitch Rack - 4-Bike	RA-H123	3	$72.00	$216.00	$4,164.45	
29	Hitch Rack - 4-Bike	RA-H123	4	$72.00	$288.00	$4,452.45	
30	HL Mountain Pedal	PD-M562	1	$48.59	$48.59	$4,501.04	
31	Long-Sleeve Logo Jersey, L	LJ-0192-L	1	$29.99	$29.99	$4,531.04	
32	Long-Sleeve Logo Jersey, L	LJ-0192-L	2	$29.99	$59.99	$4,591.02	

2. To export the report output to a PDF:

   A. Open `C:/ClassFiles/cry2011-export-distribute/Exercises/SalesReport.rpt`.

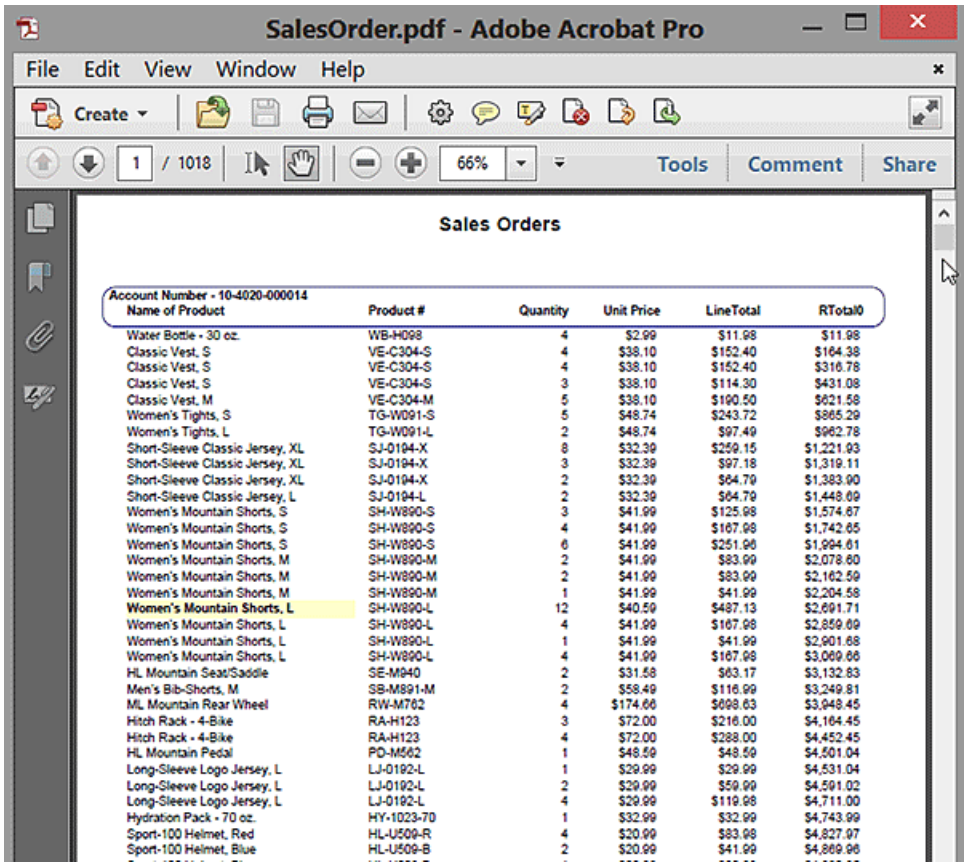
   B. Click the **Export** icon.

   C. In the **Export** dialog box, from the **Format** drop-down list, select "PDF". Click **OK**.

   D. In the **Export options** dialog box, click **OK**.

   E. In the **Choose export file** dialog box, navigate to `C:/ClassFiles/cry2011-export-distribute/Exercises/`. In the **File name** text box, accept "SalesReport.pdf" and click **Save**.

   F. After the export finishes, open Adobe Acrobat Reader and navigate to the newly created file and open it.



Name of Product	Product #	Quantity	Unit Price	LineTotal	RTotal0
Water Bottle - 30 oz.	WB-H098	4	$2.99	$11.98	$11.98
Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$164.38
Classic Vest, S	VE-C304-S	4	$38.10	$152.40	$316.78
Classic Vest, S	VE-C304-S	3	$38.10	$114.30	$431.08
Classic Vest, M	VE-C304-M	5	$38.10	$190.50	$621.58
Women's Tights, S	TG-W091-S	5	$48.74	$243.72	$865.29
Women's Tights, L	TG-W091-L	2	$48.74	$97.49	$962.78
Short-Sleeve Classic Jersey, XL	SJ-0194-X	8	$32.39	$259.15	$1,221.93
Short-Sleeve Classic Jersey, XL	SJ-0194-X	3	$32.39	$97.18	$1,319.11
Short-Sleeve Classic Jersey, XL	SJ-0194-X	2	$32.39	$64.79	$1,383.90
Short-Sleeve Classic Jersey, L	SJ-0194-L	2	$32.39	$64.79	$1,448.69
Women's Mountain Shorts, S	SH-W890-S	3	$41.99	$125.98	$1,574.67
Women's Mountain Shorts, S	SH-W890-S	4	$41.99	$167.98	$1,742.65
Women's Mountain Shorts, S	SH-W890-S	6	$41.99	$251.96	$1,994.61
Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,078.60
Women's Mountain Shorts, M	SH-W890-M	2	$41.99	$83.99	$2,162.59
Women's Mountain Shorts, M	SH-W890-M	1	$41.99	$41.99	$2,204.58
Women's Mountain Shorts, L	SH-W890-L	12	$40.59	$487.13	$2,691.71
Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$2,859.69
Women's Mountain Shorts, L	SH-W890-L	1	$41.99	$41.99	$2,901.68
Women's Mountain Shorts, L	SH-W890-L	4	$41.99	$167.98	$3,069.66
HL Mountain Seat/Saddle	SE-M940	2	$31.58	$63.17	$3,132.83
Men's Bib-Shorts, M	SB-M891-M	2	$58.49	$116.99	$3,249.81
ML Mountain Rear Wheel	RW-M762	4	$174.66	$698.63	$3,948.45
Hitch Rack - 4-Bike	RA-H123	3	$72.00	$216.00	$4,164.45
Hitch Rack - 4-Bike	RA-H123	4	$72.00	$288.00	$4,452.45
HL Mountain Pedal	PD-M562	1	$48.59	$48.59	$4,501.04
Long-Sleeve Logo Jersey, L	LJ-0192-L	1	$29.99	$29.99	$4,531.04
Long-Sleeve Logo Jersey, L	LJ-0192-L	2	$29.99	$59.99	$4,591.02
Long-Sleeve Logo Jersey, L	LJ-0192-L	4	$29.99	$119.98	$4,711.00
Hydration Pack - 70 oz.	HY-1023-70	1	$32.99	$32.99	$4,743.99
Sport-100 Helmet, Red	HL-U509-R	4	$20.99	$83.98	$4,827.97
Sport-100 Helmet, Blue	HL-U509-B	2	$20.99	$41.99	$4,869.96

Conclusion

In this lesson, you learned:

- How to export to various file formats.
- How to use the Crystal Reports Viewer.

LESSON 9
Section 508 Rules

Topics Covered

☑ Section 508 rules.

Introduction

In order for your reports to remain Section 508 compliant, please read up and learn more on the official government website.

9.1. Section 508

Per the official government website[2], the following is a brief description of Section 508:

> In 1998, Congress amended the Rehabilitation Act of 1973 (29 U.S.C. 794d) as amended by the Workforce Investment Act of 1998 (P.L. 105 - 220), August 7, 1998 to require Federal agencies to make their electronic and information technology (EIT) accessible to people with disabilities.
>
> Specifically, Section 508 of that act requires that when Federal agencies ***develop, procure, maintain, or use*** EIT, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use by Federal employees who are not individuals with disabilities, unless an undue burden would be imposed on the agency.

2. https://www.section508.gov/

❖ 9.1.1. What does this mean for Crystal Report users?

Once you have reviewed the official website, you may be overwhelmed or confused about what Section 508 means to you. In short, you will find a few basic rules to follow when building and formatting reports.

- Use good contrast: Make sure you have dark text, and light backgrounds.
- When calling attention to items, do not solely rely on color alone, change the "shape" of the item by using bold and such.
- Use solid, easy to read fonts.
- Keep the layout simple.

These are just a few ideas, please always refer to the official site and comply with all rules posted.

Conclusion

In this lesson, you have learned

- About Section 508 rules.