

## *Crystal Reports Form Letters*

Replace database exports and Word mail merges with Crystal's powerful form letter capabilities.

Prerequisites: Fundamental understanding of conditional formatting formulas and Crystal Reports string formulas.

In this session, you'll learn:

- How to embed fields and formulas into text objects
- Formatting techniques for embedded text objects
- Powerful approaches to using multiple report sections

### **Outline**

#### Text Object Review

- Embedding Fields in Text Objects
- Formatting Embedded Fields
- Importing Text into a Text Object

#### String Formula Review

- String Concatenation
- The ToText Function

#### Working with Bitmaps

- Adding Bitmaps
- Placing Bitmaps Behind Text

#### Report Sections

- Multiple Report Sections
- Conditional Section Formatting

#### Challenge Exercise

## *Advanced Charting*

Delve into more advanced charting types and techniques, including 3-D charts and charts based on Cross-Tabs and OLAP grids.

Prerequisites: Familiarity with Crystal Reports grouping and group subtotals/summaries. Basic experience with Crystal Reports charts is helpful.

In this session, you'll learn:

- Different chart types available in Crystal Reports and when to use them
- Advanced chart formatting techniques
- Conditional chart formatting

### **Outline**

#### Different Types of Charts

- Is a Chart Appropriate?
- Determining Correct Chart Type

#### Creating Group Charts

- Report Grouping Requirements
- Drilling Down on Group Charts
- Changing an Existing Chart

#### Creating Advanced Charts

- Choosing Data Elements and Summaries
- Charting Multiple Data Points

#### Cross-Tab and OLAP Charts

- Charting on Cross-Tabs
- Charting on OLAP Grids

#### Customizing Charts

- Using the Analyzer
- Inline Chart Customization (version 9)
- Conditional Chart Formatting (version 9)

#### Additional Chart Types

- Choosing Additional Chart Types
- Challenge Exercise

## ***Advanced Formulas / Variables / Arrays***

Resolve complex reporting requirements with advanced formula techniques, including looping constructs, arrays, and variables.

Prerequisites: Working knowledge of Crystal Reports formulas, including numeric operators and functions, string formulas, and If-Then-Else formulas.

In this session, you'll learn:

- How to create and use formula variables and arrays
- How to pick apart strings
- Looping constructs to use with arrays and variables
- Advanced formula functions and operators

### **Outline**

#### **Formulas with Parameter Fields**

Join Function  
Minimum/Maximum Functions  
ToText with Dates

#### **Using Variables**

Not and In Operators  
Left and Length Functions  
Manipulating and Showing Variables

#### **Using Arrays**

Declaring Arrays  
Showing Array Values  
Using Loops

#### **String Manipulation**

Challenge Exercise: Music List

## *The Repository*

Share common report objects with others in your organization. Migrate the repository to a company-wide SQL database.

*Note: Since the repository is only available in Crystal Reports 9 Professional, Developer, and Advanced editions, you must have one of these editions installed on your laptop to participate in the hands-on exercises in this session.*

In this session, you'll learn:

- What the repository is
- How to add, modify, and remove repository objects
- Procedures to migrate the repository to a shared database
- Shared database security to assign repository rights

### **Outline**

#### Understanding the Repository

- The Repository Defined
- Using Repository Objects on Your Report
- Keeping Your Reports in Sync

#### Maintaining the Repository

- Adding and Deleting Objects
- Modifying Objects

#### Creating a Shared Repository

- ORMAP.INI and ODBC
- Repository Database Security
- Migrating Objects to a Shared Repository

## *Exporting and Basic Web Reporting*

Provide reports in an alternate format for end users. Explore various ways to put Crystal Reports on the web.

In this session, you'll learn:

- Simple exporting to various formats, such as Word and Excel
- Steps to prepare reports for proper import into another program (ASCII export, XML export)
- Various methods of placing Crystal Reports on the web, including static HTML export and Crystal Reports 9 RAS

### **Outline**

#### Exporting to Common Office Formats

- Export Destinations
- Word and Excel Formats
- Acrobat Format

#### ASCII File Exporting

- Report Definition Format
- Text ASCII Formats
- Delimited and Fixed Length ASCII formats

#### XML Exporting

- An Overview of XML
- Exporting to XML

#### Basic Web Reporting

- Exporting to Raw HTML
- Crystal Reports 9 RAS
- Crystal Enterprise

## *Dealing with Database Difficulties*

Prerequisites: A strong working knowledge of Crystal Reports including how to create reports using multiple tables, running total fields and subreports.

In this session you'll learn:

- The implications of one-to-many and many-to-many table relationships
- Different techniques for dealing with one-to-many and many-to-many relationships, what to avoid, and how to validate the output along the way
- The difference between a join type and a link type
- How the type of join you choose impacts not only the answer set that is returned but the underlying database
- Is an outer-join always an outer-join?

### **Outline**

Sample Database Overview

Report Creation Review

Formatting

“Simple Statistical” Formula

Migrating from Test to Production

Using Set Location

Dealing with table name changes

Mapping fields

Table Linking Relationships

One-to-Many Relationships

Running Total fields

DistinctCount summary

Many-to-Many Relationships

Linked Subreports

Shared Variables

Join Types

Join types vs. link types

The SQL Server optimizer

Idiosyncrasies of outer joins

## *Complex Report Design Techniques*

Prerequisites: Ability to create basic Crystal Reports that include record selection and multiple levels of grouping and summarizing with little direction. A good understanding of Crystal formula syntax is also required.

In this session you'll learn:

- How to add, delete and rearrange multiple sections of the same type
- How to use section formatting features such as conditional suppression and underlay
- How to use report alerts
- How to display different graphics that are data driven

### **Outline**

#### Conditional Object Formatting

- Conditional object suppression
- Bitmap objects
- Using special fonts and bar codes
- Page continuation messages
- Precise color choices

#### Section Formatting

- Controlling page breaks
- Shading every other section

#### Multiple Report Sections

- Multiple Report Sections
- Conditional Section Formatting
- Underlay Option

#### Parameter Fields

- One, multiple, or all parameters
- Formulas, conditional formatting, and sorting/grouping
- Parameter driven Top N reporting

#### Report Alerts

- Setting up Report Alerts
- Using Report Alerts in formulas
- Report Alerts in Crystal Enterprise

## *Crystal Reports Formulas Introduced*

In this session you'll learn:

- How to use the Crystal Reports 9 formula editor
- How to read and understand the Crystal formula syntax
- Some of the most commonly used functions
- Where in Crystal Reports you can use formulas to enhance report functionality

### **Outline**

Use the Crystal Reports formula editor and formula workshop (version 9)  
*Identify different portions of these dialogs and their functions*

Read and understand the Crystal formula syntax  
*Understand fields, functions, operators, comments, and other syntax elements*

Use many commonly used functions and operators  
*Explore numeric, string, date, and time functions, as well as If-Then-Else and Boolean logic*

Understand the differences between Crystal and Basic syntax  
*Make use of the Variable reserved keyword in Basic Syntax*

Sorting and group based on formulas  
*Sorting and grouping is not limited to use of direct database fields*

Explore the Formula Expert and Custom Functions  
*These new features allow formula creation with a simple interface*

Conditionally format report objects  
*Control formatting based on results of a formula*

Use Running Totals instead of certain formulas  
*Show a progressive total as the report prints*



## *Business Views*

In this session you will:

- Discover the different pieces that make up a Business View
- Create a complete Business View
- Examine Business View row and column security
- Determine how Business Views are stored in the repository

### **Outline**

Business Views Overview

Creating a Business View

*Data Connection*

*Data Foundation*

*Business Element*

*Business View*

Using a Business View with Crystal Reports

*Basing a Report on a Business View*

*Testing Row and Column Security*

## *Creating and Using Custom Functions*

In this session you will:

- Discover the power of “sharable” formula logic
- Learn how to create your own custom functions
- Share custom functions enterprise-wide with the repository
- Use custom functions with both the Formula Editor and Formula Expert

### **Outline**

Creating Custom Functions

*Extracting from Existing Formulas*

*Creating Functions from Scratch*

*Adding Custom Functions to the Repository*

Using Custom Functions in Formulas

*The Formula Editor and Formula Expert*

*Using Repository Custom Functions*

## *Report Performance Fine Points*

In this session, you will:

- Fine tune report performance with careful use of record selection and parameters
- Use SQL Expressions
- Examine database-based grouping and aggregates
- Discuss benefits of server-based views and stored procedures
- Explore subreport processing

### **Outline:**

Report Processing Cycle

*Database/Report Interaction*

*Looking at Performance Statistics*

Crystal Reports with SQL Databases

*The SQL Query*

*How Record Selection Affects Performance*

SQL Performance Tuning

*Using SQL Expressions*

*Using SQL Commands*

*SQL Stored Procedures and Views*

*Server-Based Grouping*

Subreport Performance Issues

*The Subreport Processing Cycle*

*Subreport Performance Tips*

## *Integration with VS.NET*

In this session, you will:

- Create custom Windows and Web applications with Crystal Reports.
- Use the Web and Windows forms viewers to host reports and create them with the Integrated Report Designer.
- Explore the rich object models exposed for runtime report customization.

**Prerequisite:** Working knowledge of Visual Studio .NET and Visual Basic .NET. This is *not* a programming session—it is assumed you already know how to program with Visual Basic .NET. This session requires at least a half-day to complete.

### **Outline**

Visual Studio .NET/Crystal Overview

VS.NET/Crystal Windows Applications

*Adding a Windows Forms Viewer*

*Customizing with Object Models*

VS.NET/Crystal Web Applications

*The Integrated Report Designer*

*Adding a Web Forms Viewer*

*Customizing with Object Models*