JReport Designer – Tutorial

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Tutorial: Organization of This Part

The Tutorial book contains basic report building instructions and includes the reporting features that you will find useful. The idea is that after you have walked through this Tutorial, you can easily follow the examples and build your own reports. For in−depth feature coverage such as building reports on XML, EJB, stored procedure, SQL file, please refer to the JReport Designer − User's Guide. This tutorial contains six lessons:

- Lesson One: Installing and starting JReport Designer, including basic data source and connection setup.
- Lesson Two: Creating a simple report with only a table. Also include the most actions for designing report.
- Lesson Three: Creating reports with multiple tables, learn simple report edit work using the designer. Get to know JReport Query Editor and exporting feature.
- Lesson Four: Creating several typical reports – form letters, charts, cross tabs and Subreport.
- Lesson Five: Learning to develop a horizontal page break report.
- Lesson Six: Here is a very simple example showing how to use user data source to develop a report.

JReport Manual Roadmap

The following picture lists the other books in the JReport Designer manual, JReport Enterprise Server manual and JREntViewer manual, and the relationship between them. You are advised to start with the JReport Designer manual. With some report designing knowledge, it is easy to learn JReport Enterprise Server in the Client/Server architecture.

JReport Designer manual includes four books: Getting Started, Tutorial, User's Guide, User Reference.

JReport Enterprise Server (abbreviated as JREntServer) manual contains three books: Getting Started, Tutorial, User's Guide. In addition, the JREntViewer manual is for using JREntViewer with JREntServer.
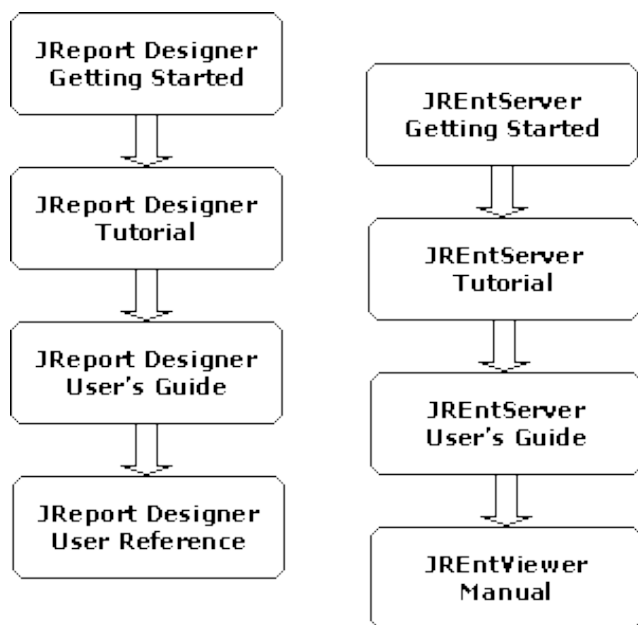
For a complete coverage of the features, operations and other information, please refer to the specific book:

JReport Designer Getting Started
An introduction to JReport. It covers issues associated with installation, setup and configuration of JReport. It is a combination of informational topics and strategic references to various topics in JReport Designer – User's Guide and JReport Designer – User Reference books.

JReport Designer User's Guide
In−depth coverage of JReport Designer's features and generally explains how to use the product. Browse to locate the

chapters that are of interest to you for step−by−step instructions.

JReport Designer User Reference
Specifications, providing technical, system and other reference information related to JReport built−in objects, built−in formula functions and APIs.

JREntServer Getting Started
An introduction to JReport. It covers issues associated with installation, setup, and configuration of JReport Enterprise Server. It describes most informational topics and references in the JREntServer − User's Guide.

JREntServer Tutorial
Basic Server configuration, administration and accessing instructions. After walking though the tutorial, you will be able to use the server for managing the interaction between Client and Server that enables activities such as scheduling and running reports.

JREntServer User's Guide
Procedures that will allow you to gain a more in−depth understanding of JREntServer. We have detailed the steps involved in advanced Server features such as JSP, national language support, server API, application server integration, JReport (Client) Viewer Bean.

JREntViewer Manual
Complete coverage of features and instruction for using JREntViewer with JREntServer. Client API usage is also introduced in this book.

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Lesson 1: Installing and Starting JReport

Introduction

In this lesson, we assume that JReport Designer to C:\JReport of a Window 2000 system.

Installing JReport

To install JReport software, take the following steps.

1. Download the JReport install program ***jrpsetup.exe*** from the Jinfonet web site: http://www.jinfonet.com.
2. Run ***jrpsetp.exe*** and follow the prompts to install.

Running JReport

You can run JReport using either the shortcut or the batch file created by the setup program.

To run the batch file,

- From the desktop, double click **My Computer**, go to **C:\JReport\bin\JReport.bat**, run **Jreport.bat**.
- Or, from an MS−DOS command prompt, issue the following commands:

  C:\>cd\jreport\bin
  C:\jreport\bin\>jreport.

Viewing the Demo Reports

JReport Designer organizes report files and related objects into catalogs. You must open a catalog before you can view, change, or create reports. A set of example reports are provided in the catalog called Tutorial.cat during the setup process.

To open this catalog,

1. Start up JReport Designer using one of the methods above.
2. On the initial **Open Report** dialog, make sure that catalog in use is C:\JReport\Demo\Reports\Tutorial.cat.
3. If the catalog has not been properly set, press the **Browse** button to select the corresponding catalog from the open dialog.

To view one of the example reports, click the **Existing** tab and select one of the reports in the list. You can choose one of three browsers to inspect the design and various elements of a report.

- **Resource Viewer**
  Organized into three tabs: Data, Reports and Styles. The Data tab diplays the query used by the current report as well as DBFields, summaries, formulas and parameters available for the current report.
- **Catalog Browser**
  Containing all resources that you can use to build a report. By default, the base query for this report is expanded in the Catalog Browser. Data fields that are currently used in the report are shown with a red mark.
- **Report Inspector**
  All the objects in the current report are organized into a tree structure on the top part of the Report Inspector window, with the currently selected object highlighted. The properties and values of the current report objects are shown on the bottom part. For most values, clicking the value will let you change it or select a new value from a dialog.

You can now go to Lesson 2 to learn how to design a simple report using Report Wizard. However, if you are using a database system that requires a native JDBC driver, you should follow the instructions below to correctly install the JDBC driver.

Setting up JDBC Driver if Necessary

To show you how to connect to a database via a JDBC driver, we first provide a summary of the steps required, which is followed by three examples. Here are the steps:

1. Install the JDBC driver according to the instructions of the JDBC driver provider.
2. For JReport Designer, edit %installroot%\bin\JReport.bat to append the classpath for the JDBC driver. %installroot% is the path where you installed JReport Designer.
3. Connect to a database via the JDBC driver in JReport Designer by the following steps:

   a). Start up JReport Designer. On the **Open Report** dialog, click **Browse** to open an existing catalog if no catalog is selected. Click the **Cancel** button on the **Open Report** dialog.

   b). Click **Catalog Browser** on the **View** menu to bring out **Catalog browser**. If you do not want to connect to multiple database in one catalog, you can create a new catalog first by clicking **New Catalog** on the **File** menu.
   c). Select the **Default** node in **Catalog browser**, and then click the **New Datasource** button on the toolbar.

   Provide a name for the new data source (the first data source you connect to is set as Default by JReport Designer, and cannot be modified or deleted) on the Input Database Name dialog to bring out the **Get JDBC Connection Information** dialog.

   d). Uncheck **Use ODBC Data Source**, which is checked by default.

   e). Enter the URL of the database in the **JDBC URL** field on the **Get JDBC Connection Information** dialog. For the format of the URL please refer to the instructions of your JDBC driver (An example has been provided in the following: Installing a Sybase JDBC Driver section).

   f). Enter your **User Name** and **Password** for the connection.

   g). Check **JDBC Driver**, enter the JDBC driver class name in the JDBC Driver text box.

   h). Click the **OK** button. The Add Table dialog box will appear to let you add tables into the catalog.

Example 1: Installing a Sybase JDBC Driver

The following example illustrates how to connect to a Sybase database server with the name **SybServer**, port No. **5000**, database **pubs2**, user ID **sa**, and password **123456**:

1. Install Sybase JDBC driver **Jconnect.class**, run the SQL file **sql_server.sql** to create the JDBC metadata tables. (Please refer to Sybase installation user's guide for further details.)
2. Edit %installroot% JReport\bin\JReport.bat to append the archive file of the driver to the classpath:

   ```
   Change: ... -classpath "c:\JReport\lib\report.zip; ... lib\i18n.jar" ...
   To: ... -classpath "c:\JReport\lib\report.zip;c:\jconnect\classes; ...
   lib\i18n.jar" ...
   ```
3. Connect to the database via the JDBC driver in JReport Designer.

   First, click **Catalog Browser** on the **View** menu to bring out **Catalog browser**.

4. Click the **New Datasource** button on the toolbar, provide a name for the new data source, and click OK to bring out the Get **JDBC Connection Information** dialog.
5. Uncheck the check box **Use ODBC Data Source** and enter **jdbc:sybase:Tds:SybServer:5000/pubs2** in the **JDBC URL** field.
6. Enter the User ID **sa** and password **123456.** Check the **JDBC Driver** check box. Enter the JDBC driver class name **com.sybase.jdbc.SybDriver** in the **JDBC Driver** text box.
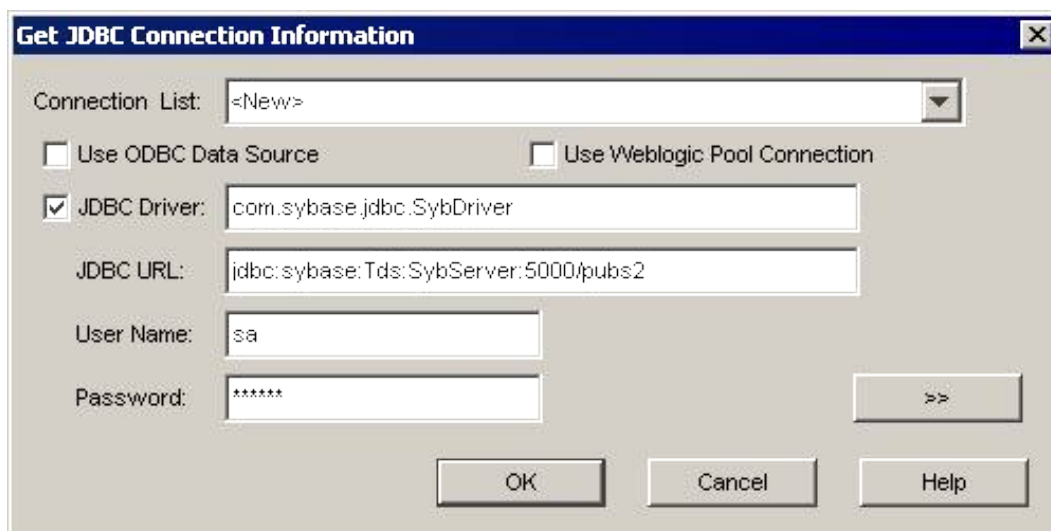
7. Another way to specify the JDBC driver name is to edit and add the driver name to the file %InsallRoot%\bin\jdbcdrivers.properties.
8. Click the **OK** button. Then use the **Add Table** dialog to add tables into the catalog.

Example 2: Installing an Oracle JDBC Driver

The following example illustrates how to connect to an Oracle database server with the name **p02_wuhb**, port No. **1521**, database **orcl**, user ID **scott**, and password **tiger**:

1. Install Oracle JDBC driver **classes12.zip**/**Classes12.jar** (for Oracle 8i or 9i) or **ojdbc14.jar** (for Oracle 9i). (Please refer to the user's guide of Oracle installation for further detail.)
2. Edit %installroot%JReport\bin\JReport.bat to append the archive file of Oracle thin driver to classpath:

```
Change: ... -classpath "c:\JReport\lib\report.zip; ... lib\i18n.jar" ...
To:... -classpath "c:\JReport\lib\report.zip;c:\orc\thin\lib\classes111.zip; ...
```

```
lib\i18n.jar" ...
```
3. Connect to the database via the JDBC driver in JReport Designer.

   First, click **Catalog Browser** on the **View** menu to bring out **Catalog browser**.
4. Click the **New Datasource** button on the toolbar, provide a name for the new data source, and click **OK** to bring out the Get **JDBC Connection Information** dialog.
5. Uncheck the checkbox **Use ODBC Data Source** and enter **jdbc:Oracle:thin:@p02_wuhb:1521:orcl** in the **JDBC URL** field.
6. Enter the User ID **scott** and password **tiger**. Check the **JDBC Driver** check box. Enter the JDBC driver class name **oracle.jdbc.driver.OracleDriver** in the **JDBC Driver** text box.
7. Another way to specify the JDBC driver name is to edit and add the driver name to the file %InstallRoot%\bin\jdbcdrivers.properties.
8. Click the **OK** button, then use the **Add Table** dialog to add tables into the catalog.

Example 3: Installing an Interbase JDBC Driver

The following example illustrates how to connect to an Interbase database server with the name **InterbaseServer**, database **demo.gdb**, user ID **TUTORIAL**, and password **TUTORIAL**.

1. Install Interbase JDBC driver **interclient.jar**. (Please refer to the user's guide of Interbase client installation for further detail.)
2. Edit %installroot%JReport\bin\JReport.bat to append the archive file of Interbase thin driver to classpath:

   Change: ... –classpath "c:\JReport\lib\report.zip; ... lib\i18n.jar" ...
   To: ... –classpath "c:\JReport\lib\report.zip;*c:\interbase\lib\interclient.jar;* ... lib\i18n.jar" ...
3. Connect to the database via the JDBC driver in JReport Designer.

   First, click **Catalog Browser** on the **View** menu to bring out **Catalog browser**.
4. Click the **New Datasource** button on the toolbar, provide a name for the new data source, and click **OK** to bring out the Get **JDBC Connection Information** dialog.
5. Uncheck the check box **Use ODBC Data Source** and enter **jdbc:interbase://InterbaseServer/c:\demo.gdb** in the **JDBC URL** field.
6. Enter the User ID **TUTORIAL** and password **TUTORIAL**. Check the **JDBC Driver** check box. Enter the JDBC driver class name **interbase.interclient.Driver** in the JDBC Driver text box.
7. Another way to specify the JDBC driver name is to edit and add the driver name to the file %InstallRoot%\bin\jdbcdrivers.properties.
8. Click the **OK** button, then use the **Add Table** dialog to add tables into the catalog.

Now that your data source is set up, you can go to Lesson 2 where you will learn how to design a simple report using Report Wizard.

Lesson 2: Creating a Report From Report Wizard

Introduction

You can build a report with Report Wizard of JReport Designer, and you can modify an existing report by dragging and dropping operations and changing the values of the object properties.

In this lesson, you will learn to create a simple report using Report Wizard.

JReport provides you with twelve kinds of report templates which can simplify your editing work. You can choose a template to your liking in the initial **Open Report** dialog. Below is an example report with the title "Customer Sales Report" in left alignment format. Detailed customer records are grouped by Country and within each country by Region. The Sales from last year are totaled for each Region and for each Country.

Customer Sales Report

Country: USA
Region: CA

City	Customer Name	Phone Number	Annual Sales
Cupertino	The Island Coffee	(408) 777–0001	$98,239.00
>Irvine	Cafe International	(714) 243–9548	$51,958.00
Los Gatos	International Coffee Hut	(650) 867–9879	$81,349.00
Palo Alto	Automatic Java Machines	(650) 239–4690	$74,986.00
San Francisco	Cafe San Francisco	(415) 288–9090	$67,823.00
		Annual Sales Totals:	$374,355.00

Region: NY

City	Customer Name	Phone Number	Annual Sales
Dix Hill	The Ultimate Bean	(212) 938–4491	$54,738.00
New York	Starmug Coffee	(212) 834–9082	$101,001.00
New York	Absolute Java	(212) 946–3462	$50,600.00
Scarsdale	The Java King	(914) 657–9823	$78,321.00
		Annual Sales Totals:	$284,660.00

Annual Sales Total in the USA: $659,015.00

Building a report from a database is time consuming, but with JReport Designer, it only takes a matter of minutes to compile your data into a professional looking report.

Creating a Simple Report Using Report Wizard

1. Start JReport Designer according to the instructions from lesson one.
2. When the **Open Report** dialog appears, for this tutorial you should use the following catalog:

    C:\jreport\Demo\Reports\Tutorial.cat

    where c:\jreport is the path where you installed JReport Designer. You can use the **Browse** button to browse to the catalog file.
3. With the **New** tab active, click the **Left Alignment** icon to select it.
4. Click the **Create** button to launch **Report Wizard**.
5. With the first four tabs of Report Wizard, you can specify the source of data and select data to be displayed in the report.

    Data – Selects the data source from all data objects to form a working set.
    Joins – Joins multiple tables using JReport Designer's default settings or manually.
    Conditions – Specifies the criteria which will retrieve data from the database to form the query of the report.
    Display – Selects which fields to show in the report.

    Let's first look at the **Data** tab. Here you should select a data source from the **Catalog Data Source** drop–down list first, and then choose the objects you are interested in from the list below and place them into the Working Set list. For this example, we select the **Default** data source, and in the list below, expand the **Connection** item. Next, under the **Tables** node select the **Customers** table. Click the button to add all of the fields in the table to the working set, or drag the fields to the Working Set directly. You can also expand the table and add individual field one by one to the working set.
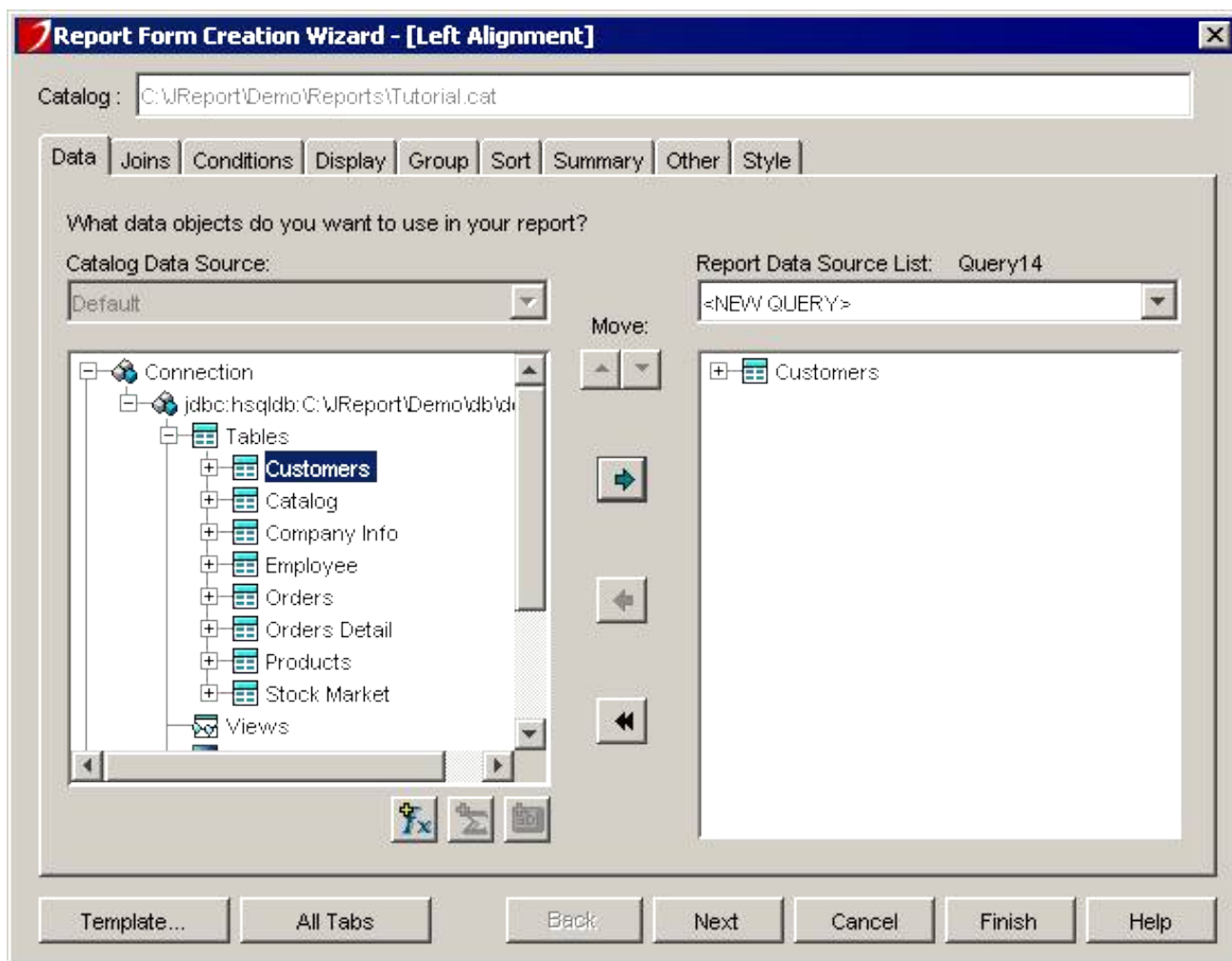
By placing the objects in the working set, you have implicitly instructed JReport Designer to create a query, which will retrieve all of the data you will need for the report.
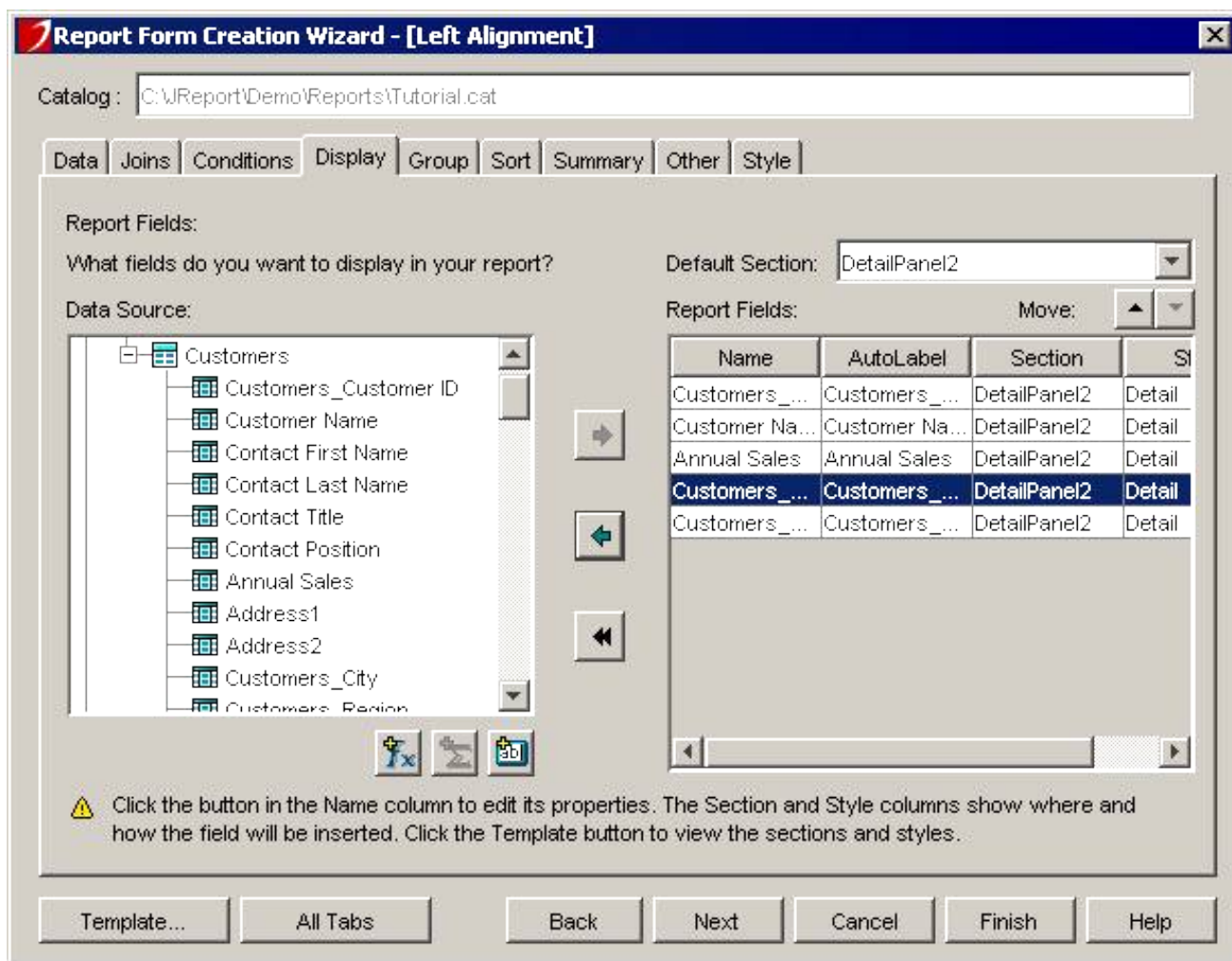
6. Skip the Joins tab, since the report we are creating is a one–table report.
7. Click on the Conditions tab. You can specify search conditions in this tab.

You can type your search criteria both in the format of Filter and QBE.

In the Filter format, a search condition expression will appear on the screen, which enables you to type your search criteria. The Expression includes not only the DBField selected, but also formulas and parameters. You can also manually type the strings supported by the database.

If you select the QBE (Query By Example) format, you will specify the search criteria in a template resembling the data record. All the data fields are shown to you, you just enter information that restricts the search to the specified criteria.

Here we want to compare the sales in California and New York. Therefore, in QBE, type the following conditions. Once finished, click the **View SQL** button to preview the SQL statement about your selection query so far.

Notes:
- ♦ With QBE format, column names may not show completely. For example, column name "Customers_Country" is cut off and shows only "Customers_Cou". To show the full column name, move the mouse cursor to the line between two columns, till the cursor becomes a double–headed arrow, you can move the line by dragging and dropping.
- ♦ You can adjust the order of the column. Move the mouse cursor on the column name, press the left button, and drag the column to the place you want.

8. Click on the *Display* tab.

Usually not all of the fields from a query need to be visible in a report. You should indicate which fields to display by selecting the objects from the working set and adding them to the list on the right.

For this example, select: *City, Customer Name, Phone, Fax* and *Annual Sales* to display in the report.

Note: You can remove the selected field using button ⬅ or change their order using buttons ▲ or ▼ on the top of the list.

9. Click the **Group** tab.

   Note: Records in a report are usually organized into groups based on certain criteria. With the Group/Sort tab you can enter the criteria to define multi–level groups. You can also specify the ordering of groups and ordering of records within each group.

   We will group the data by selecting **Country** and then by **Region.** The arrows in the **Direction** column indicate the sorting sequence of the groups. You can choose from descending order (c,b,a), ascending order (a,b,c) or specify a special ordering criteria.
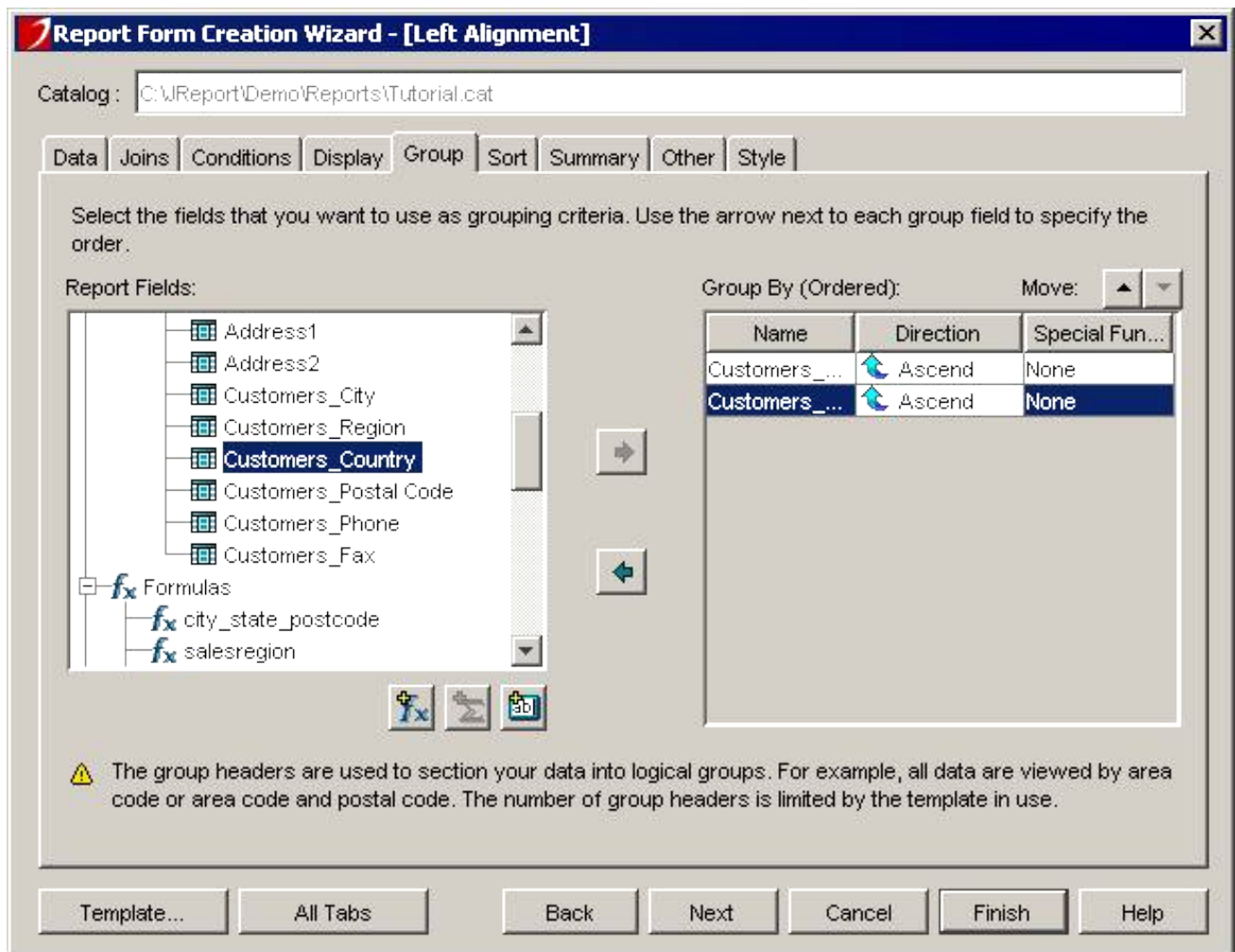
10. Next you can sort records within the groups you created by clicking the **Sort** tab and selecting the sorting fields. Here choose the **City** field to sort the records, as shown below.
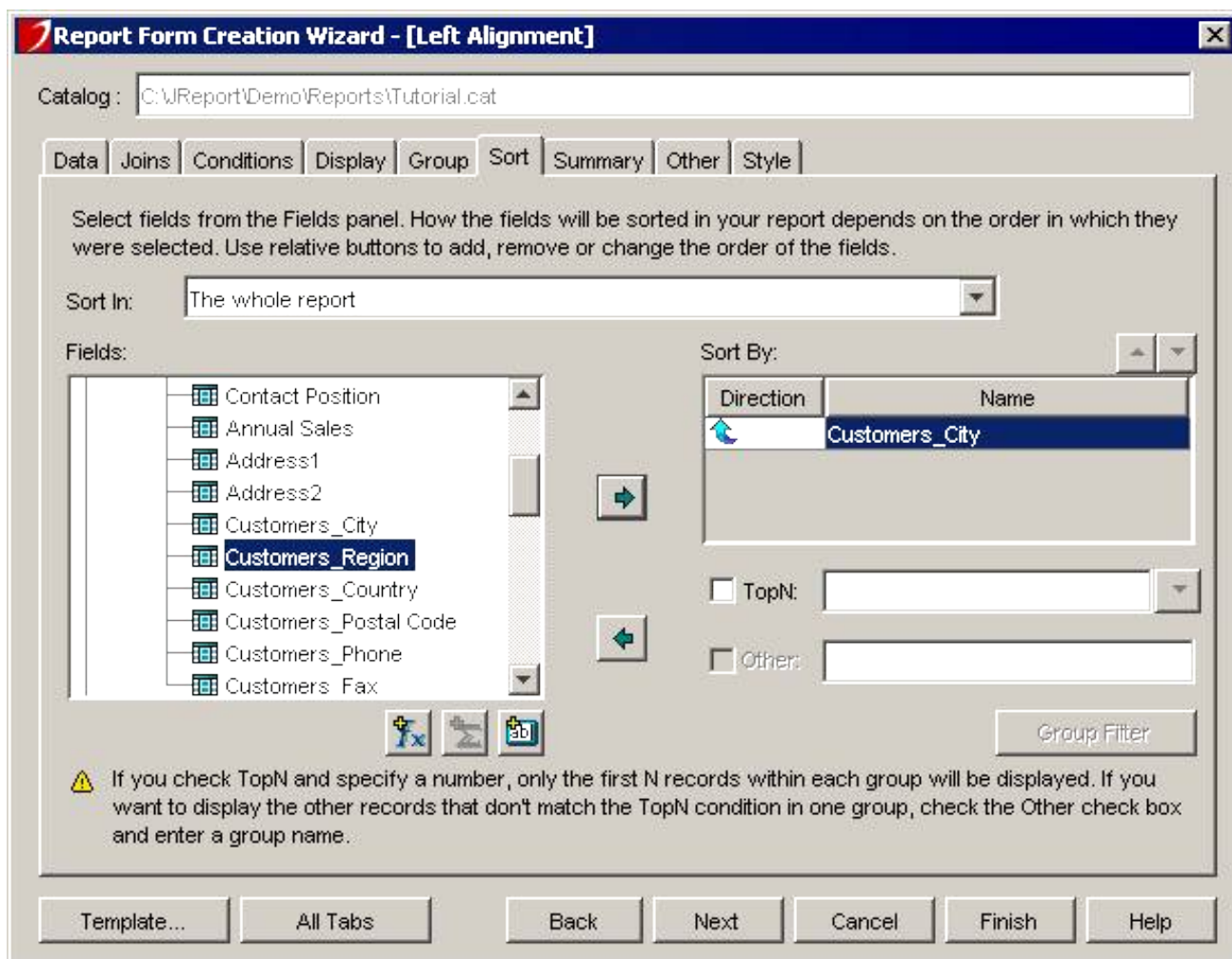
11. Click the **Summary** tab to specify summary functions.
    To generate a total sales amount for each **Region** group, select **Annual Sales**, click ➡ to move it to the

    Summary Fields. The **Function** drop–down list allows you to select a summary function such as sum, count, minimum, maximum. We select **Sum** for this example to see a total of **Annual Sales**. The Sum Function is computed when **Break Field** changes value at the end of a group. Clicking the Region field will cause a sum to be created for each Region group.

    To generate a total sum of annual sales in the country, move **Annual Sales** to **Source Fields** again, select the **Sum** function for it. Leaving **Break Fields** empty. You can see **Grandtotal** in the **Style** column, JReport Designer calculates the total annual sales.
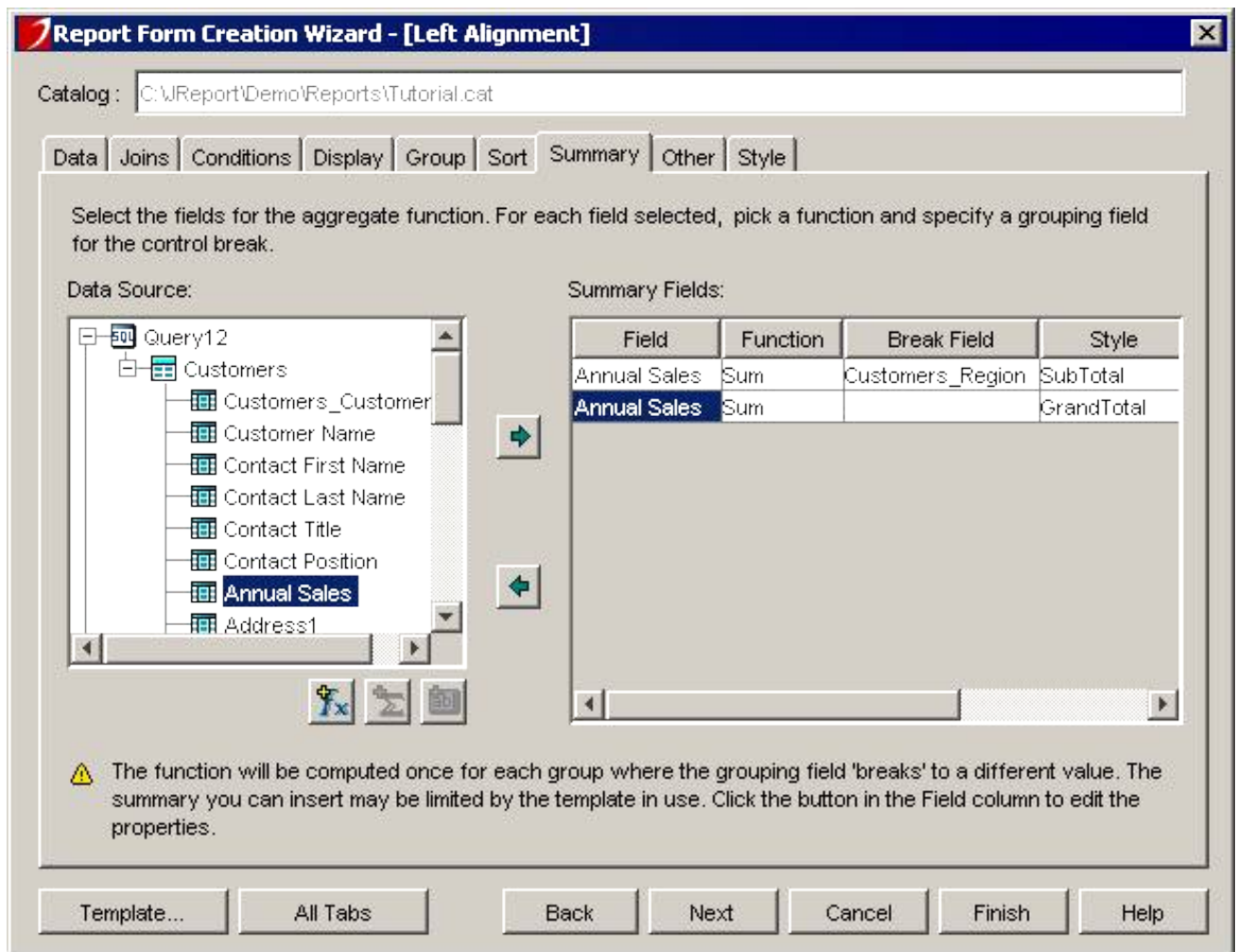
12. Click the **Style** tab to specify the page orientation.
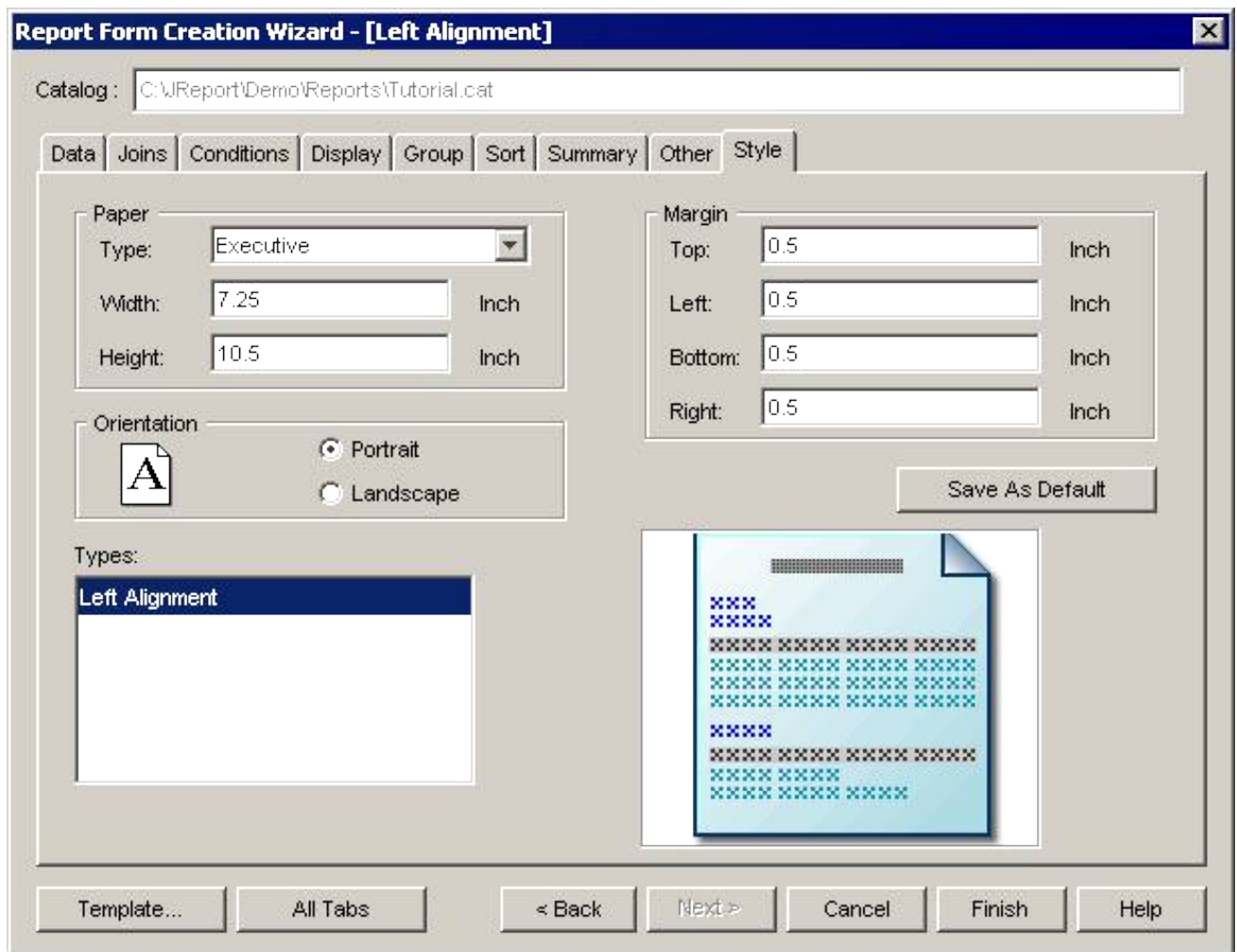
13. Click **Finish** to generate the report. The following is part of the report in Design mode.
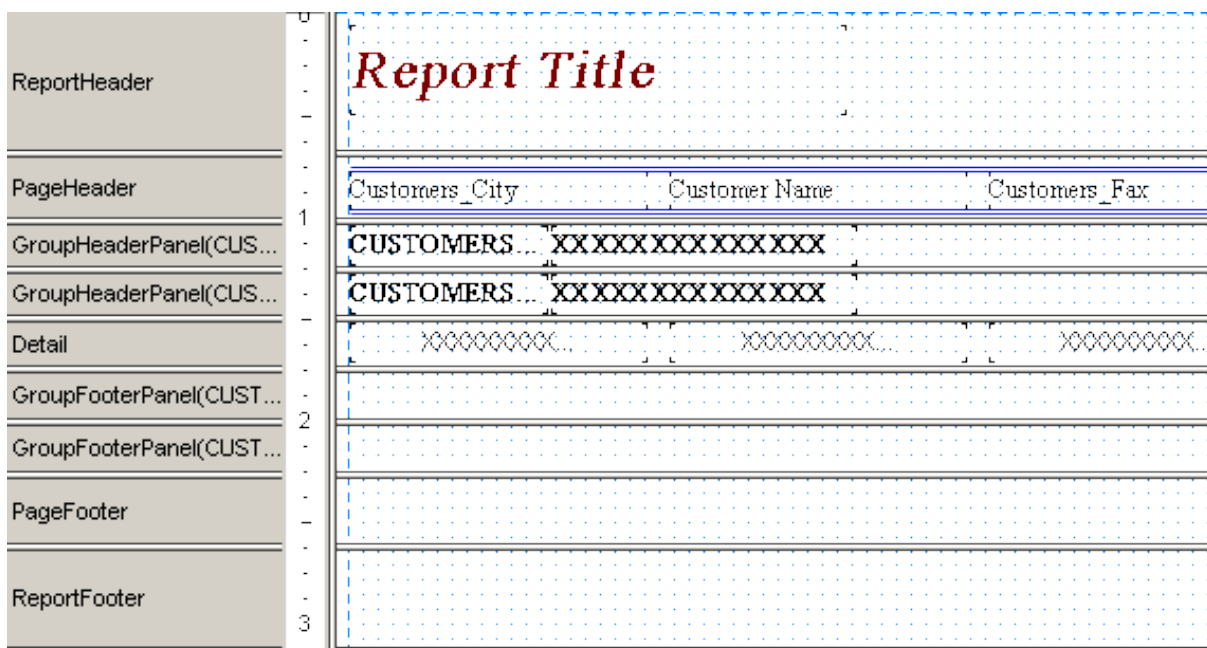
When the report Design window appears, you can make any adjustment you like to the report layout.

Report Inspector can be used to examine and change the objects in the report. Just highlight an object in *Report Inspector* to change its properties, such as font, size, color.

For more information, please refer to User's Guide | Refining the Report Layout | Report Inspector.

Another simple way to edit your report is through dragging, dropping, and clicking the Toolbar and the Menu bar. In Design mode, first highlight the object you want to edit by clicking it. When the cursor becomes a cross, you can then move the highlighted object by dragging and dropping.

For this example, we have to manually move the column names from the PageHeader section to the second GroupHeader section, and move report title to the PageHeader section.

For more information about how to edit the report layout, please refer to User's Guide | Refining the Report Layout.

After editing, your report in Design mode may look like this:
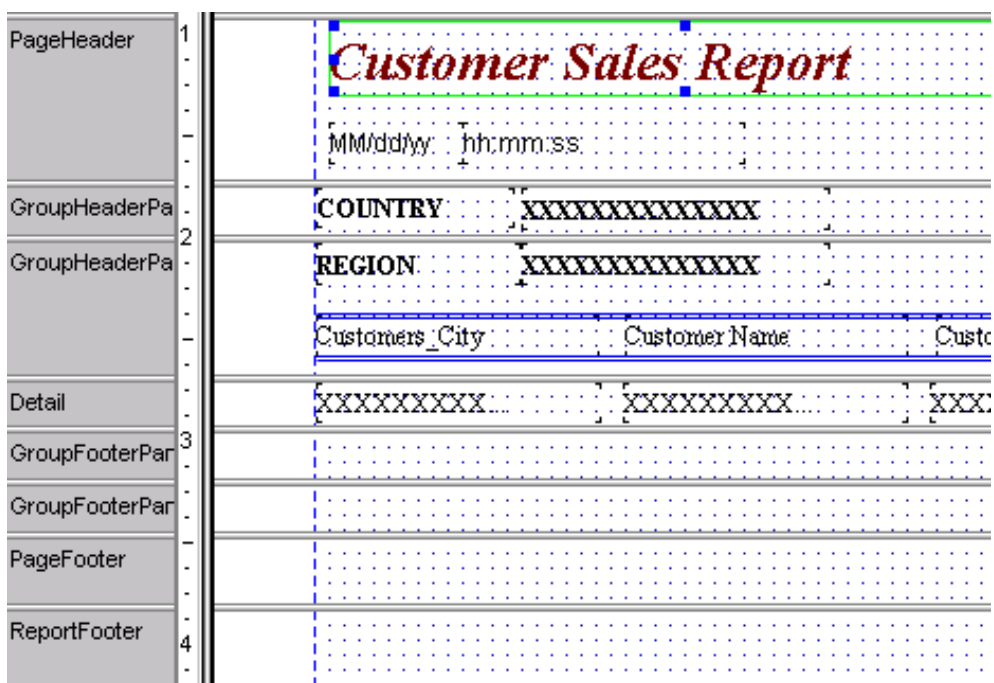
14. Click on the *View* tab to run your report and view it. What you are seeing is still a rough copy of your report.

Customer Sales Report

08/28/02   01:15:32

COUNTRY	USA
REGION	CA

Customers_City	Customer Name	Customers_Phone
Cupertino	The Island Coffee	(408) 777-0001
Irvine	Café International	(714) 243-9548
Los Gatos	International Coffee Hut	(650) 867-9879
Palo Alto	Automatic Java Machines	(650) 239-4690
San Francisco	Café San Francisco	(415) 288-9090

REGION	NY

| Customers_City	Customer Name	Customers_Phone
Dix Hill	The Ultimate Bean	(212) 938-4491
New York City	Starmug Coffee	(212) 834-9082
New York City	Absolute Java	(212) 946-3462
Scarsdale	The Java King	(914) 657-9823

15. Final work on your report.

Now you are ready to fine–tune your report and give it a professional look. Remember, Report Wizard provides you with a quick start but JReport Designer provides a wealth of tools for you to adjust the report to your preference. Use Report Inspector to change font, size, position, and other variables. Do not forget that you can also move items anywhere in Design view. Try to insert labels and texts and place objects in headers/footers and details.

Placing Parameters in Your Report

Frequently you need to specify a parameter when running a report. For example, you may want to input an order date as an input parameter when running a report so that only orders on that date will be displayed. Typically, parameters are used as part of the query conditions (search criteria) so that only records satisfying the specified parameter will be retrieved to become part of the report.

1. Select *DBField* from the *Insert* menu list, and then on the Insert DBField dialog select the *Parameters* tab, or on the Edit toolbar, click the *Insert Parameter* button directly.
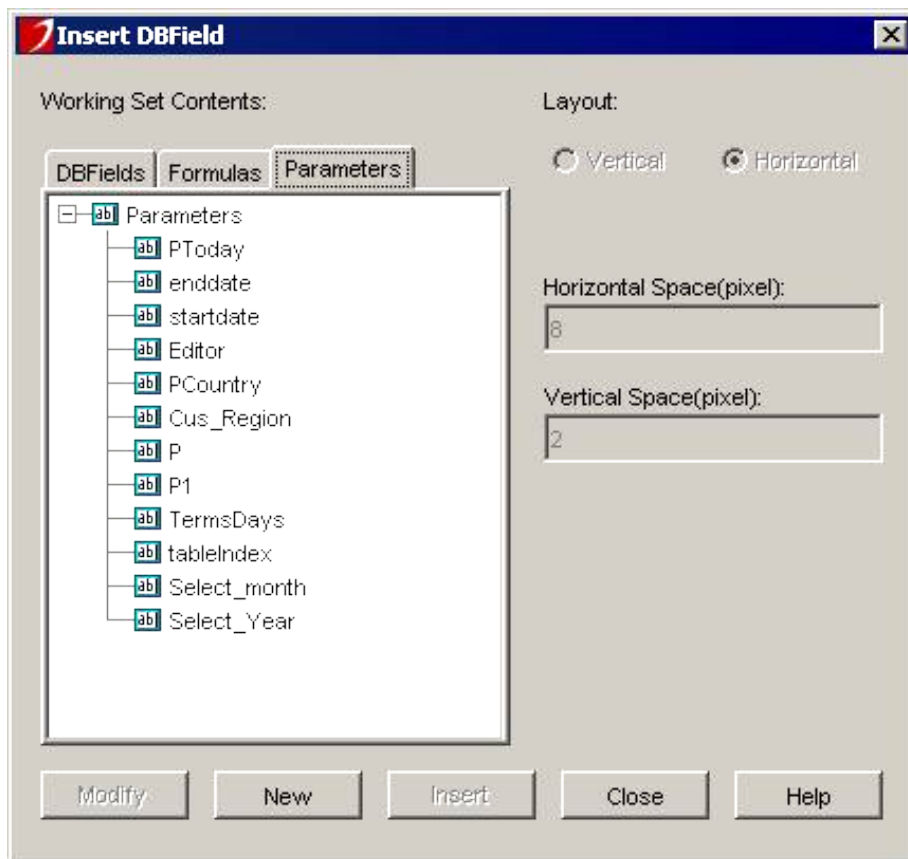
2. Click on the **New** button to create a new parameter.
3. The next window should appear after clicking on the new button. The example parameter we created below allows the last person who edited the report to place his name on it.
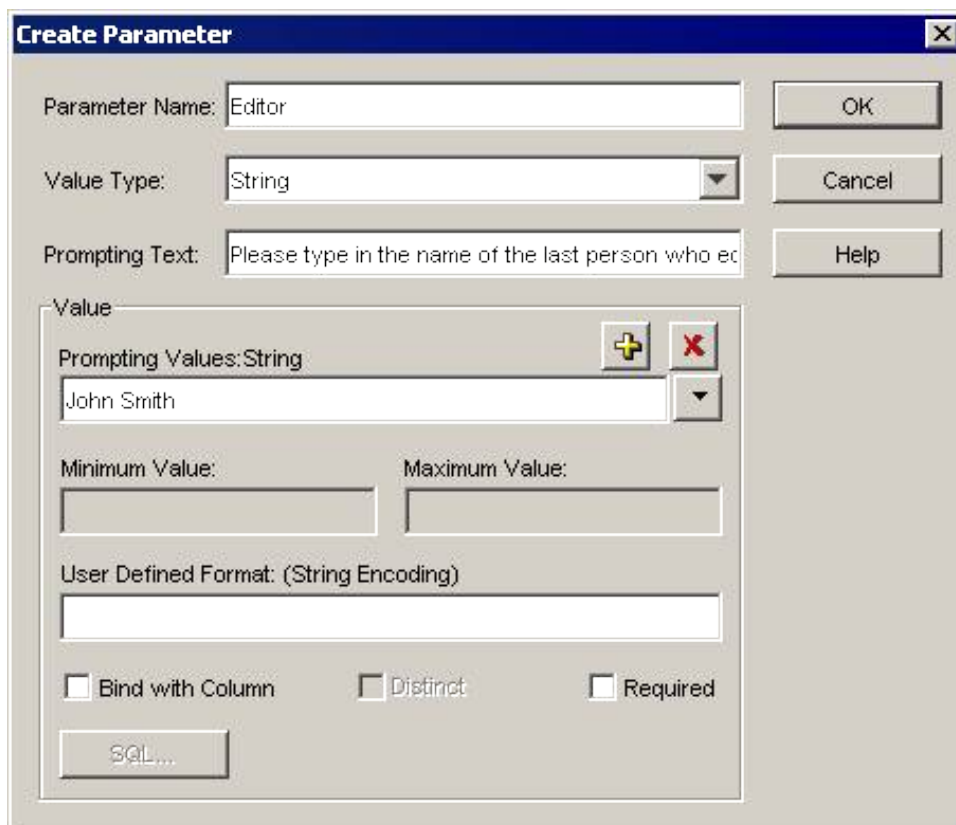
In the Parameter Name text box, type in a name for your parameter. We chose " Editor" for this example. In the Prompting Text area, please enter a message that will appear. Our message was, "Please type in the name of the last person who edited."

Note: You can only create a one line statement.

4. The *Value Type* should be left as String. This allows the parameter to remain the same as text. There are also other Value Types.

Reference Notes: User Reference | JReport Objects | Parameter

Finally, place an example in the Default Prompt Value so that you have a format to follow. We chose "John Smith" since our parameter deals with name.

5. Click *OK* to finish.
6. Select the new parameter and click the *Insert* button. Place it into your report.
7. Click on the *View* tab to view your report.
8. The following window will appear when you view the report.
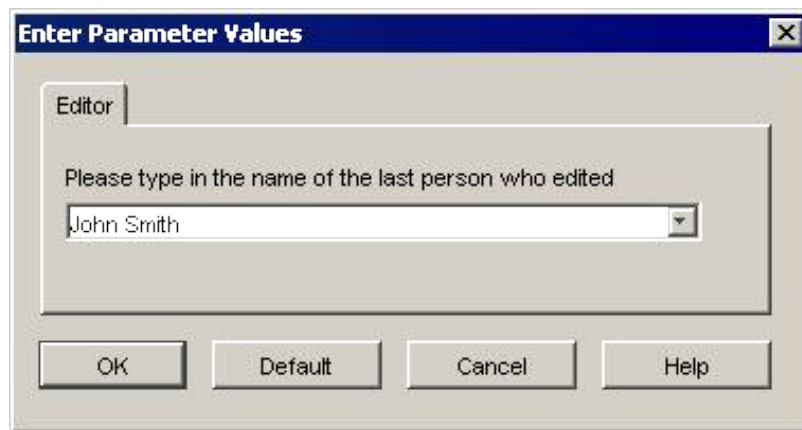
You can type in any text field in the area. The default button will change the value back to its original value. In our case, it was John Smith.

9. This was the final outcome of our report.

Design:

Customer Sales Report   Edited Last by: XXXXXXXXXXXXXXX

MM/dd/yyyy   hh:mm:ss

Country: XXXXXXXXXXXXXXXXXXXXXXX

Region: XXXXXXXXXXXXXXXXXXXXXXX

City	Customer's Name	Phone	Fax
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXX

Total Ann

Total Cou

View:

Customer Sales Report   Edited Last by: John Smith

07/03/2001   03:30:27

Country: USA

Region: CA

City	Customer's Name	Phone	F
Cupertino	The Island Coffee	(408) 777-0001	(408) 7
Irvine	Café International	(714) 243-9548	(714) 2
Los Gatos	International Coffee Hut	(650) 867-9879	(650) 8
Palo Alto	Automatic Java Machines	(650) 239-4690	(650) 2
San Francisco	Café San Francisco	(415) 288-9090	(415) 2
			Total A:

Region: NY

City	Customer's Name	Phone	F
Dix Hill	The Ultimate Bean	(212) 938-4491	(212) 9
New York City	Starmug Coffee	(212) 834-9082	(212) 8
New York City	Absolute Java	(212) 946-3462	(212) 9
Scarsdale	The Java King	(914) 657-9823	(914) 6

Lesson 3: Creating and Printing Reports From Multiple Tables

Introduction

In the last lesson, you learned how to create a report using a single table from the database. In this lesson you will learn how to create a report that will take data from not one table, but several. Before going through the step–by–step process of creating the report for this lesson, you may want to first examine the fully executed report called lesson3 which can be found in the Tutorial catalog.

In this lesson, you will learn:

- Creating a simple standard report with multiple tables
- Formatting and Editing Your Rough Report
- Adding Color to Your Report
- Adding Images to Your Report
- Adding and Editing Formulas and Summaries
- Formatting Fields
- Printing and Exporting to HTML

A Sample Standard Report with Multiple Tables

Jinfonet Gourmet Java
03/07/2001

Bill to:	Washington Java	Order ID#	3003
	13220 Edward Lane	Order Date	1/2/98
	Washington D.C. 20183	Shipping VIA	DRY Shipping Co.

Product Name	Category	Price	Quantity (lbs)	Discount	Total
Chocolate Hazelnut	Flavored	$9.00	50	$0.00	$450.00
French Vanilla	Flavored	$9.00	20	$0.00	$180.00
French Roasted	Roasted	$5.95	50	$20.00	$277.50
Irish Cream	Flavored	$9.50	30	$0.00	$285.00
Mocha Java	Straights & Blends	$8.45	20	$0.00	$169.00
Vienna Roast	Roasted	$9.50	10	$0.00	$95.00/td>

	Subtotal	$1,456.00
	Shipping	$99.00
	Tax	$77.75
	Total Order Amount	$1632.75

This report can be created by JReport by simply adding fields from the **Customers**, **Products**, **Orders**, and **Orders Detail** tables found in the demo database. Subtotals, Taxes and Total Order Amount are calculated using the Formula and Summary objects of JReport.

# Creating a Report With Multiple Tables

Using Report Wizard

1. Start JReport according to the instructions from lesson one and create a new report using the **Standard** template.
2. In the **Data** tab of Report Wizard, select **Customers**, **Products**, **Orders**, and **Orders Detail** tables as the working set.
3. Click the **Joins** tab, and manually join fields by dragging and dropping them together. Join them as:

   Orders Detail_Order ID = Orders_Order ID
   Orders_Customer ID = Customers_Customer ID
   Orders Detail_Product ID = Products_Product ID

   Reference Note: For more information about Join, please refer to User's Guide | Developing Reports with Report Wizard | Join Tab
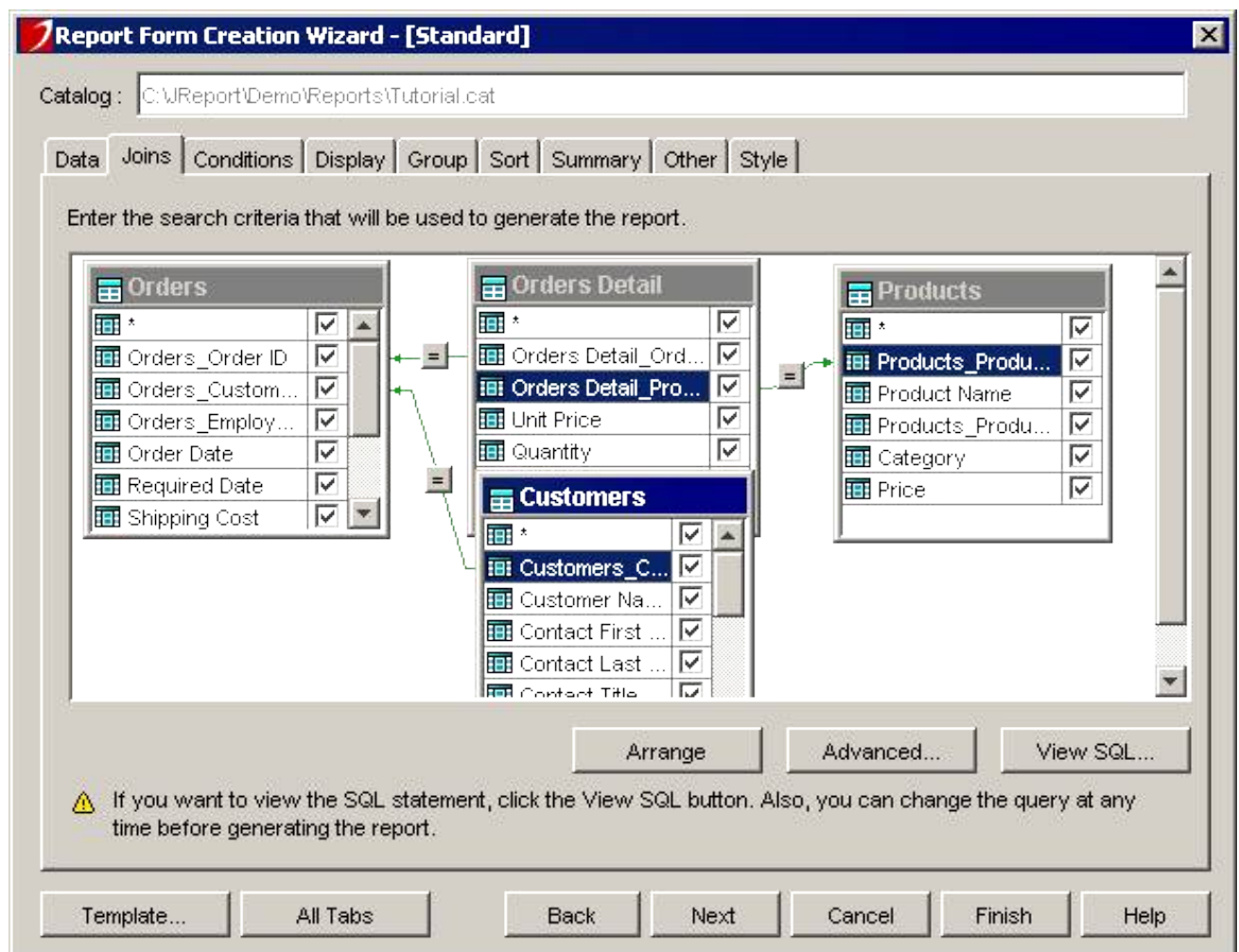
4. Click the **Conditions** tab. As introduced in Lesson 2 of this tutorial, there are two ways to specify the conditions: Filter and QBE, here select QBE. Type **>3010** in the **Order ID** column of the Orders table in order to see order IDs greater than 3010.
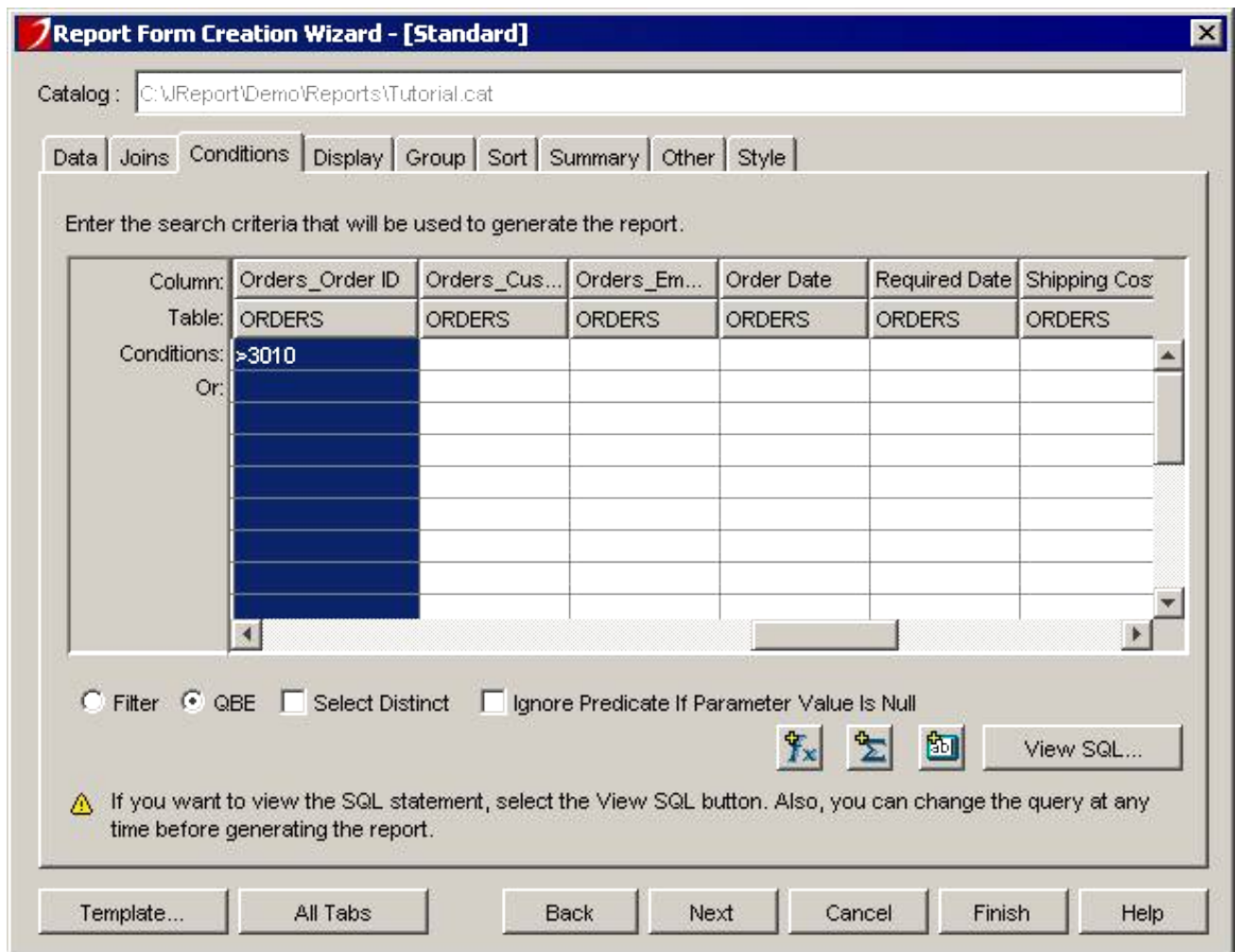
5. Click the **Display** tab. Select:

   Customers Table: Customer Name
   Products Table: Product Name, Category
   Orders Table: Shipping Cost, Order Date, Ship Via
   Orders Detail Table: Unit Price, Quantity, Discount
6. Click the **Group** tab. For this example, we will group the data by **Orders_Order ID**, which means putting data
   with the same Orders_Order ID together in groups. Choose **Orders_Order ID** to group by, in ascending order.
7. Skip **Sort, Summary, Other** and **Style** tabs. We are not focusing on these functions in this tutorial.
8. Now click **Finish** to generate the report.

Formatting and Editing Your Rough Report

1. So far, your report design looks something like this:

This is very rough and far from the nice report you would like to have. However, with JReport it is easy to format this report and give it a professional look.

Start out by picturing in your mind where you want the data. Do you want to put the ordering information in the group header and summary in the group footer? Perhaps drawing a rough sketch of your report on paper would prove very helpful.

2. You can start by editing the system generated field labels into something more readable. Use the mouse to select a label. You can edit the label directly by double clicking it. Resize, drag and drop labels to make them look the way you want.

3. The example below can be used as a guide to organize fields. Use the View tab frequently to examine the progress of your design.
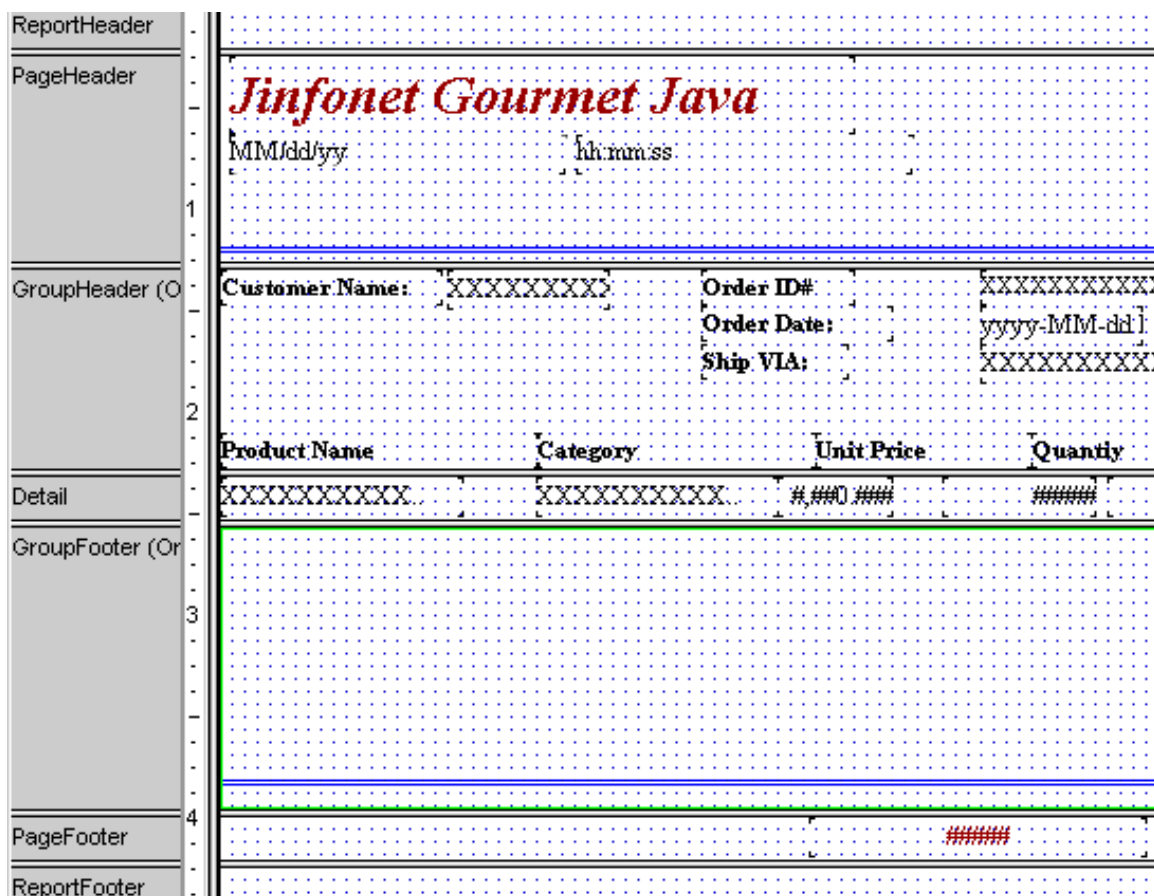
Adding Color to Your Report

You can make your report look more interseting by adding color to it. JReport gives you the option of changing the background and foreground color of any object.

1. Make sure all of your label objects are aligned as with the example shown above. Whenever you click an object, it becomes highlighted and its property values are displayed in Report Inspector. You can manually adjust any of its values. For example, you can change the width of a field precisely by entering the exact number of pixels.
2. Select the label field **Product Name**. Go to Report Inspector. Under **Color** select **Background**, and choose dark blue. Then, under **Color**, select **Foreground** and choose white.
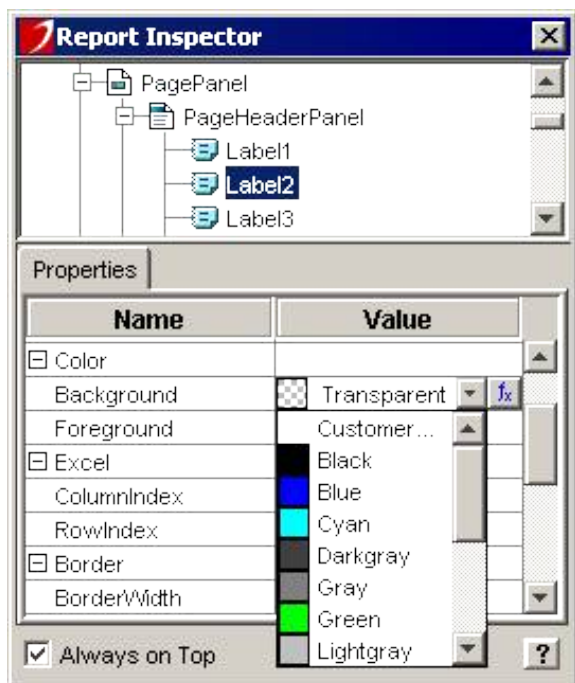
3. The result of your color selection will be instantly displayed on the screen in the below diagram:
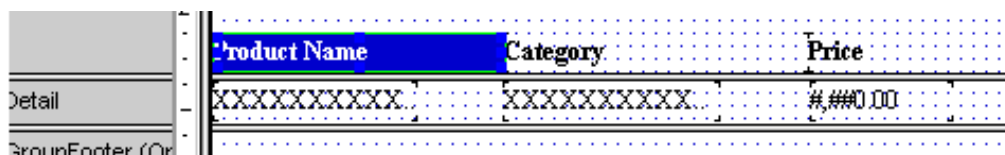
Repeat step 2 for the rest your labels. Make your highlights look like the example below:
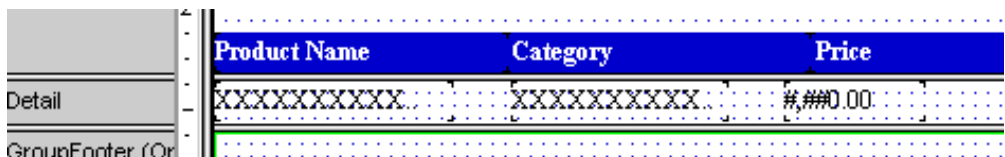
Note: A quicker way to change colors is to click and drag the mouse to define a box that selects all the objects at once. Then use Report Inspector to change the color for all objects simultaneously.

Adding Images to Your Report

Adding an image to a report is a very simple task.

1. In the main design window, go to the *Insert* menu and select *Image*.
2. Select a GIF, BMP or JPEG file located in the catalog directory. For example here, we use the image file Coffee.jpg under the catalog directory.
3. Place the image in the upper right corner (or anywhere else) on the report. You may resize it as necessary by dragging the handles or by using Report Inspector.

Adding and Editing Formulas and Summaries

In this section, you will learn how to define formulas and summaries in Catalog Browser and add them to the report.

1. The example invoice report contains the following components:
   ♦ A billing address
   ♦ The Total price for each product ordered

♦ The total cost of all the products ordered
♦ The shipping charge and tax
♦ The Total cost of the invoice

Let's first add the billing address. A typical address contains the street, city, country and postal code. The components are usually concatenated to form the full address. Care must be taken to skip the missing components and trim off excess blanks. In JReport this can be done using **Formula**.

The Tutorial catalog provides two predefined formulas called **Customeraddress12** and **city_state_postcode** (see the table below) to format the address.
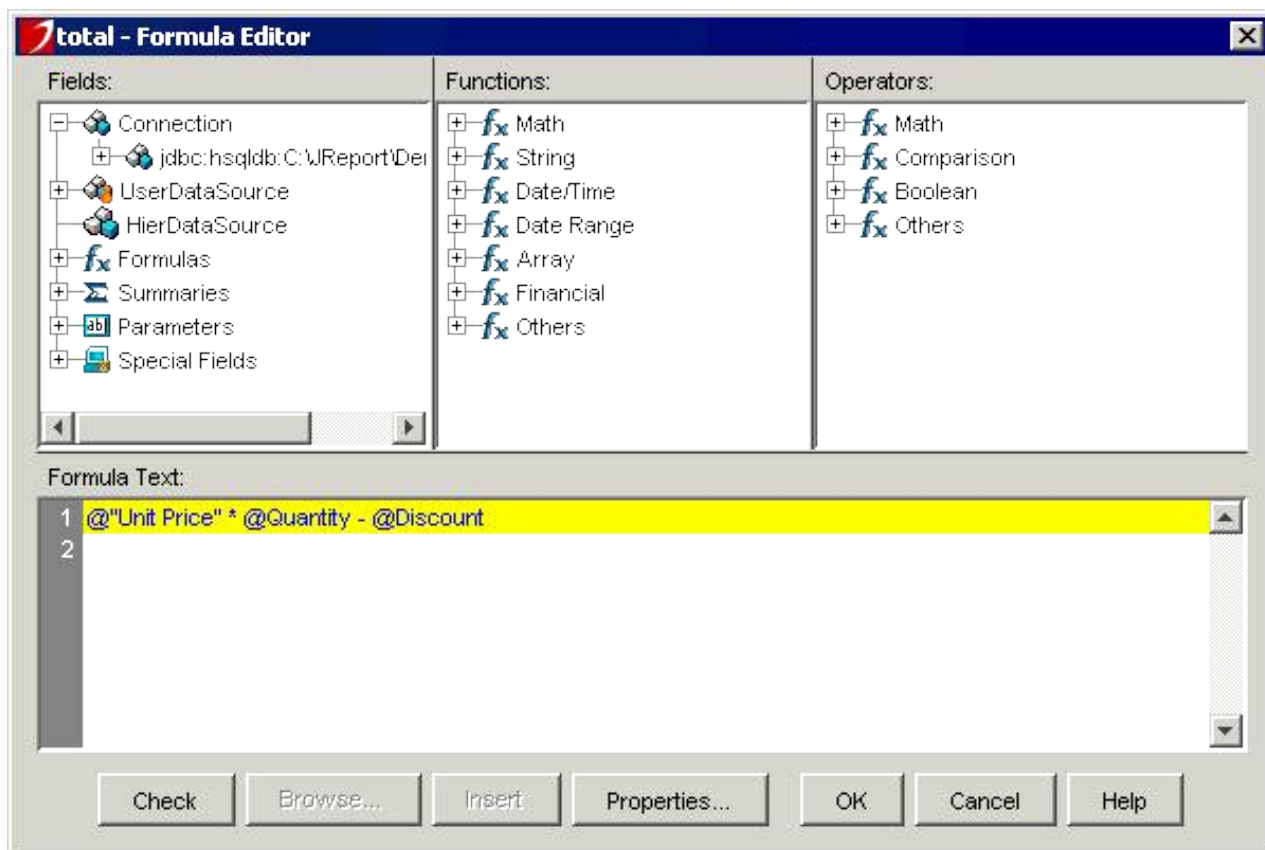
To access the formula editor from Catalog Browser, first select the View menu, and choose the Catalog Browser item to bring out the Catalog Browser. Click the **Data** Tab, expand **Formulas** and right click on either **Customeraddress12** or **city_state_postcode**. Select **Edit Formula** to bring out the Formula Editor. The examples are self−explanatory. A precise Syntax definition is available for your reference.

Customeraddress12	city_state_postcode
| ```
if ( IsNull( @"Address1" ) )
    @"Address2"
else if ( IsNull( @"Address2" ) )
    @"Address1"
else
    @"Address2" + ", " +
@"Address1"
``` | ```
if ( IsNull( @"City" ) )
{
trim(@"Region") + ", " +
trim(@"Postal Code")
}
else if ( IsNull( @"Region" ) )
{
trim(@"City") + ", " +
trim(@"Postal Code")
}
else
{
trim(@"City") + ", " +
trim(@"Region") + ", " +
trim(@"Postal Code")
}
``` |

To add formulas to the report, on the toolbar of JReport Designer, click Insert Formula, select **Customeraddress12**, and then click the Insert button and put it under the Customer Name section. Using the same way to place **city_state_postcode** under the **Customeraddress12** formula in the design window. Place these formulas and delete the labels that come with them.

2. The next step is to figure out the total unit cost for each product. In Catalog Browser, double click **Formulas**, and right click **total**. Select **Edit Formula**. You will then see the menu shown below. Enter the formula as below where Unit Price, Quantity and Discount with a leading @ sign are the three field names of Orders Detail table.

Note: You can double click the field names to select them under Connection/hsqldb:.... The leading @ sign will automatically added. If you manually type the sign to introduce the field name, make sure to add the table name before the field name so as to distinguish the common field name. You are always recommended to press the **Check** button before using a formula.
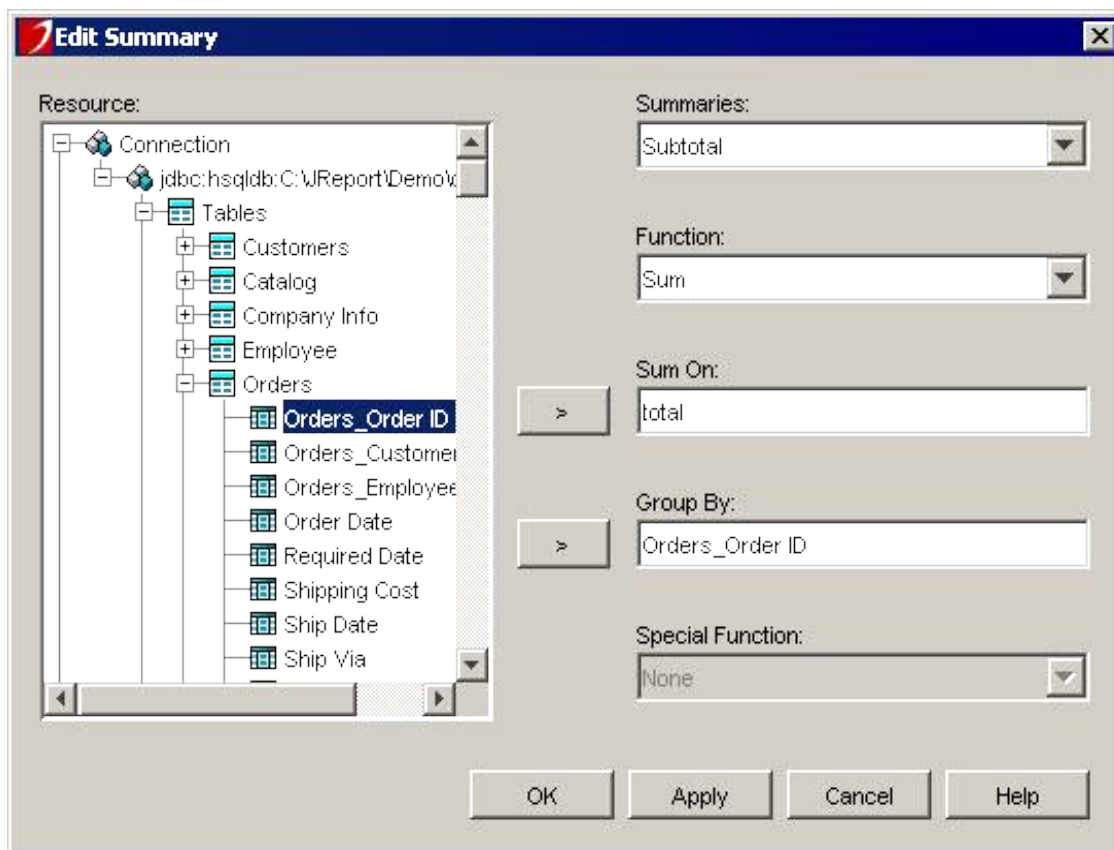
This formula calculates a total by multiplying the Unit Price by Quantity and subtracting the Discount. Click the **Check** button. If everything is correct, click **OK.**

Next, click the Insert Formula button on the toolbar, select **total** and click the **Insert** button on the Insert DBField dialog. Place this formula next to the Discount field as seen below. Because the total is computed once for each Detail item, make sure that the field is located within the Detail section and the label is placed within the Group Header section. Add colors as you did in the section titled "Adding Color to Your Report".

3. Summary functions are used to compute aggregated detail values. Select **View |Catalog Browser** to bring out Catalog Browser and double click on **Summary** to reveal the existing summary functions. Right click on **Subtotal** and then select **Edit Summary**. Notice how summary works, the function Sum takes the values from the formula total over a group of detail records defined by identical Order_Orders ID. You can edit the summary function by selecting from the Resource and pressing the [>] button. Note that the break field you choose

must be the exact field you grouped your report at the very beginning of the Report Wizard.

4. Now close the Summary Editor dialog. In the **Resource Viewer**, select Subtotal, and then drag it to the Group Footer as in the example.

5. The next formula we are adding is tax. Bring out Catalog Browser and double click on **formula**. Select **Tax**, right click and select **Edit Formula** to see the formula: (@Subtotal+@"Shipping cost") * 0.05. Click **OK**. In the Resource Viewer, select the **Tax** formula under the Formulas node, and then drag it to a position below the shipping formula in the Group Footer section.
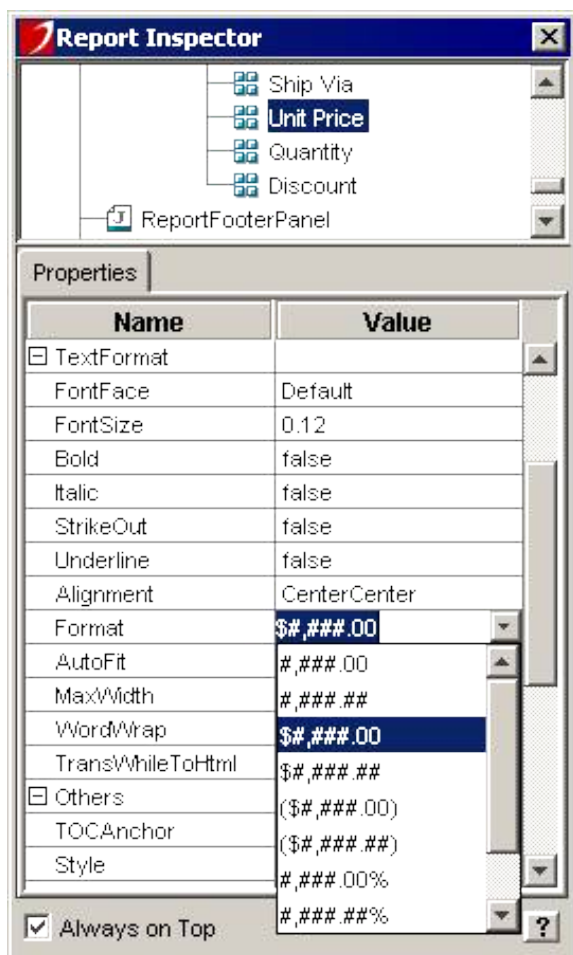

6. The last formula to be placed is the total of the subtotal, shipping cost and tax. In Catalog browser, double click **Formulas** and select formula **TotalAmount** (if there isn't one, you need to create it). Right click and select **Edit Formula** to see the formula @Subtotal + @"Shipping cost" + @Tax. Click the **Check** button to verify the formula. Then click **OK**. Place the formula in the Group Footer section under the tax formula.

Formatting Fields

JReport permits you to define the result format for various field types including currency and date.

1. First, activate Report Inspector. Then, highlight the field **Unit Price** in the Detail Panel. Next, in Report Inspector, find **TextFormat** and then click **Format**. In the drop–down menu, select $#,##0.00 which specifies a leading $ sign and the required comma and decimal places commonly used for currency.

2. Continue this formatting for all other currency data such as **total, Subtotal, shipping cost, tax** and **TotalAmount.**
3. Similar format changes can be made for dates. Select any date field, and select the format MM–dd–yy in Report Inspector.

Final Formats and Edits

There is still some editing and formatting to complete before this lesson is over. Begin by changing the names of the labels so that they suit your need. Next, move data and titles to areas on the report where you feel appropriate. Unnecessary headers and footers may be deleted by selecting the area and right clicking the mouse to reveal a menu.

Click on **Hide** to get rid of the unwanted section.

Usually each invoice page shows only one order. Since the report is grouped on Order_ID, we can simply make each group occupy a separate page.

1. Click the background area of the Group Footer to select the section.
2. Bring out Report Inspector. Scroll down till you see a section called Others.
3. Under this section, find **FillWholePage** and select **true** in the drop−down list. This function will "fill" the entire page with the section you highlight.

Our report looked like this in its final stage.

This is what it looks like if you view your report using the viewer.

Jinfonet Gourmet Java

07/04/2001   10:21:26

Bill to: Brew and Serve	**Order ID#**	3011
29437 Bainbridge Drive	**Order Date:**	05/23/1998
Chicago, IL, 60632	**Ship VIA:**	Federal Shipping

Coffee Flavor	Category	Unit Price	Quantity	Discount	Total
Expresso Roast	Roast	$1.33	150	$20.00	$179.50
Macadamia Nut	Flavored	$9.00	50	$0.00	$450.00

Subtotal:	$629.50
Shipping Cost:	$15.00
Tax:	$32.22
Total Amount:	$676.72

Printing and Exporting to HTML

Once your report is finished, you may want to be able to print it or place it on the internet. JReport is ready to suit your needs.

Printing Calibration

In order to overcome current limitation of JDK1.1.x, JReport needs to be calibrated on the very first print, so that lines and text are printed correctly. Under File, select Print. A dialog should appear like the example below.

Please follow the instructions that are given to you on the screen. You only need to calibrate once for each printer that uses JReport. After you complete this task, you may print the report by clicking the **OK** button.

Please note if you use JDK 1.2.x, or JDK 1.4.x, you will not come across this dialog when selecting **Print**.

Exporting to HTML

1. Placing JReport on the internet is fairly simple. Under **File,** go to **Export To** and select **HTML**, the following dialog will appear.

2. On the **Report** tab*,* under **Web Page Name,** type in a name. Otherwise, JReport will use the report name as the default HTML file name. Since JReport gives the extension *.html automatically, you don't need to type an extension into the name of your report.

By default, JReport will convert the report into multiple files. That is, it designates a serial number for each HTML page. For example, if you named your three–page report Sales, JReport will create three files called Sales_1.html, Sales_2.html, and Sales_3.html, by pressing the radio button beside **Single File**.
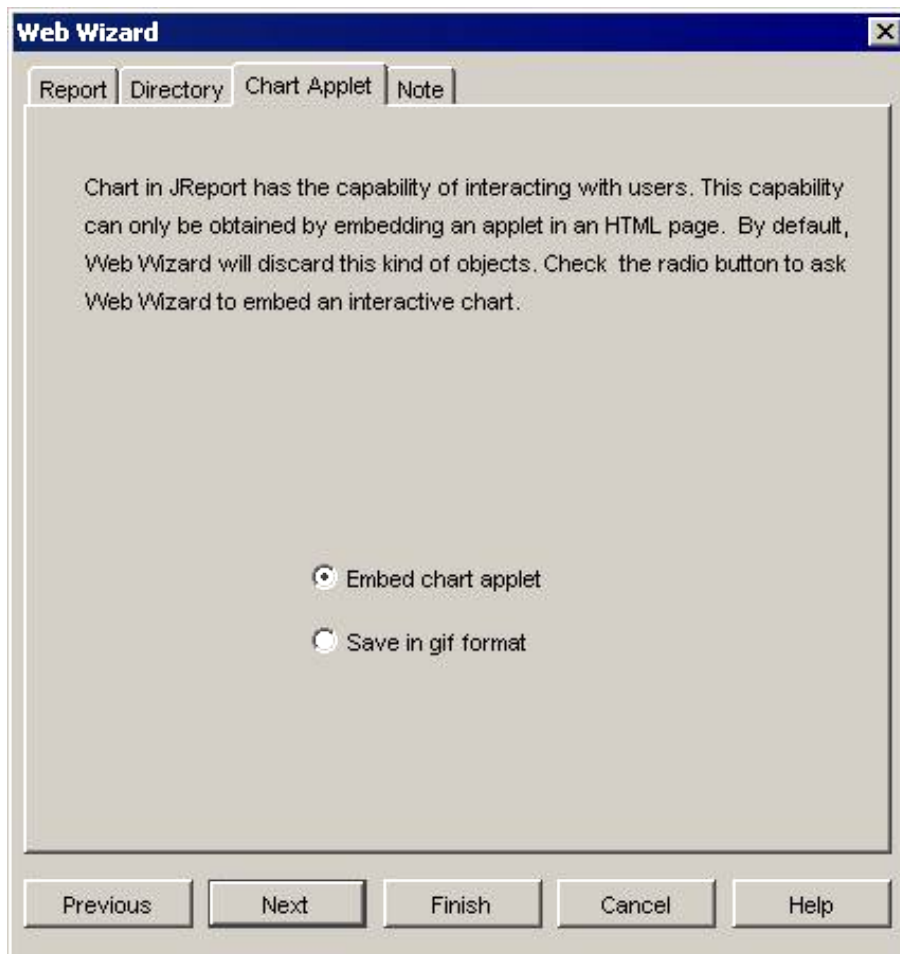
The left **Table Format** check box designates whether you are using the **<TABLE>** tag format to convert the report result or not. When you decide to export your report, you hope to convert it as what it looks in the Design panel. The **<DIV>** tag, which describes the **style** (left and top coordinate) feature of the content to precisely locate it in a page is newly released by HTML 4.0. However, the commonly used Internet Explorer or Netscape can not always interpret **<DIV>** well. As a result, the designed position of an object in a page is often changed when displayed in IE or Netscape. Therefore, JReport also supports the using of **<TABLE>** tag, which specifies a table to organize data in a row–and–column table arrangement. Of course, this method can not precisely locate the objects into a page, but it is supported by commonly used web browsers well and can be interpreted correctly. By checking the **Table Format** box, you are specifying to use **<TABLE>** tag format.

Notes: Please be advised of the following when using the Table Format option to export to HTML:
When you choose to use the Table Format option to lay out the objects of the report in HTML, if two objects overlap JReport will throw one away. In addition, any geometric object (Lines, boxes, arc...) will be thrown away too. Why? If we define a cell unit (size) as one pixel in width and one pixel in height, the resulting file will be extremely large, so we use the default size of the grid in JReport Designer to define the cell size of the table. When you design your report, you can choose the "Snap To Grid" option to get a very satisfactory result in HTML. Remember that it is better to not change the default grid size in JReport Designer. If the default grid size is changed however, we cannot guarantee a satisfactory result.

3. On the **Directory** tab, you can specify the directory where you want the HTML files to be saved. Otherwise, JReport will use a default directory.

4. By clicking the **ChartApplet** tab, you have the option of displaying the charts you have placed in your report in HTML format. By default, JReport will not show charts in HTML, so if you want such images to be seen, select **Embed chart applet**.

5. It is recommended that you read the contents on the **Note Tab** before you convert your report to HTML format.

Web Wizard

Report | Directory | Chart Applet | Note

The HTML version of the report has some special requirements from the Java version of the report. If you are in compliance with these requirements, the Java version of the report can be smoothly export to HTML without any extra effort.

1. No object is to be overlapped.

2. Avoid using geometrical objects.

3. There are no underlying sections.

For more information on the HTML report, please refer back to the JReport tutorial.

Previous | Next | Finish | Cancel | Help

6. After all steps have been taken, click the **Finish** button to convert your report to HTML.
7. You can now test your exported HTML files by opening them in a web browser.

Lesson 4: Creating Form Letters, Charts, Cross Tabs and Sub−reports

Introduction

JReport not only creates a standard report, but can also build dynamic and exciting formats for you. In this lesson, we will explore some of these other report formats. We will focus on four types:

- Form Letters
- Charts and Graphs
- Cross Tab Reports
- Sub−reports

Form Letters

Form letters are used so that you can create pre−defined standard letters with little difficulty. Let's take a look at an example of a form letter.

_____

Jinfonet Gourmet Java   August 18, 2000
4099 Hathaway Road
Rockville, MD 20906

Absolute Java
34826 Atwood Drive
New York City, NY 1004

Dear Mr. Smith,

The current statement displays your account at our company.
Your bill comes out to be *$550.00*. Thank you for making your coffee
purchases with Jinfonet Gourmet Java.

                    Sincerely,

                    Jinfonet Gourmet Java

_____

This is a letter to just one customer. What if you want to send the same letter to a thousand different customers with their individual account balances? By using the form letter, you can use fields to place the data from your database onto your letters. The following shows you the steps for creating a form letter.

1. Assuming that you have connected your database as per lesson one, start JReport and select the **Standard** icon on the **New** tab of the **Open Report** dialog, then click the **Create** button. The **Report Form Creation Wizard** will then appear with the **Data** tab selected.

   Assuming you have completed lesson two, please perform the following steps for each tab to create a form letter.

   Data: Select the **Customers** table located under Connection/hsqldb:.../Tables and place it in the working set.

   Conditions: Select **QBE**, then under the Country column, type USA, and under the Region**,** type CA (1st row) and

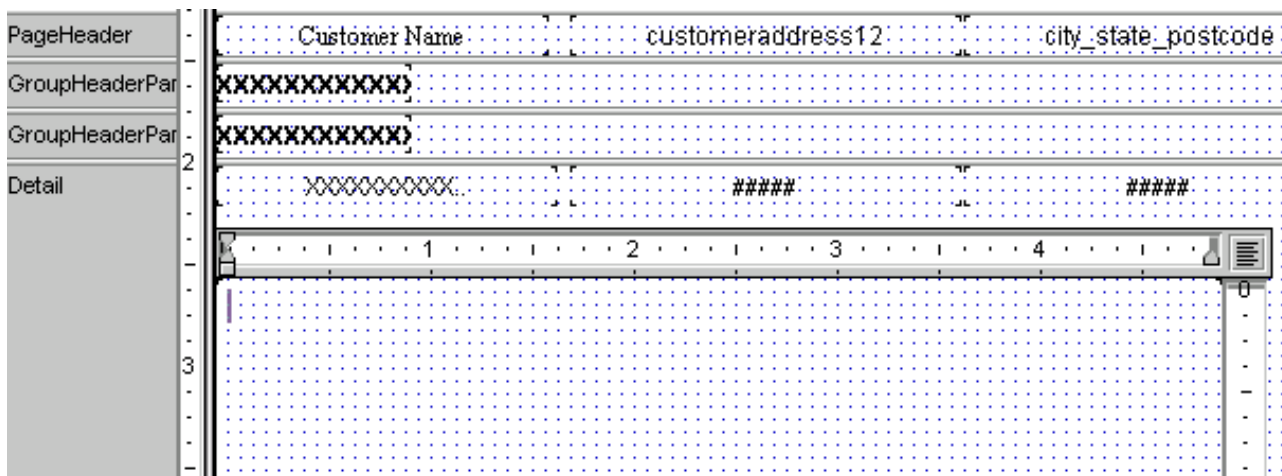NY (2nd row). In this example, we are sending statements to customers in these two states.

Note: When inputting conditions in the QBE format, for example, you want to filter data in USA, you can just type USA instead of ='USA' under the Country column, JReport will automatically format USA to ='USA'.

Display: Under Tables, select **Customer Name**. Under Formulas, select **customeraddress12** and **city_state_postcode**. Note that we are using formulas here to combine the address components from several fields into a two−line address.

Group: Add the **Customers_Country** and **Customers_Region** fields from the working set.

Sort: Add the **Customers_City** field.

2. Now, you can click the **Finish** button to generate the report. We will insert the letter body in the design mode by inserting a text object.

3. In the design mode, click the **Insert Text** button or under the **Insert** menu select the **Text** item. Insert the text box in the Detail section. Then, double click the text box, in the blank area type in the following:

   The current statement displays your account at our company. Your bill comes out to be

   After the word "be", insert DBField by clicking the **Insert DBField** or the on the **Insert** menu, click **DBField**, and select the **Annual Sales** field from the Customer table and click on the **Insert** button. Then, adjust the size of the DBField so that it fits its grid. Continue the rest of the dialog in the **Form Letter** menu with this statement:
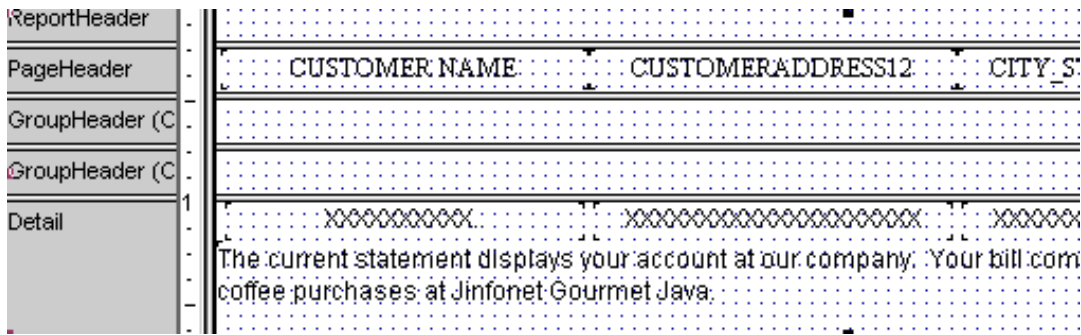
   Thank you for making your coffee purchases with Jinfonet Gourmet Java.

   Your overall statement in the menu should look like this:

   The current statement displays your account at our company. Your bill comes out to be $#,##0.00. Thank you for making your coffee purchases with Jinfonet Gourmet Java.

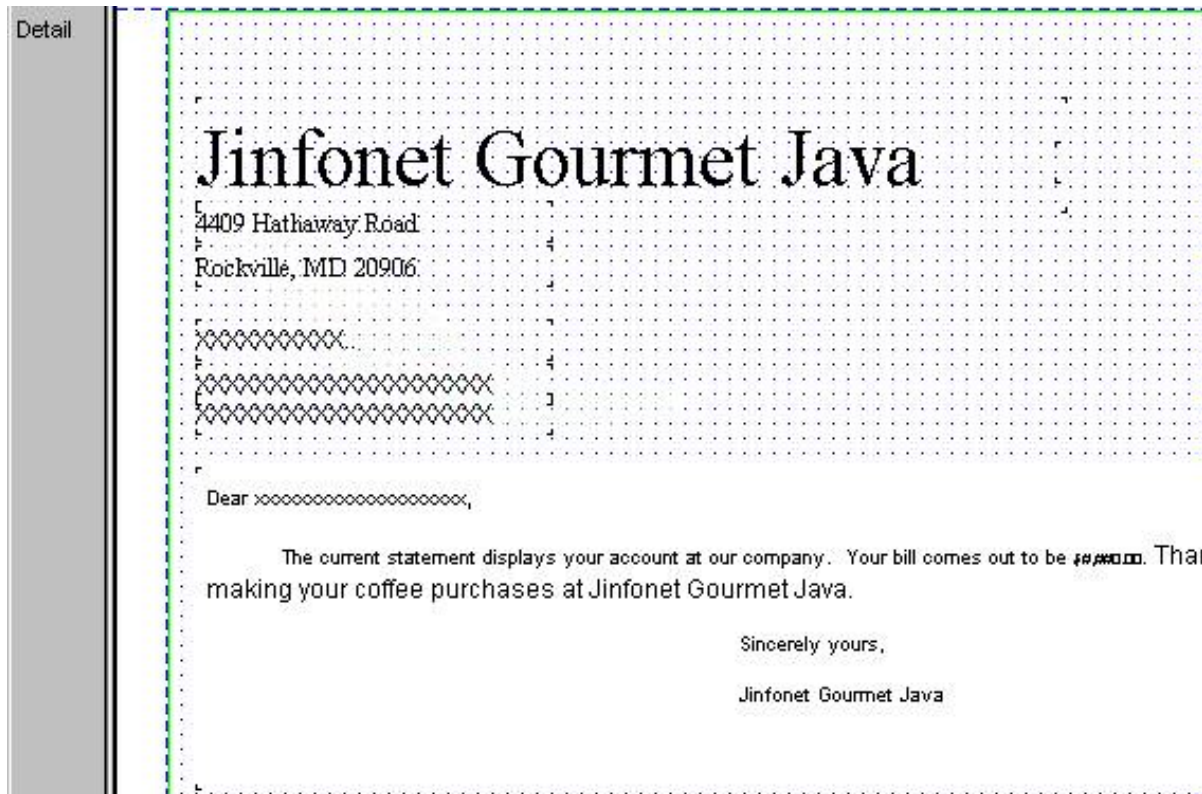   Note that the **Annual Sales** field you inserted is represented by a format $#,##0.00.

4. In lesson three, you dealt with changing formats. Highlight the field you inserted in the **Form Letter** menu. This will bring up the properties of this particular field just like Report Inspector does. You can change the properties of the field in this area, for example, you can delete an unwanted field and adjust the size and position of individual object. Text can also be highlighted as well to bring up its properties.

5. This is what your rough letter will look like:

Now you are ready to give it the finishing touch. If you have completed Lessons 2 and 3, you should be accustomed to moving fields, changing fonts, and inserting objects. However there is still one step that needs to be mentioned. If you would like to change the format of your field from #,##0,### to another format such as $#,##0.00, double click on the text box. Then highlight the field and view Report Inspector. Under TextFormat, go to **Format**. From the drop–down list, select the appropriate format.

6. When our letter was completed it should look like this:

Design Mode

View Mode

Jinfonet Gourmet Java

07/04/

4409 Hathaway Road
Rockville, MD 20906

The Island Coffee

344 Lajolia St.
Cupertino, CA, 95111

Dear Mrs. Maria Va,

The current statement displays your account at our company. Your bill comes out to be $98,239.. Thank you for making your coffee purchases at Jinfonet Gourmet Java.

Sincerely yours,

Jinfonet Gourmet Java

If you would like another example of a form letter, select and explore the report `TextObjectEmbedded.cls` in the Tutorial.cat catalog file. You can also look at `FormLetter.cls` for more details on the form letter we created.

Charts and Graphs

Charts and graphs create graphical views of summarized data. They can help you visualize the data in a report. This section will show you how to create and place charts and graphs into your reports.

1. Select the *Left Alignment* icon on the *New* tab of the *Open Report* dialog.
2. Assuming that you have completed Lesson 2, place the following in each tab so that we build the basic structure for our report.

   Data: Select the *Customer* table and place it in the working set.

   Conditions: Select *QBE*, under the Country column, type "USA", and under Region*,* type "CA" (1st row), "NY" (2nd row), "GA" (3rd row), "MD" (4th row) and "TX" (5th row).
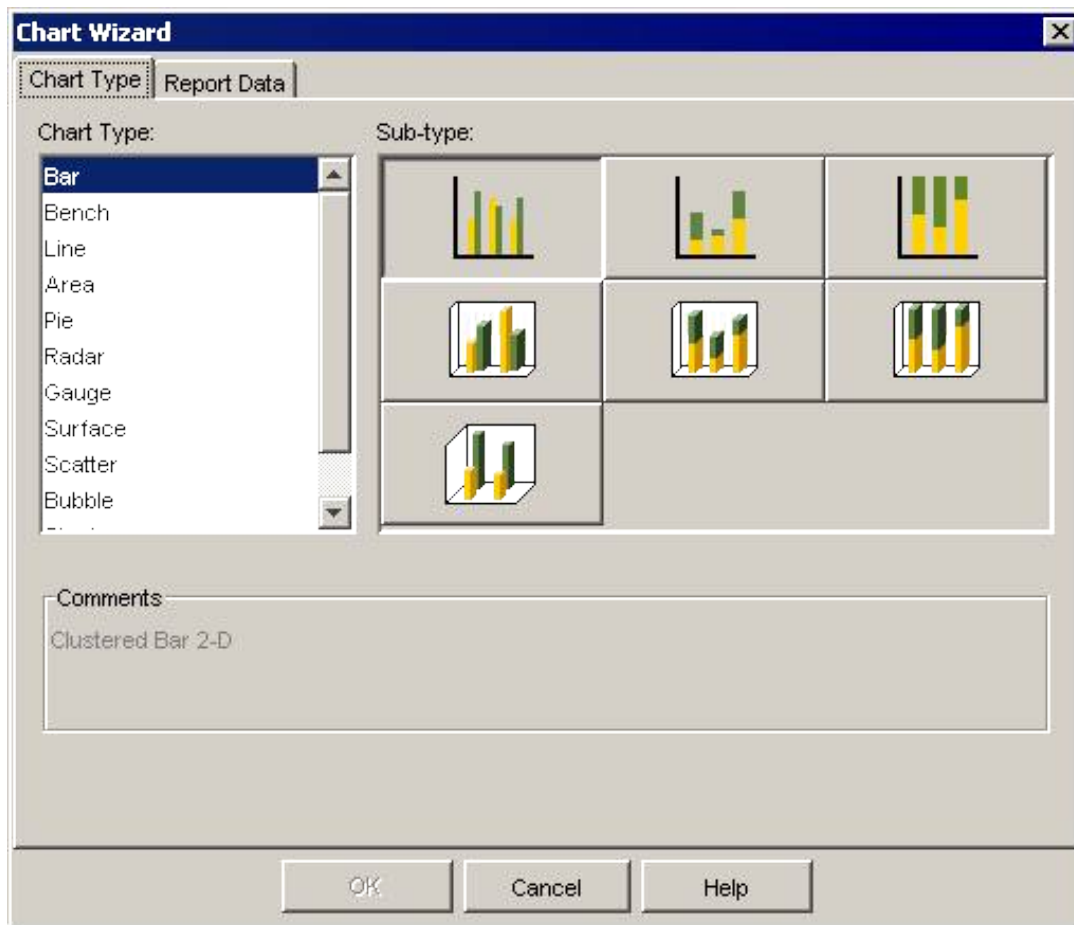
   Display: Under Tables, select *Customer Name* and *Annual Sales*.

   Group: Add the *Customers_Country* and *Customers_Region* fields from the working set.

   Summary: Under Field, select *Annual Sales*. Under Function select *Sum*, and under Breakfield select *Customers_Region*. Since we chose Annual Sales for the summary, our graph will now display graphical analysis of this data.

   So far, you can finish building your report by clicking the *Finish* button and insert the chart in the Design mode.
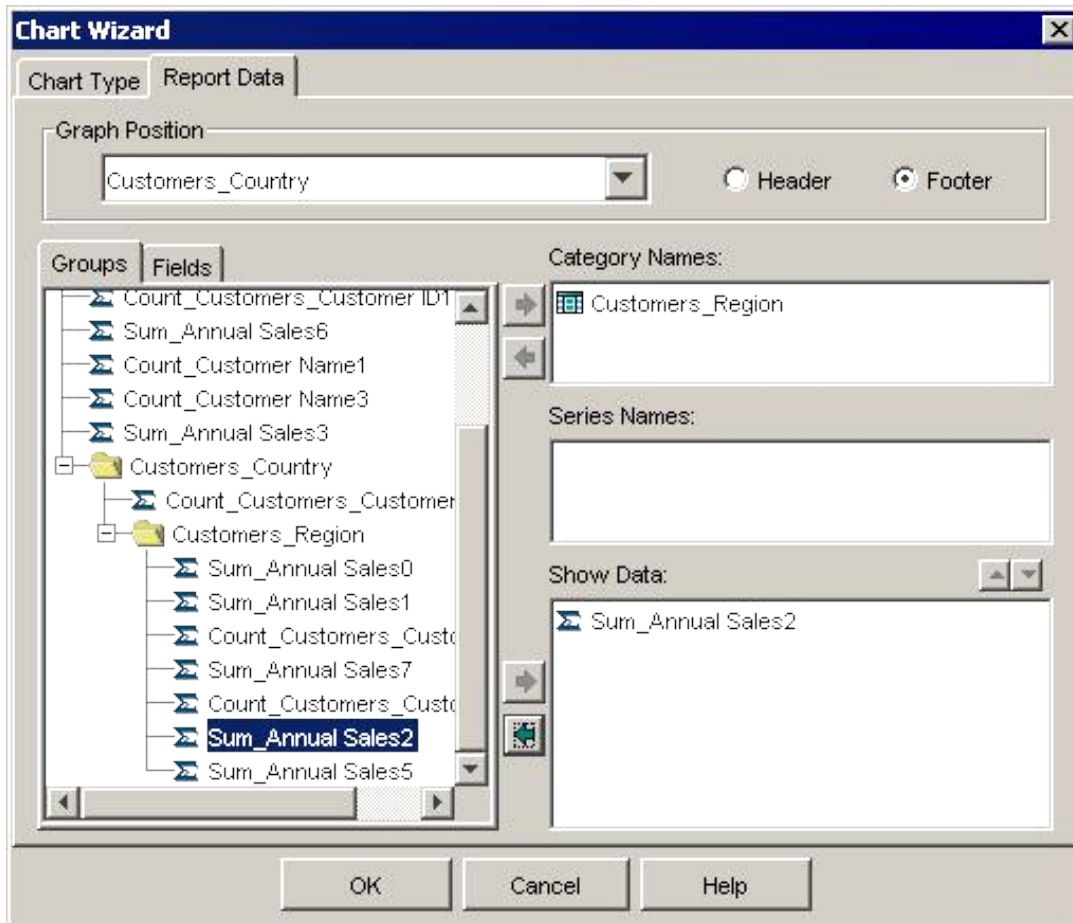3. In the Design mode, select *Chart* on the Insert menu or click the *Insert Chart* button on the Edit toolbar. The following dialog will then appear:
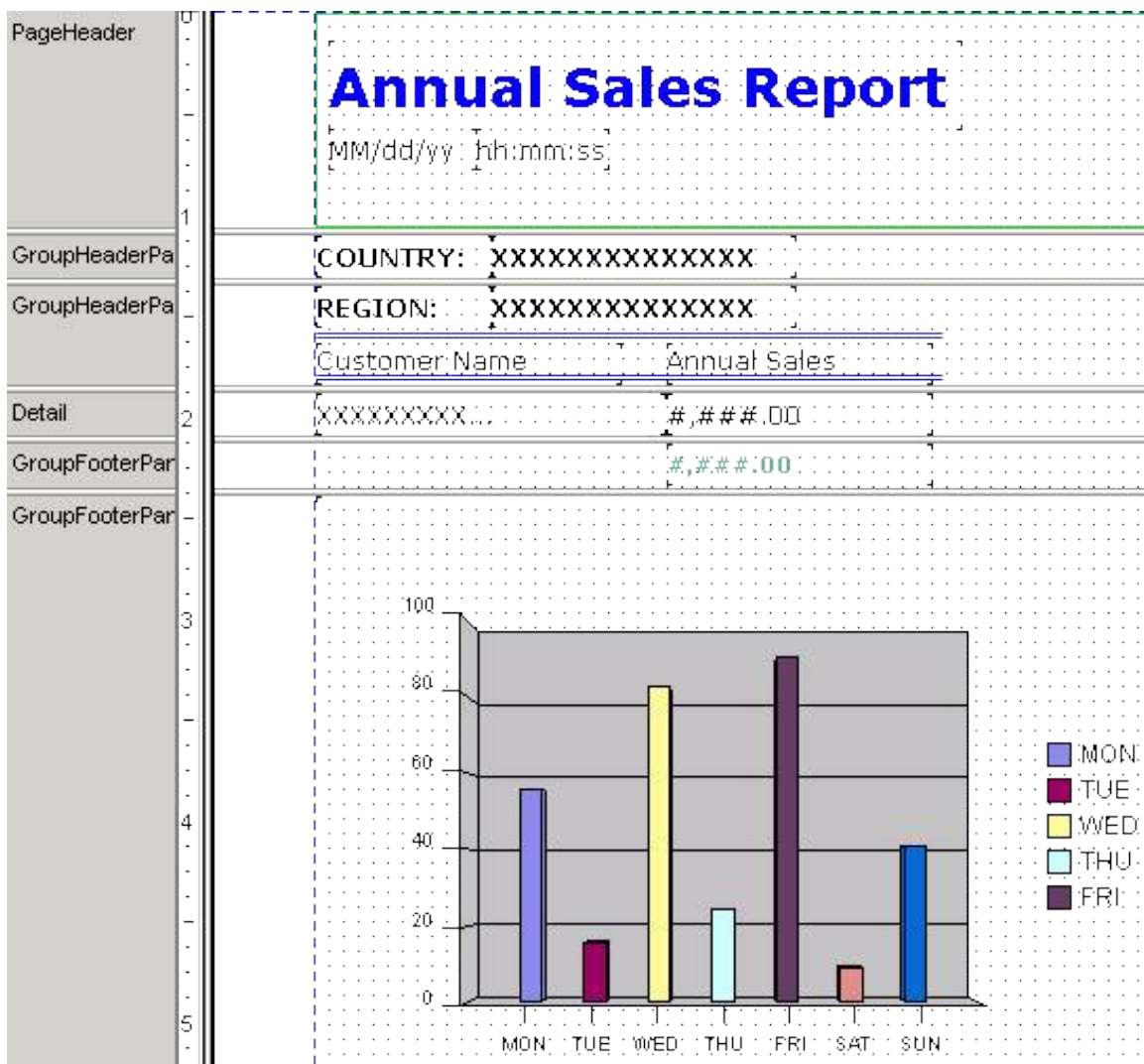
Select any of the graph formats. Refer to the User Reference book for more information on the types of graphs. For this tutorial we chose **3D Bars** (side by side).

4. Then, click the **Report Data** tab. In the **Graph Position** panel, choose a specific location (Detail, Group Header/Footer, etc) for the graph. We want to view the results within the country, USA, so we selected **Customer_Country** from the drop−down list, and check the **Footer** radio button to place our graph in the Group Footer.

Select the summary Sum_Annual Sales2 under **Customers_Region** and add it to the **Show Data** list. JReport Designer will add the DBField **Customers_Region** to the **Category Names** list automatically.

5. Click the **OK** button and make some necessary adjustments. When you are done, your report might be like this:

6. Once again you can do some final editing here. A new tip to learn here is that if you first double click the graph, then click on the graph and drag the mouse, you can rotate the graph. This is only available for 3D graphs such as the 3D Bars and the Pie Chart.

For example, you can add a title to the chart, to do this,
    1. Select the chart platform and right–click the mouse.
    2. Click the **Add Label** item on the pop–up menu and a label will be displayed on the top left corner.
    3. Selected the label and in the Report Inspector change the following properties:

    Text: *Graphical Analysis of Annual Sales*
    FontFace: *Vernada*
    FontStyle: *Bold*
    FontColor: *0x0000c0*

    You can also change the properties using another way: select the label and right–click, click **Format Label** to bring out the **Chart Label** dialog and then set the corresponding options.

Note: The graph you see in the Design mode is not exactly the same as the graph you see in the View mode. Do not worry if there are values that do not make sense in the Design area. They are only there so that you can get a sense of what your chart may look like.

Below might be the view result of your final graph:

View (First Page of the report)

Annual Sales Report

03/05/04 02:42:30

COUNTRY: USA
REGION: CA

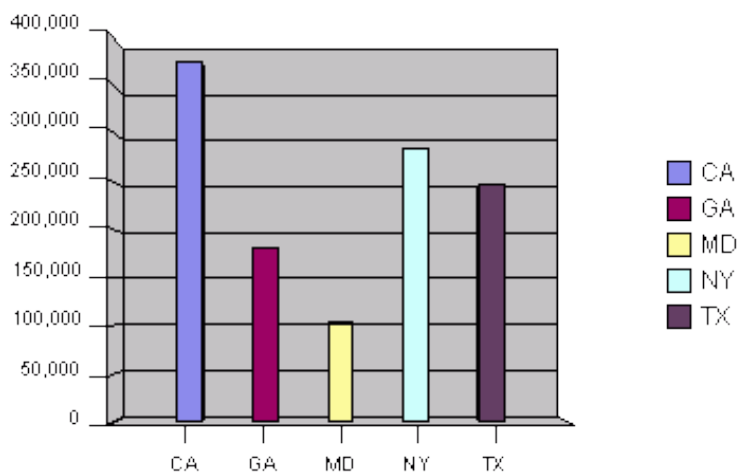| Customer Name	Annual Sales
The Island Coffee	98,239.00
Café International	51,958.00
International Coffee Hut	81,349.00
Automatic Java Machines	74,986.00
Café San Francisco	67,823.00
	374,355.00

REGION: GA

Customer Name	Annual Sales
Brazilean's Best	129,360.00
Java Brewers	50,929.00
	180,289.00

Last Page

Annual Sales Report

03/05/04 02:42:30

Graphical Analysis of Annual Sales

If you would like another example of a chart and graph report, select and explore the report salestrend.cls and regionsalesgraph.cls in the Tutorial.cat catalog file. You may also look at Lesson4b.cls for more details on the chart and graph report we created.

Cross Tab Reports

A Cross Tab is an object that summarizes data and presents the summaries in a compact row and column format. This allows comparisons and identification of trends to be displayed. Below is an example of a Cross Tab object.

	Flavored	Roast	Straights & Blends	Total
Café International	27.00	9.50		36.50
	155,874.00	51,958.00		207,832.00
The Island Coffee	18.00	5.45	26.35	49.80
	196,478.00	98,239.00	294,717.00	589,434.00
Total	45.00	14.95	26.35	86.30
	352,352.00	150,197.00	294,717.00	797,266.00

In the following section, you will learn to create a Cross Tab report.

1. Assuming that you have connected your database as per Lesson 1, start JReport and select the **Cross–Tab** icon under the **New** tab in the **Open Report** dialog. Click on the **Create** button.
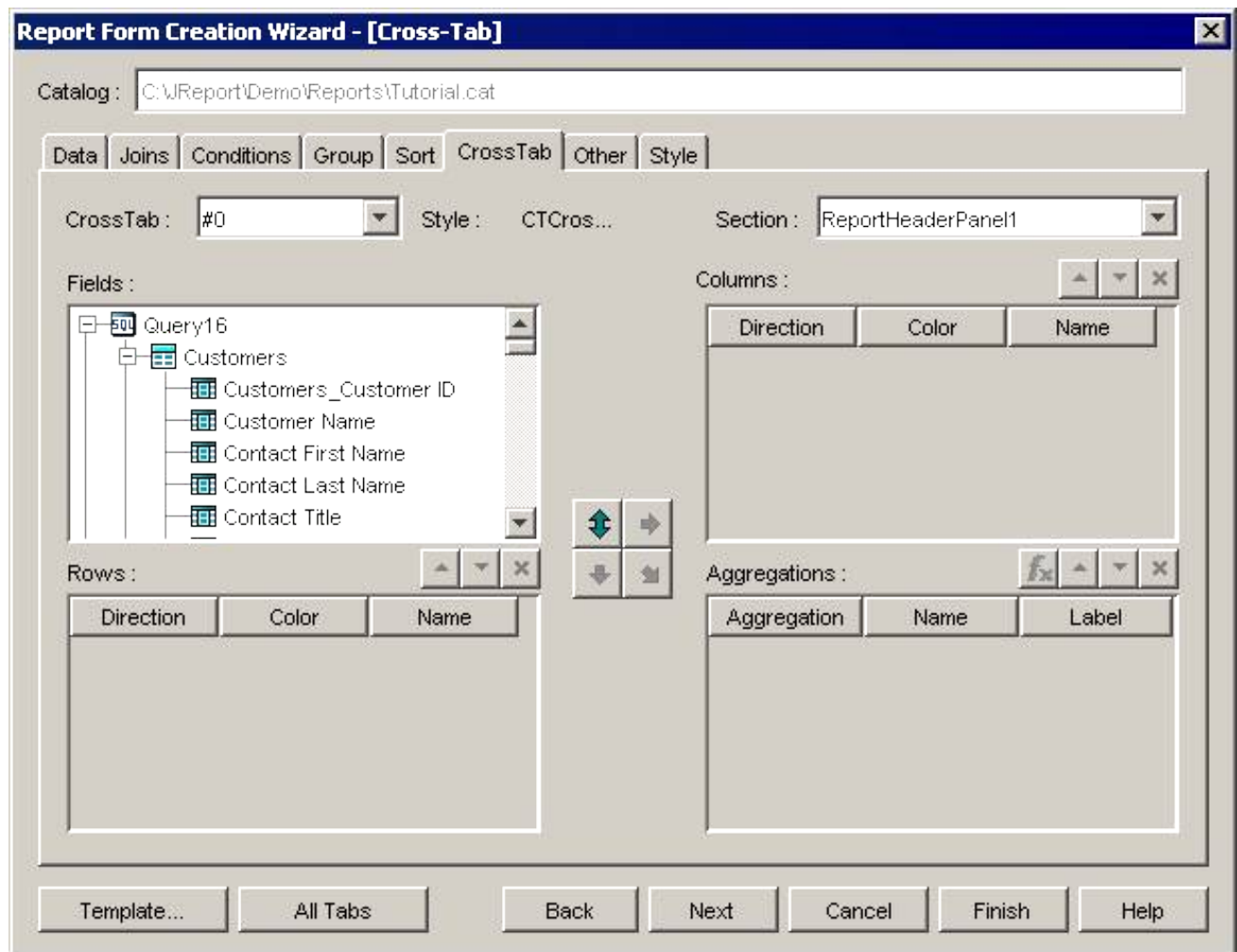2. The **Report Form Creation Wizard** will then appear.

   Assuming that you have completed Lesson 2, perform the following steps for each tab to create a cross–tab report.

   Data: Select the **Customers**, **Products**, **Orders Detail** and **Orders** tables under the Tables node and place it in the working set.

   Joins: Join the tables manually like this: Orders_Order ID = Orders Detail_Order ID, Orders_Customer ID = Customers_Customer ID, Orders Detail_Product ID = Products_Product ID.
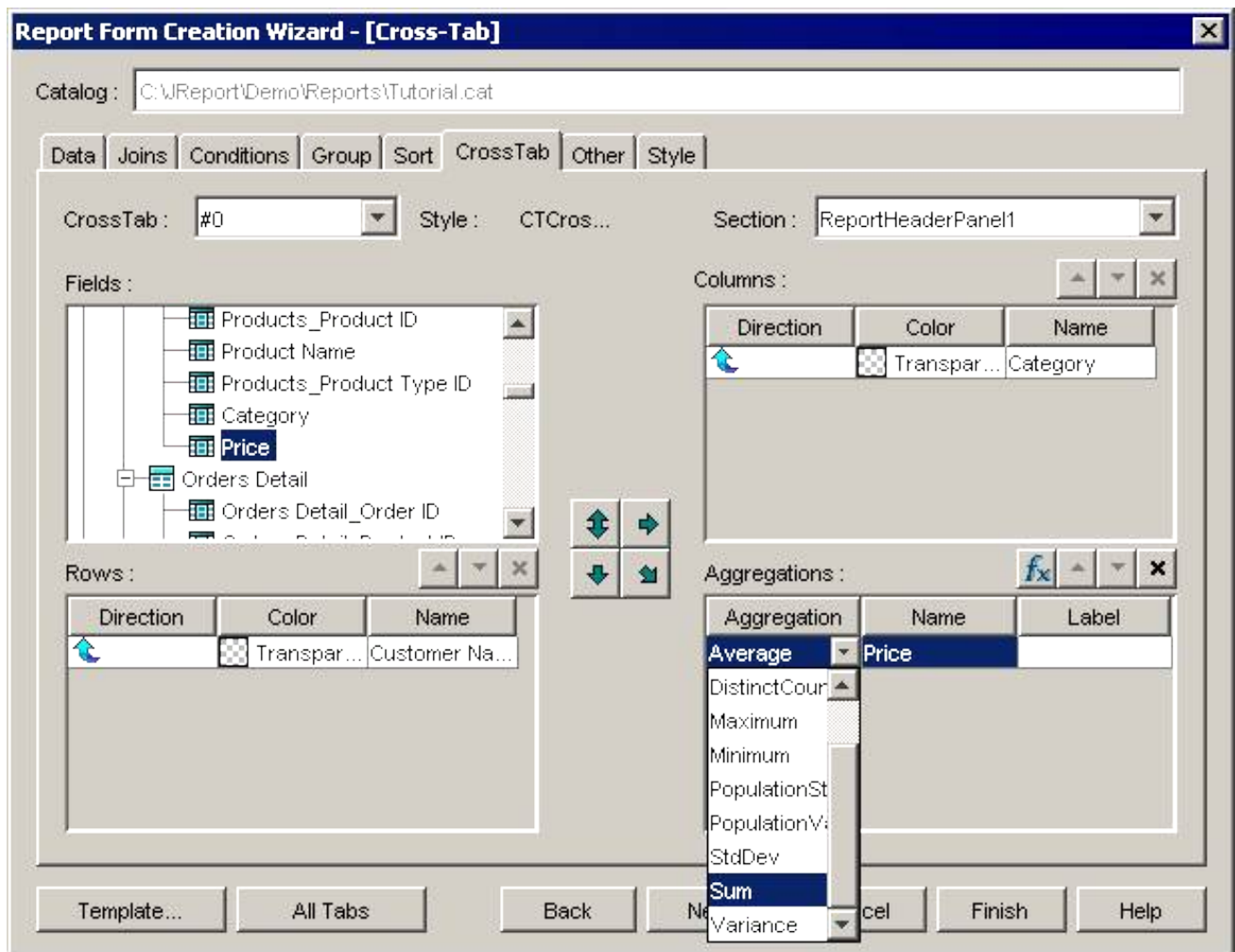
   Conditions: Select **QBE**. Under the Country column, type USA, and under the Region, type CA.
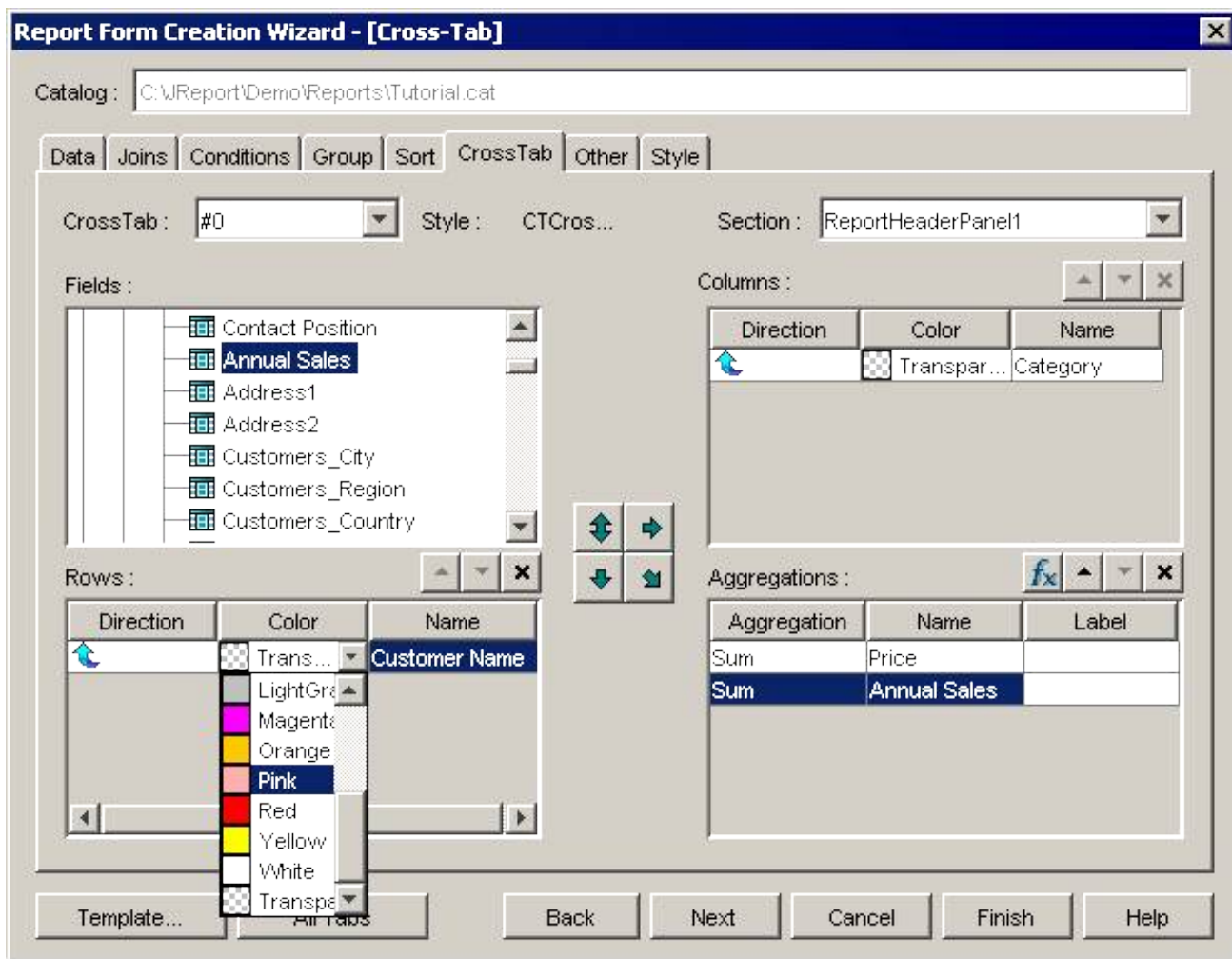3. Click on the **Cross Tab** tab. The following dialog should appear:

The Field menu lists the working set you created. You can select any of the fields or formulas given to you in this menu. Select **Customer Name** under the Customers table, then click ⬇ to place your field(s) into the row section of the Cross Tab. Then, select **Category** under the **Products** table, and click ➡ to place your field into the column section.

4. Select **Price** under the Products table and click ⬆ to place it into the **Aggregations** menu. Then, highlight the **Price** field under the **Aggregations** menu, and click the **Average** function beside **Price**. This drop down list lists all the functions you can use for your fields in the **Aggregation** menu. Select the **Sum** function for the Price field.

Next, repeat this step to select the **Annual Sales** field under the **Customer** table and implement the **Sum** function for this field.
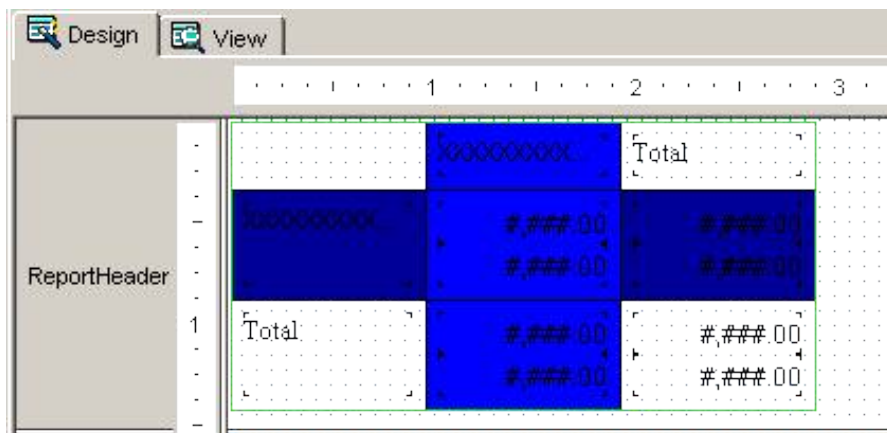
5. Highlight the **Customer Name** field under the Rows menu, and select the palette box beside the field. The following window will pop up.

You can press **Customer** to open the palette for more colors. In this example we simply select the dark blue color.

Repeat this step for the **Category** field under the Columns menu.

6. After all this is done, click the **Finish** button. Your report should look like this:

7. Start editing and fine tuning the Cross Tab. We suggest you create a legend for your summarized fields since JReport does not place a label by these fields. This is what our report looked like after editing.

Design

Annual Sales and Prices for Coffee Shops in CA

Price			
Annual Sales	XXXXXXXX...	Total	
XXXXXXXXX...	$#,##0.00 $#,##0.00	$#,##0.00 $#,##0.00	
Total	$#,##0.00 $#,##0.00	$#,##0.00 $#,##0.00	

View

Annual Sales and Prices for Coffee Shops in CA

Price				
Annual Sales	Flavored	Roast	Straights & I	Total
Café Internation	$27.00 $155,874.00	$9.50 $51,958.00		$36.50 $207,832.00
The Island Coffe	$18.00 $196,478.00	$5.45 $98,239.00	$26.35 $294,717.00	$49.80 $589,434.00
Total	$45.00 $352,352.00	$14.95 $150,197.00	$26.35 $294,717.00	$86.30 $797,266.00

Sub–reports

JReport allows a report (referred to as sub–report) to be inserted into another report (referred to as the primary report). There is no difference between the primary report and the sub–report. A sub–report can be standalone, i.e. it can be run separately like a normal report or it can also include another sub–report.

You can create sub–report object in two ways:

- Use Sub–report report wizard.
- Click **Insert | Subreport** menu item or the **Insert Subreport** button on the Edit toolbar.

In this lesson you will learn how to create a report with sub–report object by report wizard. We will build a report that prints all employees whose salaries are lower than the group average salary in groups step by step. You can create it by following these steps.

1. Create a report which will be used as a sub−report.

   Assuming you have completed Lesson 2, perform the following steps for each tab to create a standard report as the sub−report that you want to insert. We will create a report file named report SalaryList.cls.

   Data: Select the **Employee** table under Connection/hsqldb:.../Tables and add it into the working set.

   Display: Add **Employee Name**, **Employee_Employee ID**, **Last Name**, **First Name**, **Position**, **Hire Date**, **Salary** fields into the report.
2. Create a report with sub−report by report wizard. Then, select the **Subreport** icon under the New tab in the Open Report dialog.
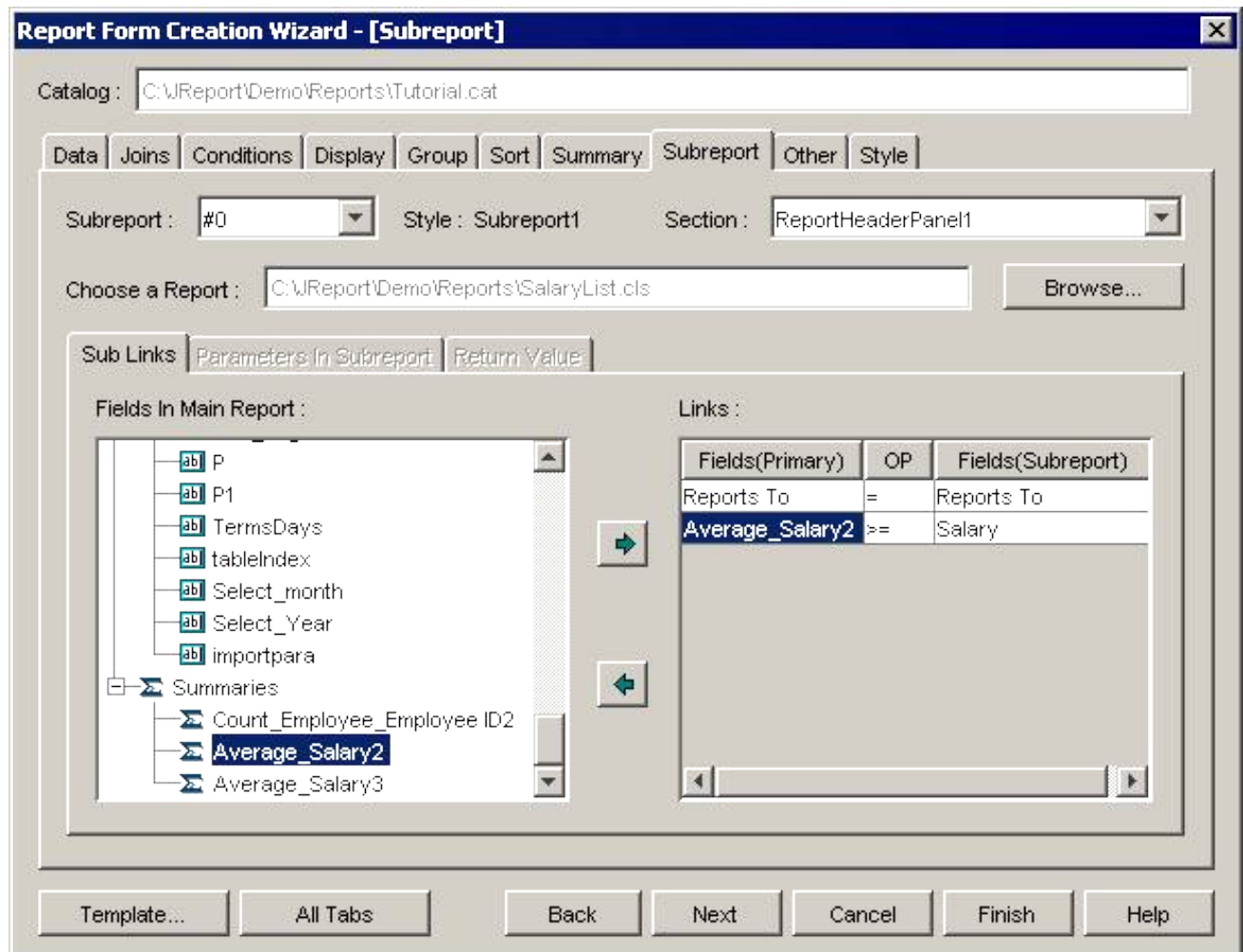3. Click the **Create** button , and the **Report Form Creation Wizard** will then appear.

   Assuming you have completed Lesson 2, please perform the following steps for each tab to create the primary report.

   Data: Select the **Employee** table under Connection/hsqldb:.../Tables and add it into the working set, set query name is Lesson4d.

   Group: Under the Group tab, add the **Reports To** field from the working set.

   Summary: Under the Summary tab, add the aggregate fields: **Average** function on **Salary**, break by **Reports To**.
4. Click on the **Subreport** tab. you will see the following panel:

Style: Display the type of the report.

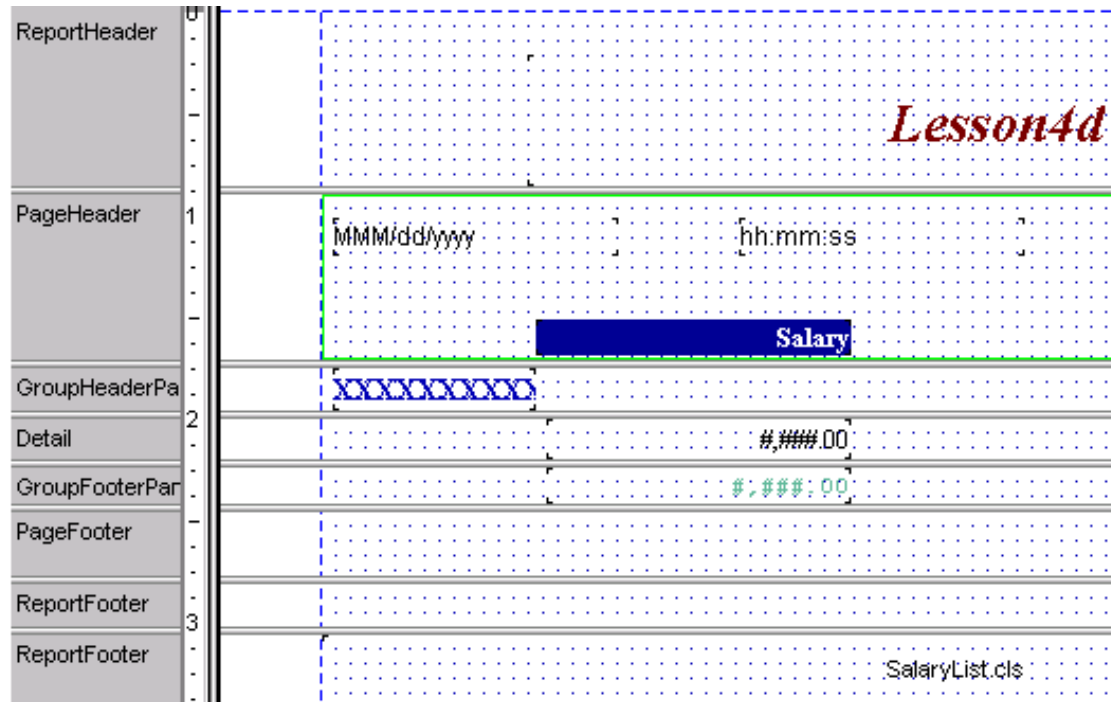Section: Display the section which the sub−report will appear.

Choose a report: Click **Browse** button to select the report SalaryList.cls as sub−report.

Links: The relationship between the primary report and the sub−report. When you build a link, JReport will match up the records with equal relationships within the sub−report and the primary report.

Here we create two links: "Reports to = Reports to", "Average_Salary2 >= Salary". Select the field "Report to" in the **Field in main report** box, click ➡ to add the field into the **Links** box. In the **Links** box, choose the operator " = " from the **OP** drop down list. Then select the field "Report to" from the **Fields (Subreport)** drop down list. Create link "Average_Salary2 >= Salary" using the same method.

5. After finishing the report, you will have the following report in the design mode:

6. Edit the report:

Select the Detail section, then go to Report Inspector, set property Invisible to true.
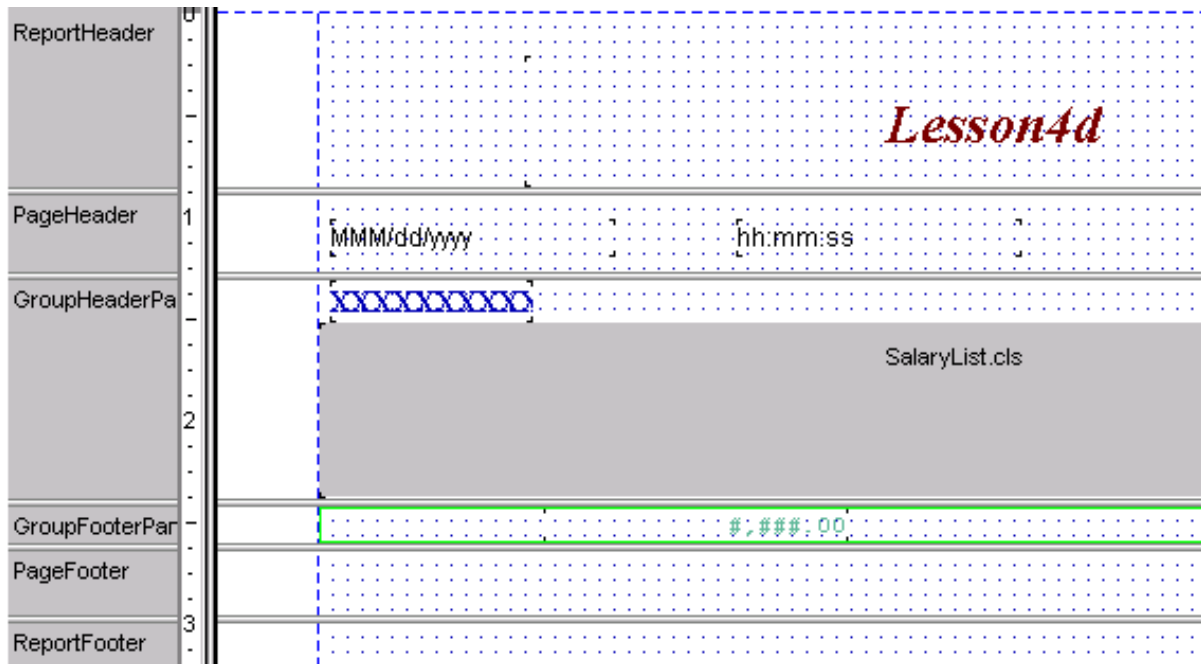
Place the subreport to the GroupHeader section.

Delete the column name "Salary" in PageHeader.

Select field Salary, change format #,##0.### to $#,##0.0# in Report Inspector. Also change the format of summary field Average_Salary2 to $#,##0.0#.

Select subreport "SalaryList.cls", set background to light gray in Report Inspector.

Now the report in the design mode will look something like this:

7. View the report. You will now see the report result as shown below:

Lesson 5: Developing Columnar Report

Introduction

Columnar report is used to create a horizontally aligned report. Let's take a look at an example:
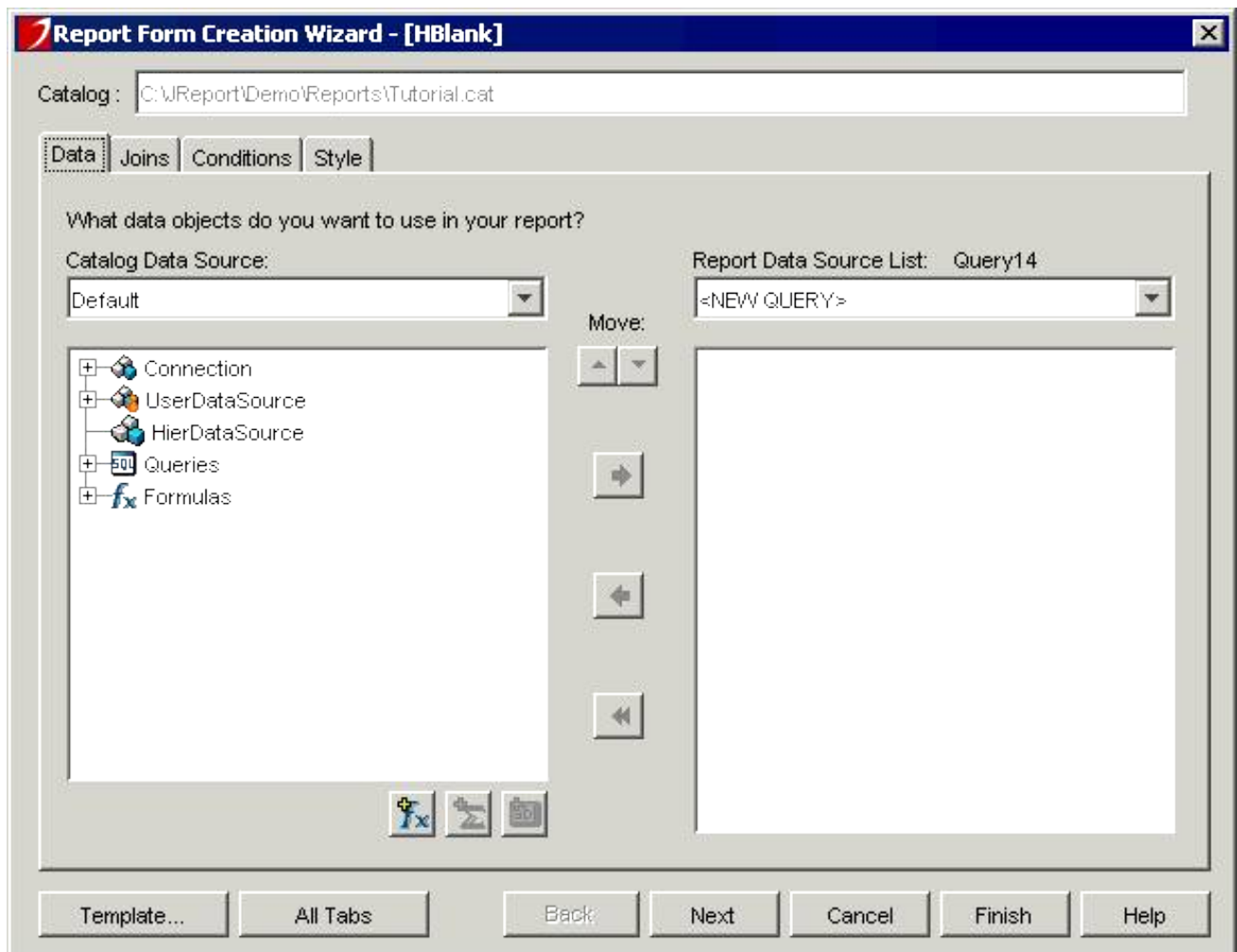
Employee Information

Employee ID	1	2	3	4
First Name	Laurena	Jonathan	Jerenny	Jennifer
Last Name	Croft	Hopkins	Miner	Lee
Position	Sale Representative	Sale Representative	Marketing	Vice President
Hire Date	09/12/1984	04/03/1987	05/19/1979	06/09/1981
Home Phone	(301) 823–7424	(301) 946–2349	(410) 349–2834	(703) 223–4422

Developing a Columnar Report

To do such a report, follow the steps below:

1. Assuming that you have connected your database as in Lesson 1, start JReport and select **HBlank** icon under the New tab on the Open Report dialog. Click the **Create** button.
2. The following window will appear.

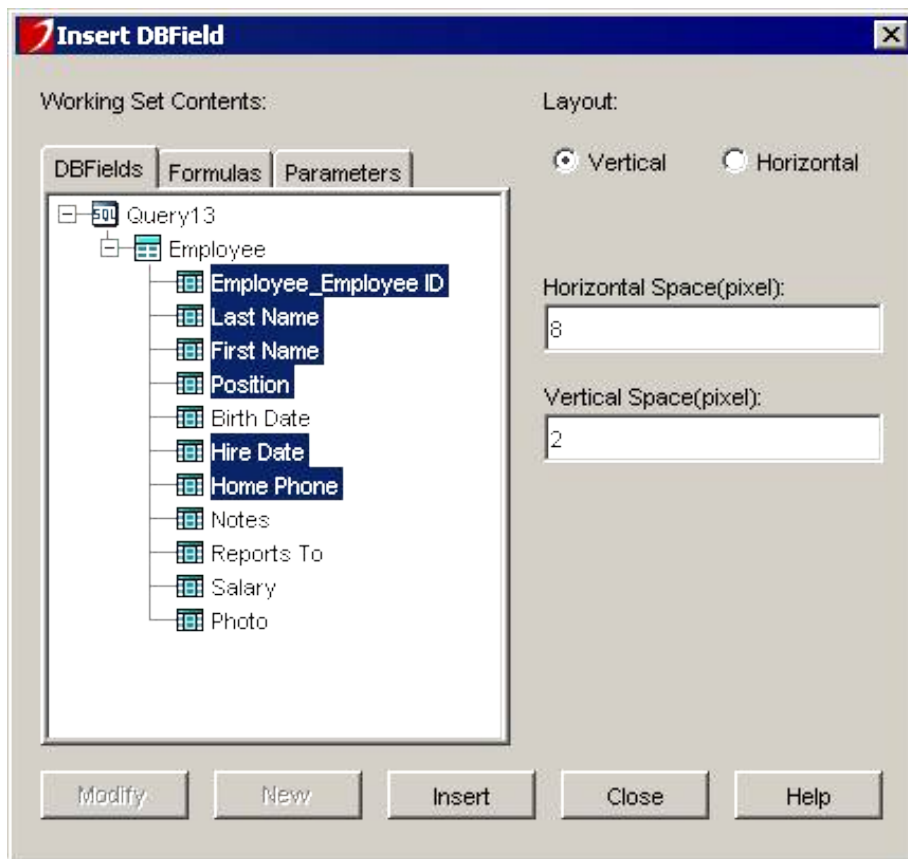Assuming you have completed Lesson 2, perform the following steps for each tab to create a columnar report.

Data: Select the **Employee** table under the **Tables** node and place it in the working set.

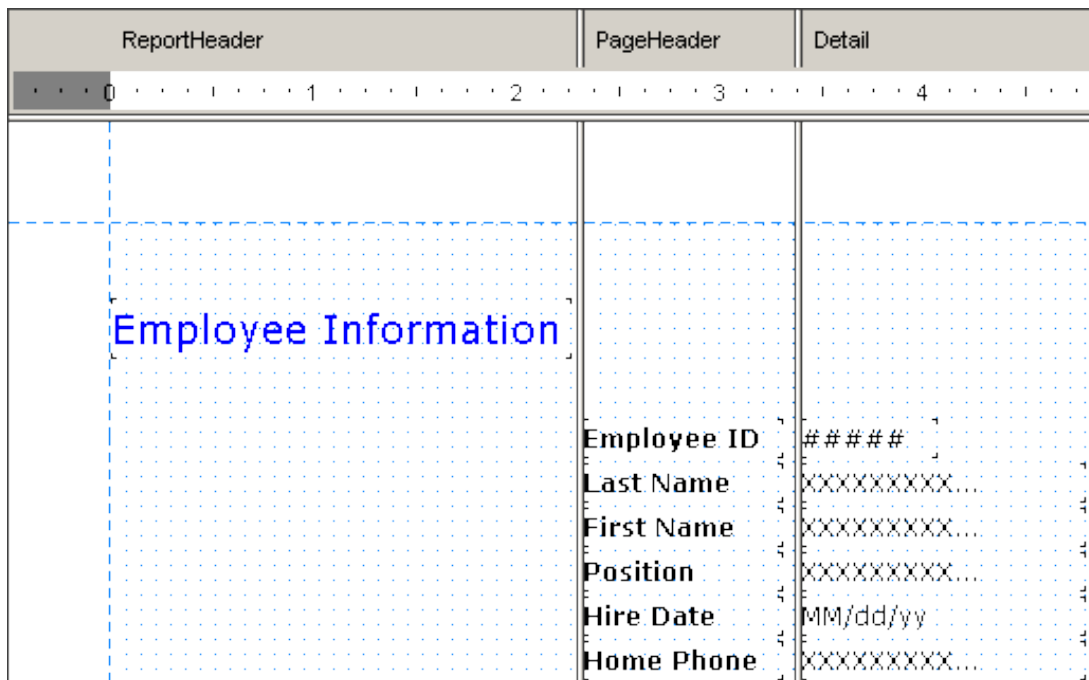Conditions: Select **QBE**, then under the Employee_Employee ID column, type **< 5**.

3. Now, you can click the **Finish** button to generate the report. You will find that all the sections are aligned horizontally as below:

4. Select **Label** from the **Insert** menu, and place the label into the ReportHeader section. Double click the label to edit it. Type "Employee Information". Then modify the font of the label and resize the label to fully display the text of label.

5. Click the Insert DBField button on the Edit toolbar to access the Insert DBfield dialog box, and select the fields **Employ_Employee ID**, **First Name**, **Last Name**, **Position**, **Hire Date**, **Home Phone** (use Ctrl key to select multiple fields), check the Vertical radio button, then click the **Insert** button to insert them into the Detail section.

6. After refining the layout, your report will look something like this:

7. Select the Report Header section and open Report Inspector, set the property **Underlay** to be true. This will align the title **Employee Information** with the data.

8. Now, you can view your report as below.

Employee Information

Employee ID	1	2	3
Last Name	Croft	Hopkins	Miner
First Name	Laurena	Jonathan	Jeremy
Position	Sales Representative	Sales Representative	Marketing
Hire Date	09/12/84	04/03/87	05/19/79
Home Phone	(301) 555-7424	(301) 555-2349	(410) 555-2834

Limits

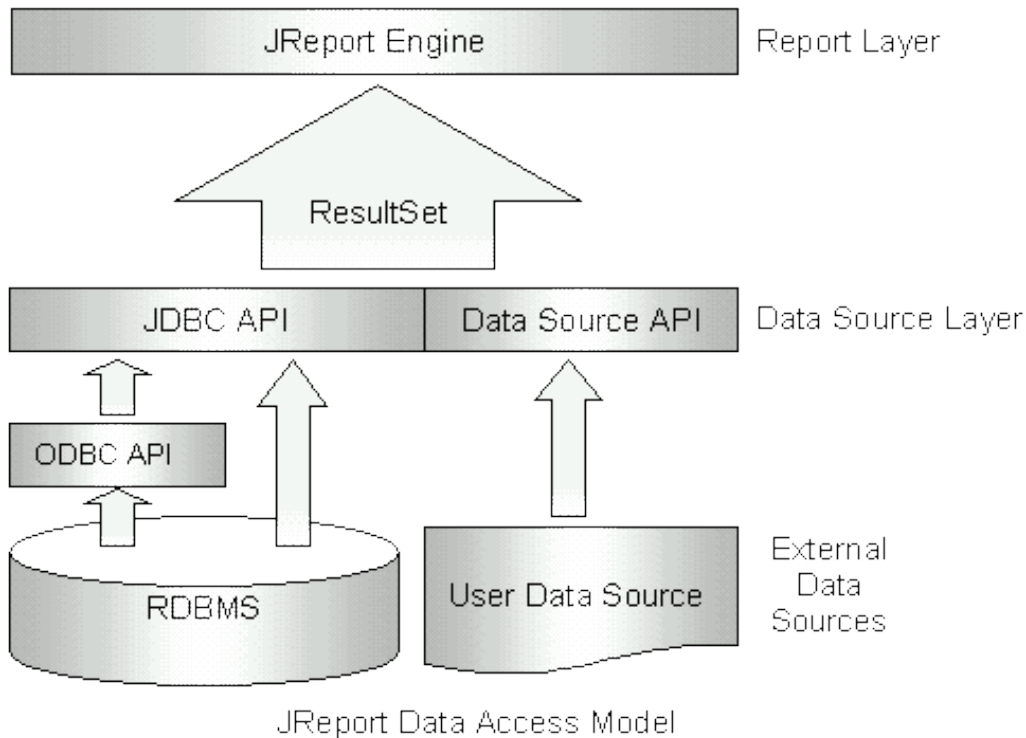Currently, the horizontal report has the following limitations:

- Fields and objects cannot cross pages. That is, you cannot set the section property CanCrossPage = true. Also, you cannot insert an object, such as a Cross–tab object, which will cross pages into your report. In these cases, the result will sometimes encounter perblems (not completed).
- In order to support a mailing label report, there is a property named TileDetailSection for detail section. However, it does not work in this type of report, So you cannot set this property to be true.
- Some properties of fields, such as AutoFit, WordWrap, do not function.
- You can insert other normal reports into this type of report if they do not cross pages. Otherwise, the sub–report contents will be cut off.

Lesson 6: Creating a Report with UDS

Introduction

As a database application, JReport Designer can access data stored in a database through the JDBC connection. Now, through User Data Source API, JReport Designer can also access data from an external data source, such as a text file, Lotus Notes etc, which is not stored in a database, or when no JDBC driver is available.

The UDS API is a part of JReport Data Access Model as shown in this diagram:

JReport Data Access Model

The User Data Source API

- is a Java interface that provides a data set to JReport.
- has two methods you need to implement. Below is the Java code of class definition:

```java
public class SQLDataSource implements JRUserDataSource
{
    // Define data.
    public ResultSet getResultSet(String param) throws JRUserDataSourceException
    {
        // Method body.
    }

    /**
    * Free the resources such as : Connection, Statement, ResultSet.
    */
    public void releaseResultSet() throws JRUserDataSourceException
    {
        // Method body.
    }
}
```

- The parameter string param can be changed when the UDS object is added into JReport Designer. The result set may be different according to the PARAMETER string. It is very flexible and convenient for users.

Address Data Source Example

This example is a plain text file AddressesList.txt which contains the data information like a dummy table:

Laurena   Croft   34826 Atwood St.   New York City   NY   10004   USA...
Jonathan   Hopkins   5062 Brandon Green Ave.   Minneapolis   MN   55402   USA...
Jeremy   Miner   9283 Cherry Leaf Lane   Palo Alto   CA   94303   USA...
....

You can see each line sequentially records the name, address, state, region, zip code, country, email address and other information. We will show you how to build a report using the data stored in a formatted text file. You can modify this example to satisfy your requirements.

Compiling and Running Address UDS

The data file is AddressesList.txt. There are three classes used in this example and their source codes are: AddressListUDS.java, AddressListResultSet.java and AddressListResultSetMetaData.java. These files are available on our web site at http://www.jinfonet.com/webpage/kbase/kbase.htm (manual related materials).

If you use your own UDS classes, you must be sure about one thing: the class files can be found while running. Therefore, the directory should be classpath/package name. Suppose you have installed the help of JReport Designer, the help folder will be under %JReportPro_Installroot%. For these demo UDS classes, classes belong to a package named "help". You may copy the above necessary files under %JReportPro_Installroot%\help, and add the additional entry into classpath statement of the batch file starting JReport: %installroot%.

For example, on Windows, if you install JReport into the default directory "c:\JReport" and all the UDS classes are located under c:\jreport\help, you need the following entry in the batch file c:\JReport\bin\JReport.bat:
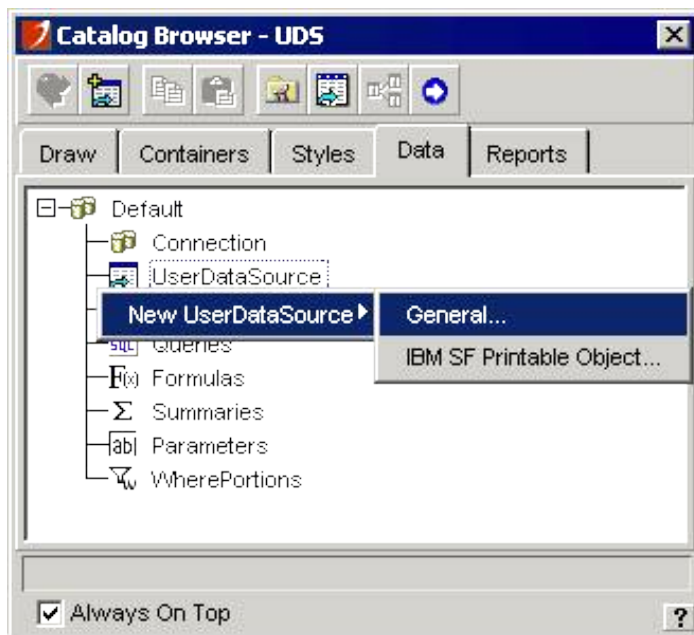...java –classpath

Compile the example: go to the directory %installroot%\help and enter:
c:\jreport;c:\jreport\lib\report.zip;c:\jreport\lib\JREngine.zip

On Unix, if you install JReport into the /usr/jreport:
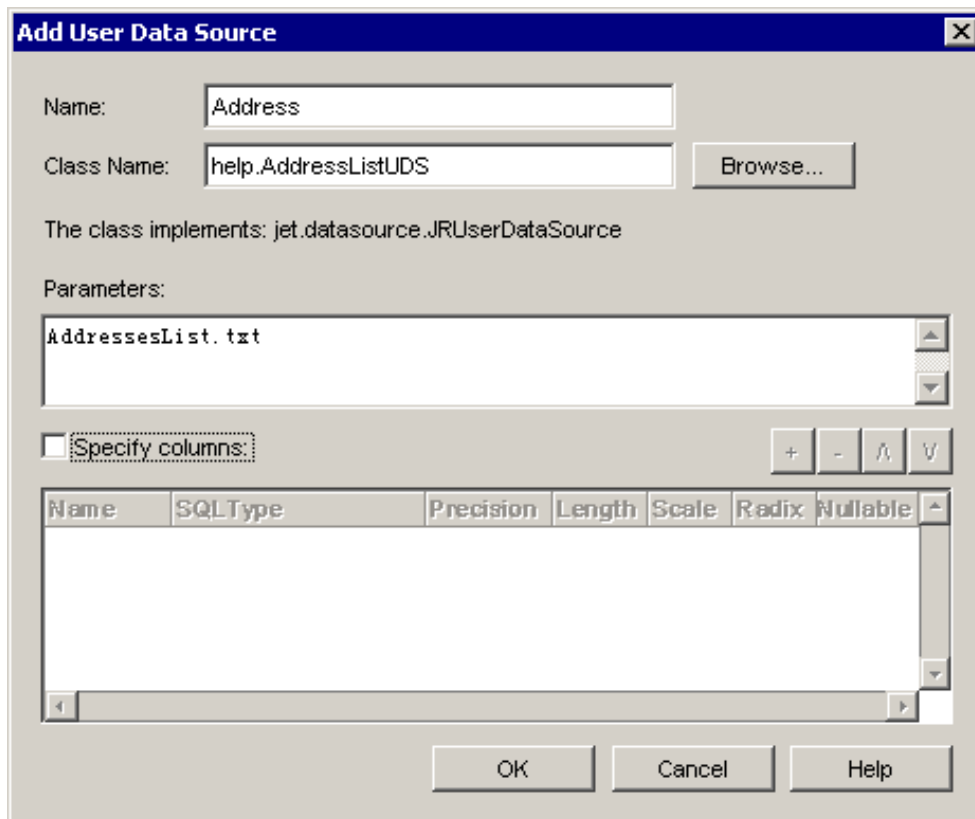classpath = %classpath%:/usr/jreport:

javac –classpath ".;%Installroot%\lib\JREngine.zip;" Address*.java

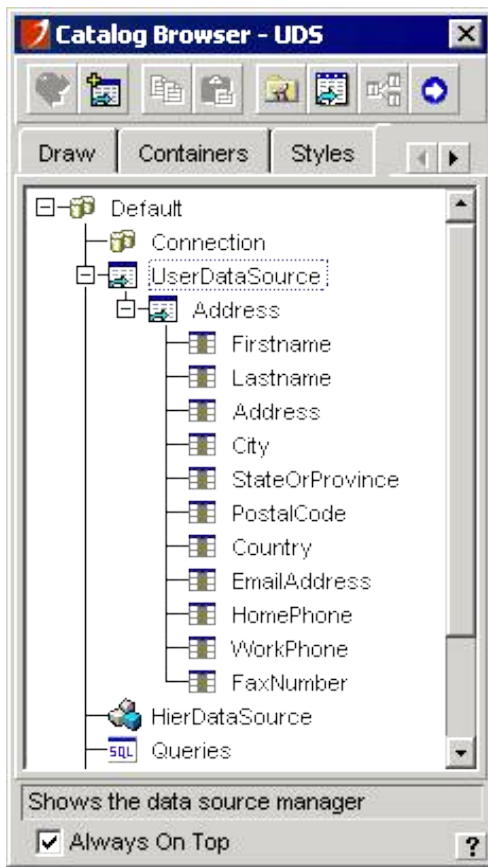## Adding Address UDS into JReport Catalog

1. After compilation, start JReport with the batch file you just modified. You are prompted with the demo catalog and reports. Then, click **Cancel**.
2. Since UDS API connects with user data source independent of the JDBC connection, you can then create another catalog instead of building reports in the demo catalog Tutorial.cat. To do this, go to **File | New Catalog**. Here, we create a new catalog **UDS.cat**.
3. In Catalog Browser, right click **UserDataSource | General...**

4. In the Add User Data Source dialog, enter the following information, and then click **OK:**

5. Now expand the added Address UDS and you will see the table–like tree structure.

Making a Report with Address UDS

Now go to *File | New* menu item or click the *New Report* button on the standard Toolbar to launch Report Wizard (A step by step report designer assistant that help you build your reports). Now let us view the result of our demo lesson7b.cls.

Addresses List

Firstname	Lastname	Address	City	HomePhone
Laurena	Croft	34826 Atwood St.	New York City	(301) 823-7424
Laurena	Croft	34826 Atwood St.	New York City	(301) 823-7424
Jonathan	Hopkins	5062 Brandon Green Ave.	Minneapolis	(301) 946-2349
Jonathan	Hopkins	5062 Brandon Green Ave.	Minneapolis	(301) 946-2349
Jeremy	Miner	9283 Cherry Leaf Lane	Palo Alto	(410) 349-2834
Jeremy	Miner	9283 Cherry Leaf Lane	Palo Alto	(410) 349-2834
Jennifer	Lee	2340 Pondside Ave.	Vancouver	(703) 223-4422
Jennifer	Lee	2340 Pondside Ave.	Vancouver	(703) 223-4422
Geoffery	Schultz	82649 San Antonio Rd	Atlanta	(301) 342-2343
Geoffery	Schultz	82649 San Antonio Rd	Atlanta	(301) 342-2343
Katherine	Chen	29437 Bainbridge Drive	Chicago	(202) 980-2345
Katherine	Chen	29437 Bainbridge Drive	Chicago	(202) 980-2345
Jimmy	Rayner	89273 Garden of Roses Ave	Colorado Springs	(703) 529-5923
Jimmy	Rayner	89273 Garden of Roses Ave	Colorado Springs	(703) 529-5923
William	Penne	10954 Piso St.	Villanhermosa	(410) 234-9872

Edit your report afterwards to give it a professional appearance.