

UNIT – 5

User Controls (Components), Crystal Reports, Setup Project

Programming with C#

Code : CS-23

User Control :

- ▶ A custom control is user defined control.
- ▶ It is created by the user as per requirement.
- ▶ User control is derived from the UserControl class or an existing windows forms control.
- ▶ User control provides front-end functionality through its graphical interface, but provides back-end functionality through its methods, properties and events.
- ▶ User controls are designed like Forms, with a visual designer.
- ▶ You create, arrange, and modify, the constituent controls through the visual designer.
- ▶ The control events and logic are written exactly the same way as when you're designing a Form.
- ▶ The user control is placed on a Form just like any other control.

▶ **Why we make User control**

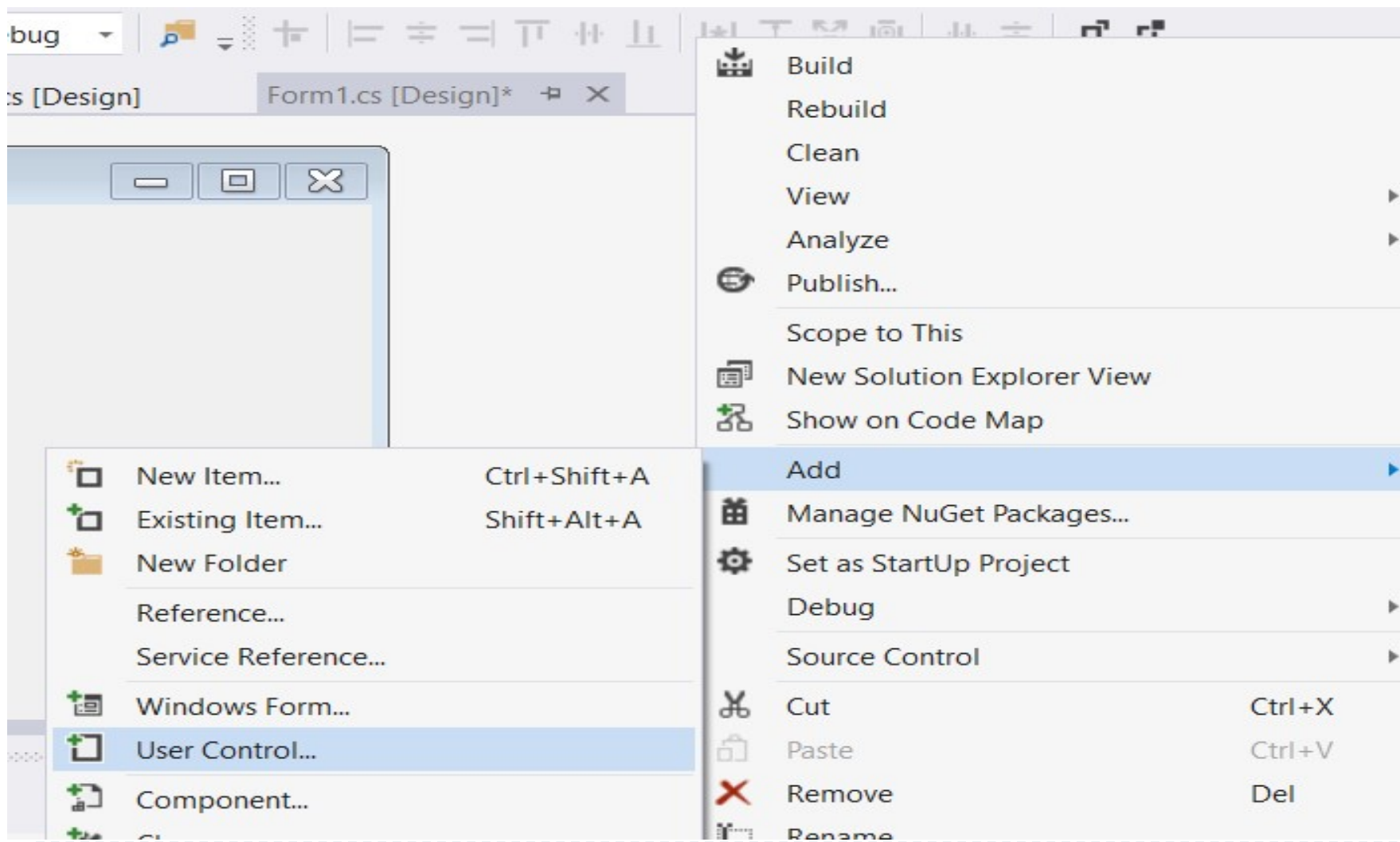
This Provide additional re-use flexibility with large scale web project. It's also help to find bug and resolve bug in short time.

- ▶ If you want some changes in your code then you have to write code at one place (user control) that effect in every web form or every Form of window application.
- ▶ Using this technique you can save your extra effort and also save your time.

- ▶ **Let's create our own control user control :**
- ▶ **Now Follow these steps to create user control**
- ▶ Step 1 : Create windows form application first and give appropriate name.

Step 2 add user control :

→right click on project→add→new Item /
User Control



Step 3 : Give Name to User Control

The screenshot shows the Visual Studio interface during the creation of a new item. The 'Add New Item - usr' dialog is open, displaying a list of item types under the 'Visual C# Items' category. The 'User Control' item type is selected. The 'Solution Explorer' on the right shows the project structure for 'usr', with 'Form1.resx' highlighted by a red rectangle.

Add New Item - usr

Sort by: Default

Visual C# Items

- Class
- Interface
- Windows Form
- User Control**
- Component Class
- User Control (WPF)
- About Box

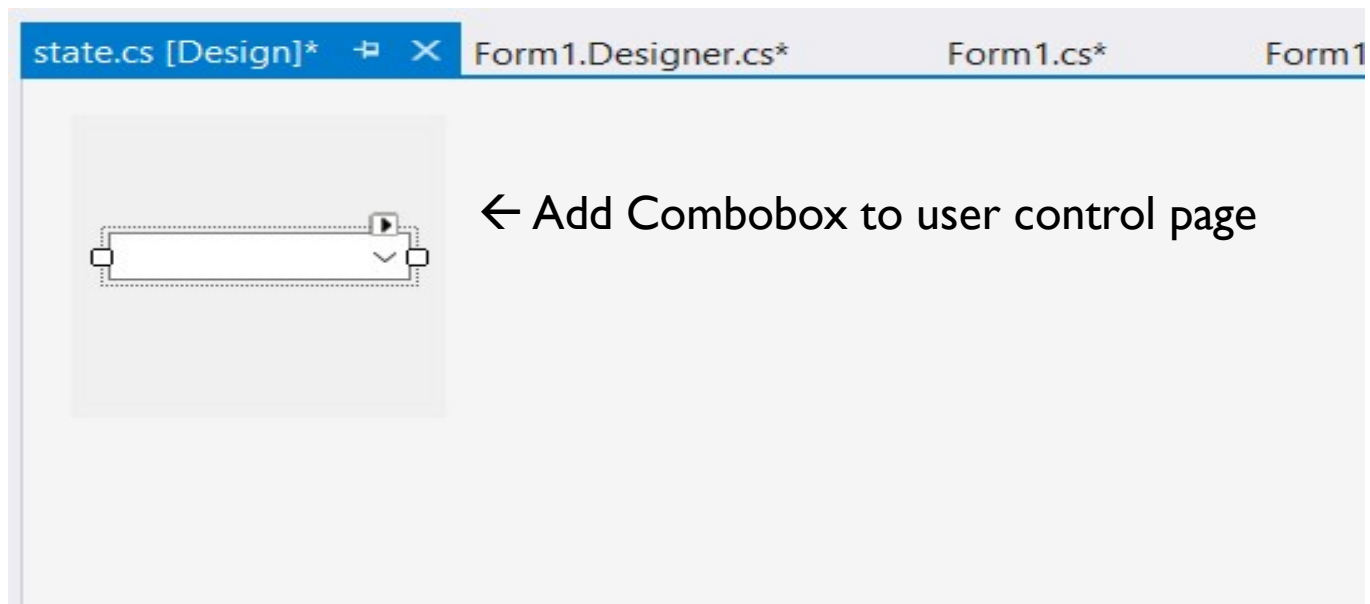
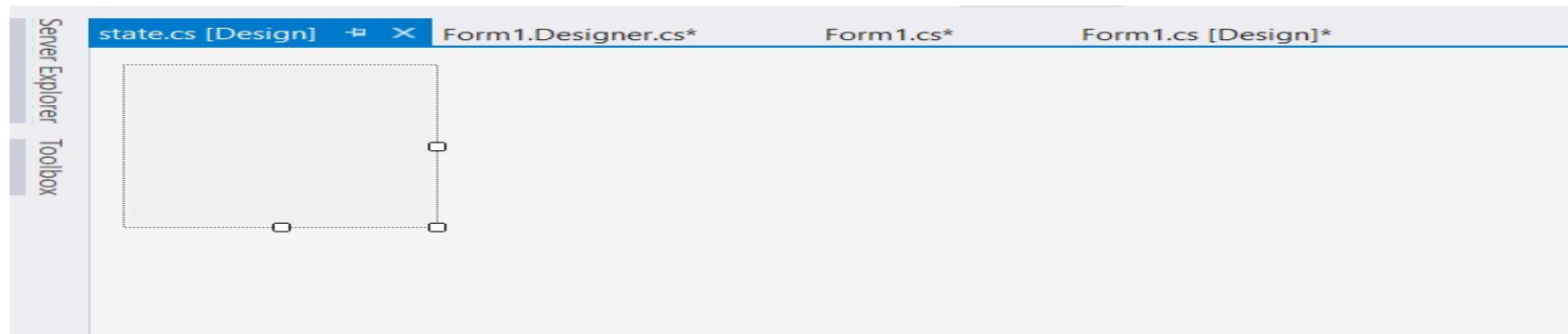
Type: Visual C# Items

Solution Explorer

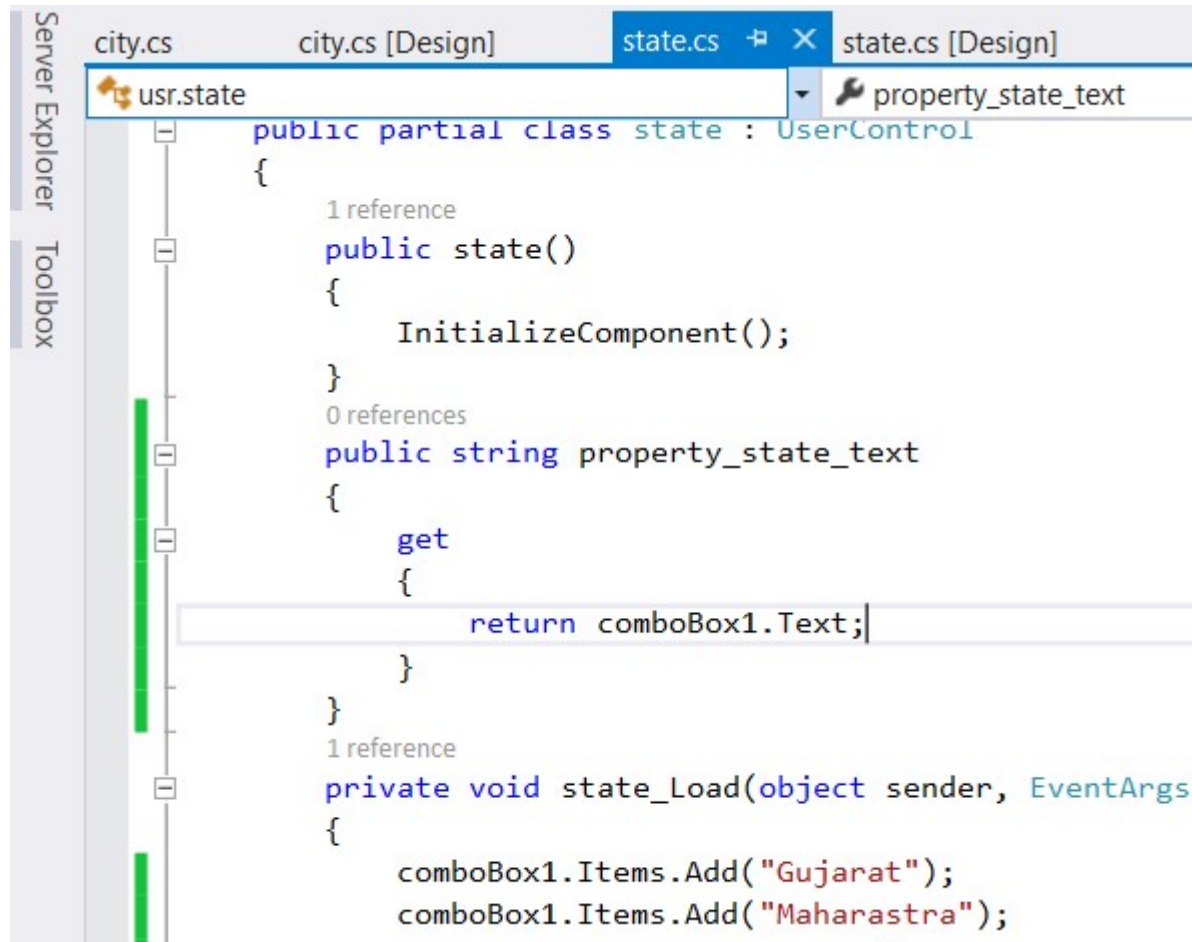
Solution 'usr' (1 project)

- usr
 - Properties
 - References
 - App.config
 - city.cs
 - Form1.cs
 - Form1.Designer.cs
 - Form1.resx**
 - Form1

Step 4: Now Add Form Control :



Step 5 : Add Items to ComboBox And create one property for prpperty_state_text :

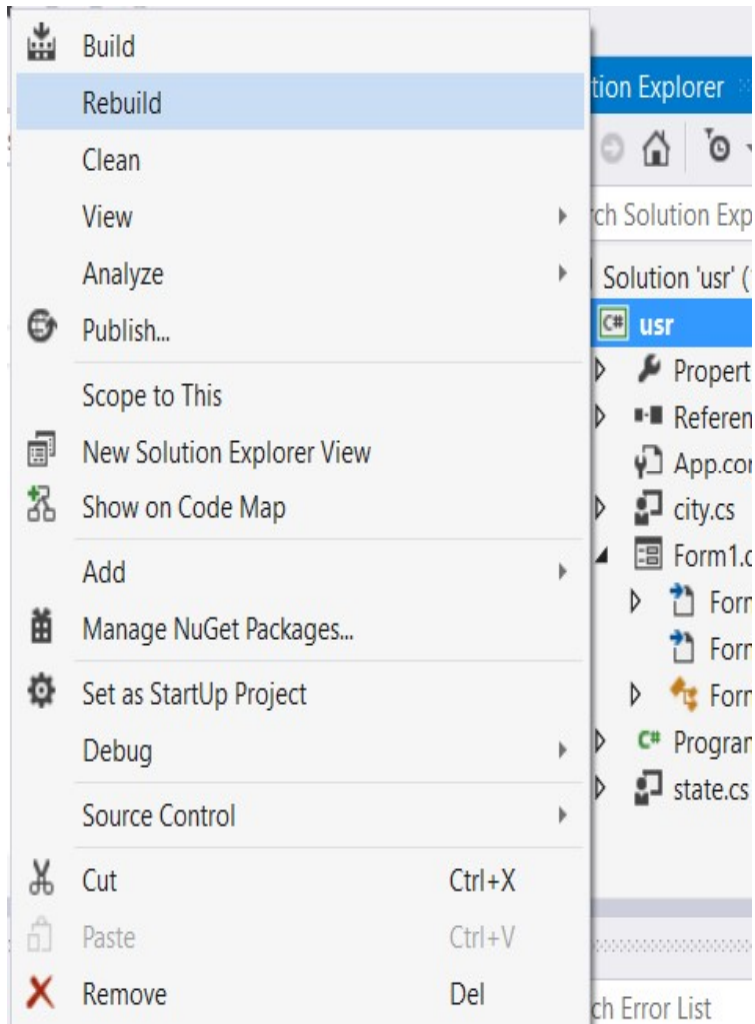


```
city.cs    city.cs [Design]    state.cs  state.cs [Design]
usr.state  property_state_text

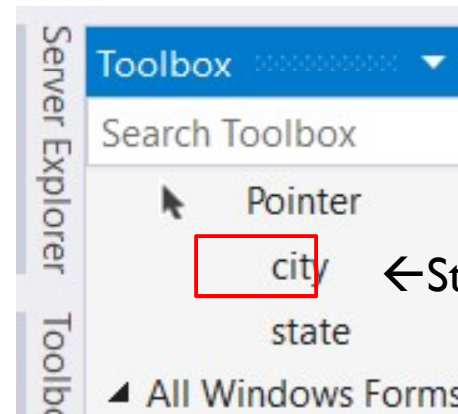
public partial class state : UserControl
{
    1 reference
    public state()
    {
        InitializeComponent();
    }
    0 references
    public string property_state_text
    {
        get
        {
            return comboBox1.Text;
        }
    }
    1 reference
    private void state_Load(object sender, EventArgs
    {
        comboBox1.Items.Add("Gujarat");
        comboBox1.Items.Add("Maharashtra");
    }
}
```

Now User Control is ready to use.

Step 6 : After every Changes of User Control Must Rebuild Your Project.

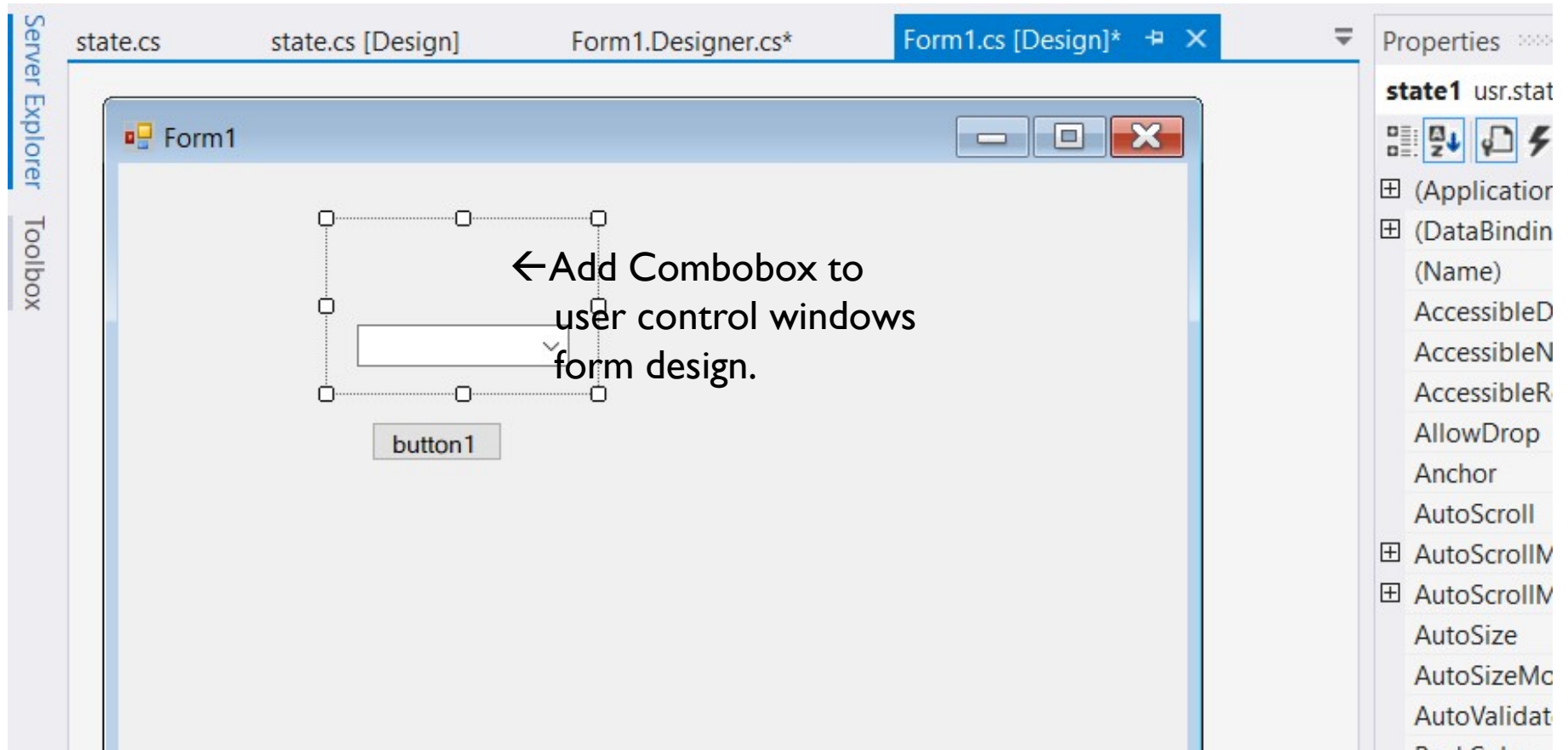


Step 7 : Now state user control is ready to drag and drop. drag it to your windows form application .



←State is our user control That display in toolbox

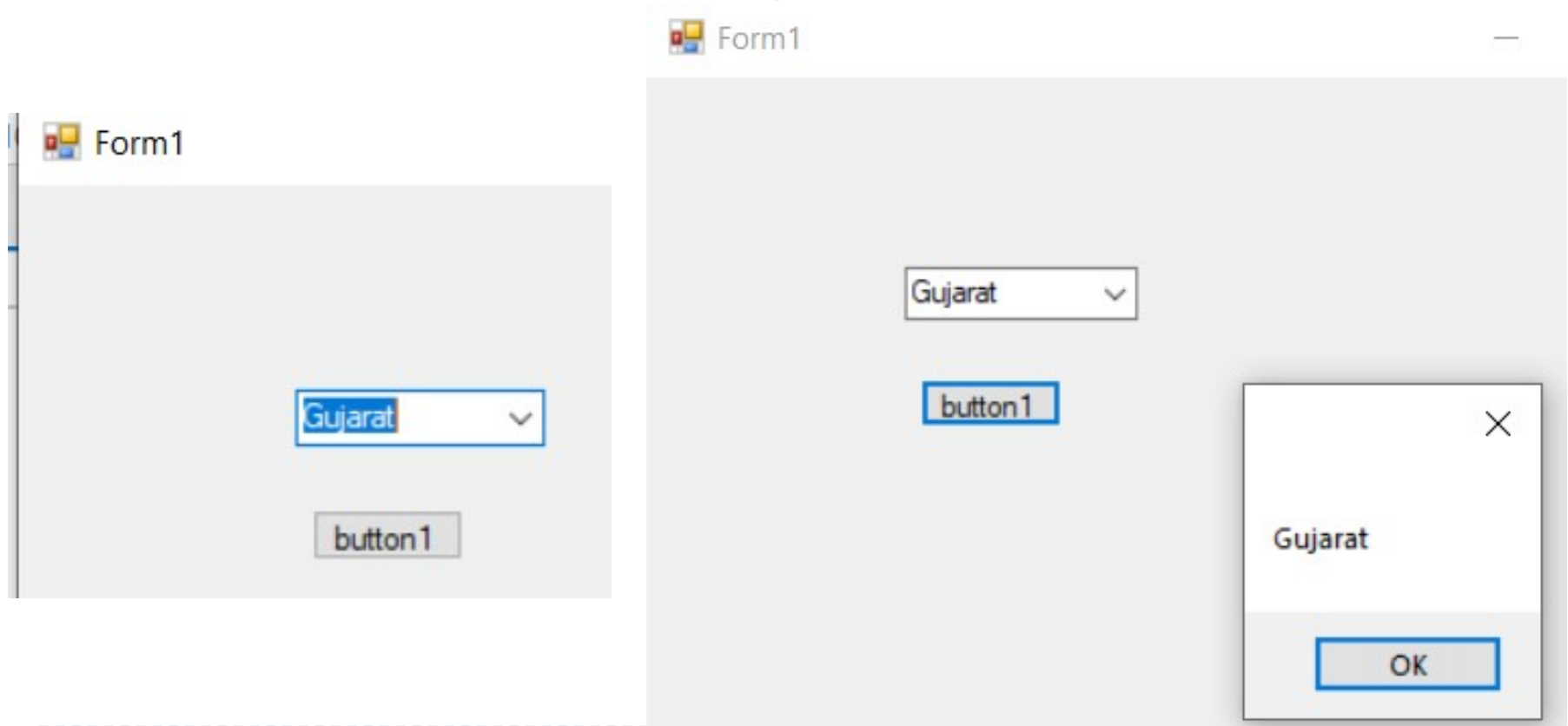
Step 8: Drag your state control from tool box and one button for show selected state:



Step 9 : Create click event of button :

```
1 reference  
private void button1_Click(object sender, EventArgs e)  
{  
    MessageBox.Show(state1.property_state_text)  
}
```

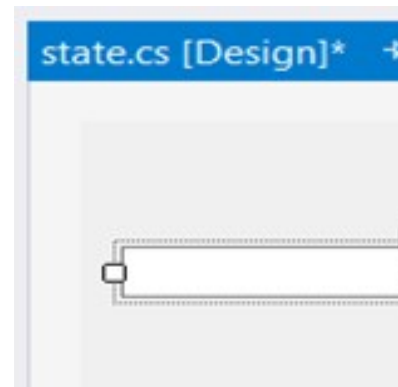
Step 10 : Now run Project :



File 1 : UserControl :

```
using System;
using System.Collections.Generic;
using System.Drawing;
using System.Windows.Forms;
namespace usr
{
    public partial class state : UserControl
    {
        public state()
        {
            InitializeComponent();
        }
        public string property_state_text
        {
            get
            {
                return comboBox1.Text;
            }
        }
    }
}
```

```
    }
    private void state_Load(object sender,
EventArgs e)
    {
        comboBox1.Items.Add("Gujarat");
        comboBox1.Items.Add("Maharastra");
        comboBox1.Items.Add("Bihar");
        comboBox1.Items.Add("Hariyana");
        comboBox1.Items.Add("Panjab");
    }
}
```

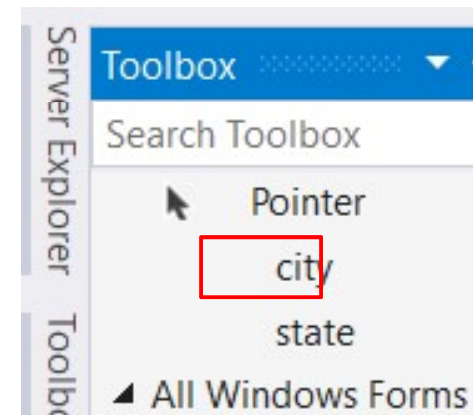
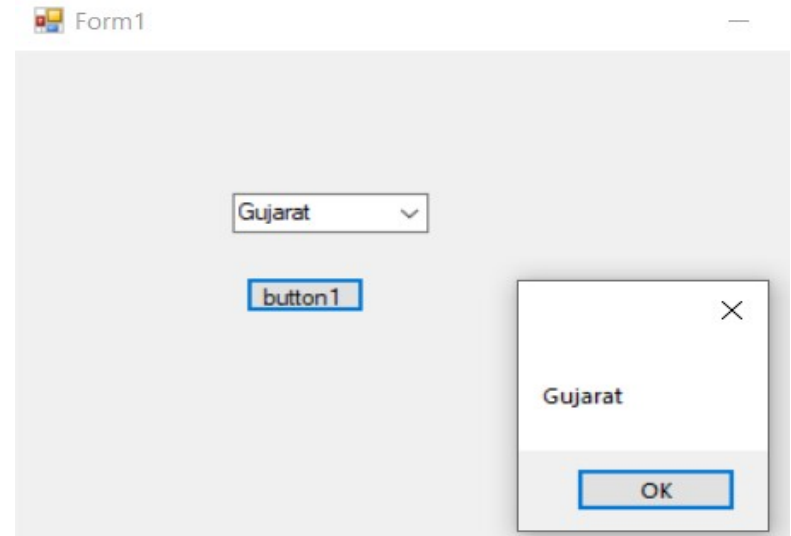


Now Rebuild Your Project

File 2 : Windows Form :

```
using System;  
using System.Collections.Generic;  
using System.Drawing;  
using System.Windows.Forms;  
namespace usr
```

```
{  
    public partial class Form1 : Form  
    {  
        public Form1()  
        {  
            InitializeComponent();  
        }  
        private void button1_Click(object sender, EventArgs e)  
        {  
            MessageBox.Show(state1.property_state_text);  
        }  
    }  
}
```



Crystal Reports :

- ▶ Crystal reports allow the user to generate reports by summarizing the data.
- ▶ It also allows the user to present data in a graphical format.
- ▶ The crystal reports enterprise reporting consists of,
- ▶ **Powerful Report Design** : Crystal Reports provides a WYSIWYG (What You See Is What You Get) design interface that allows users to create visually appealing reports.
- ▶ **Report formatting** : customize report headers and footers, page numbering, and other formatting elements.
- ▶ **Report functions**: Crystal Reports provides a wide range of functions that can be used to perform calculations, aggregate data, and manipulate data.
- ▶ **Application Development Flexibility**
- ▶ **Management and Delivery of Reports** - Crystal Reports can be easily published on the web. The user can export reports to different file formats like PDF or DOC.

► **Features of Crystal Reports :**

► **Data Access**

Crystal reports allow the user to easily access databases, files, application systems, and so on. Crystal reports have more than 35 data drivers that help in easy access of data from various data sources. It provides flexibility in connecting to the database by using query generation feature of Crystal Reports.

► **Customizable Templates**

The user can design customized templates and use them while generating new reports. These templates can specify the formatting and design logic and the different data access operations to maintain consistency across multiple reports. This prevents the user from spending more time formatting every single report.

► **Powerful Formula Language**

Crystal reports provide over 160 built-in and user-defined functions and operators. This allows the user to control report formatting and complex logic.

Asymmetric Reporting

Crystal reports allow the user to display only relevant and required data by hiding unnecessary data.

► **Alerting**

Crystal reports allow the user to highlight certain information to the user by generating messages.

► **Hyperlinks**

Crystal reports allow the user to create interactive reports by using hyperlinks various web documents.

► **Data Designing and Formatting**

Crystal reports provide various options for designing and formatting data. It provides various wizards to simplify the process of connecting to the database, sorting, or selecting data. It allows the user to provide graphical impact to the reports by using various maps and charts such as bar, pie, and so on.

Uses of Crystal Reports

01

Data analysis

02

Reporting

03

Report customization

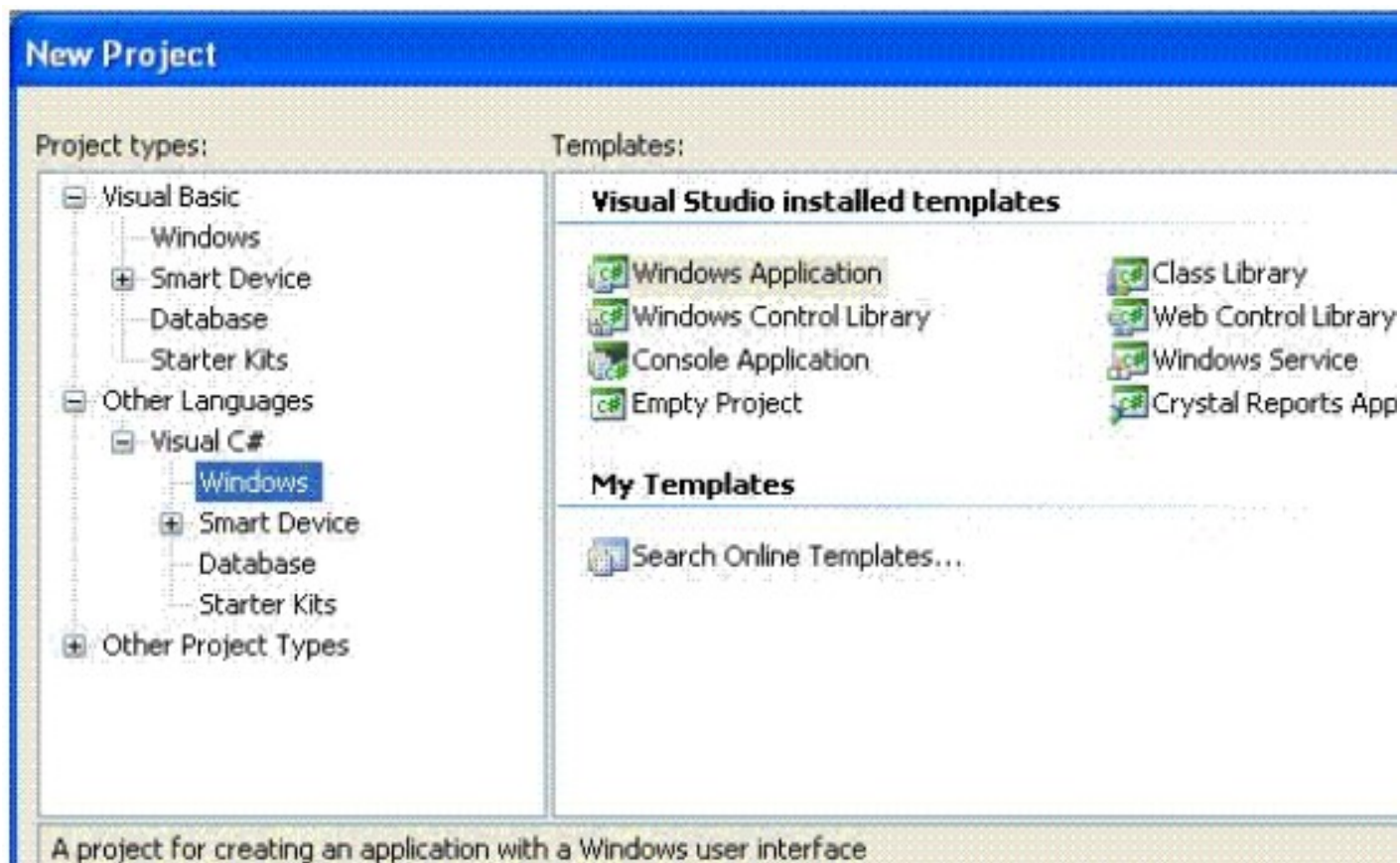
04

Integration with other tools

❖ Steps for Creating Crystal Report :

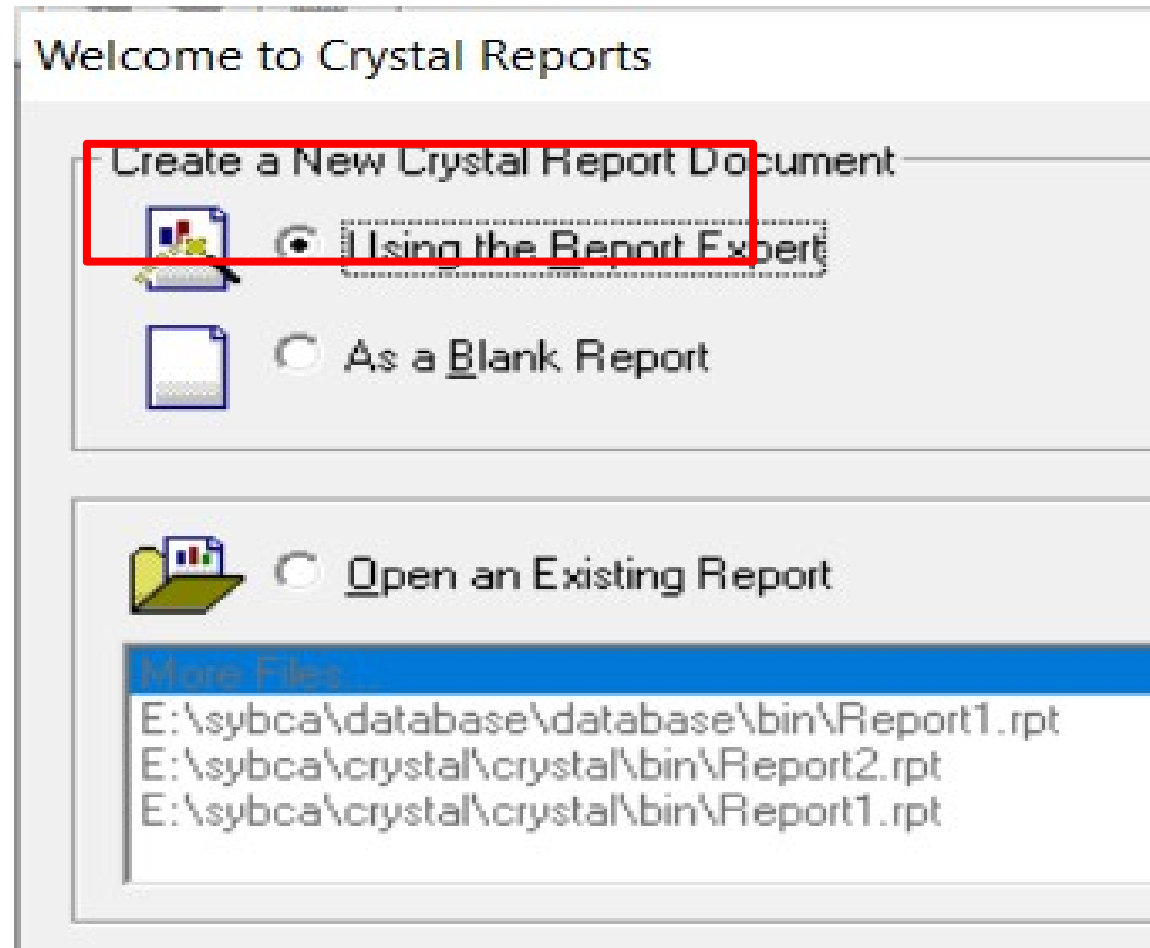
(Slide no : 15 to 23)

Step : I → Open Visual Studio .NET and select a new C Sharp Windows project.



Step : 2 → Start Crystal report and select type of report :

- 1. Using a Report Wizard**
- 2. As a blank Report.**
- 3. From an Existing Report**



Step : 3 → Select Report type from Crystal Reports gallery.

•Create a New Crystal Report Document:

•Using the Report Expert

•As a Blank Report

•Choose an Expert :

•Standard

•Form Letter

•Form

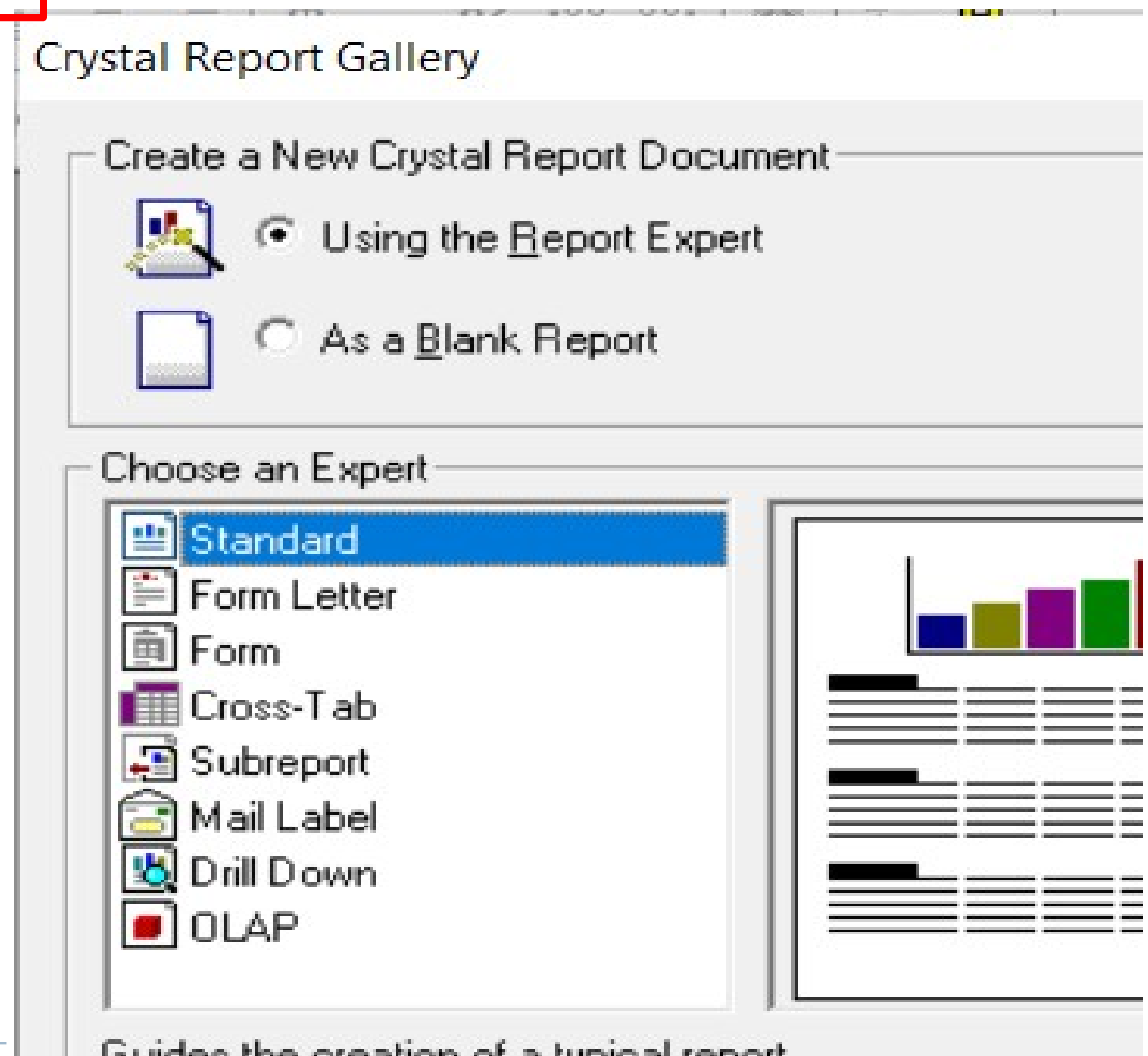
•Cross-Tab

•Subreport

•Mail Label

•Drill Down

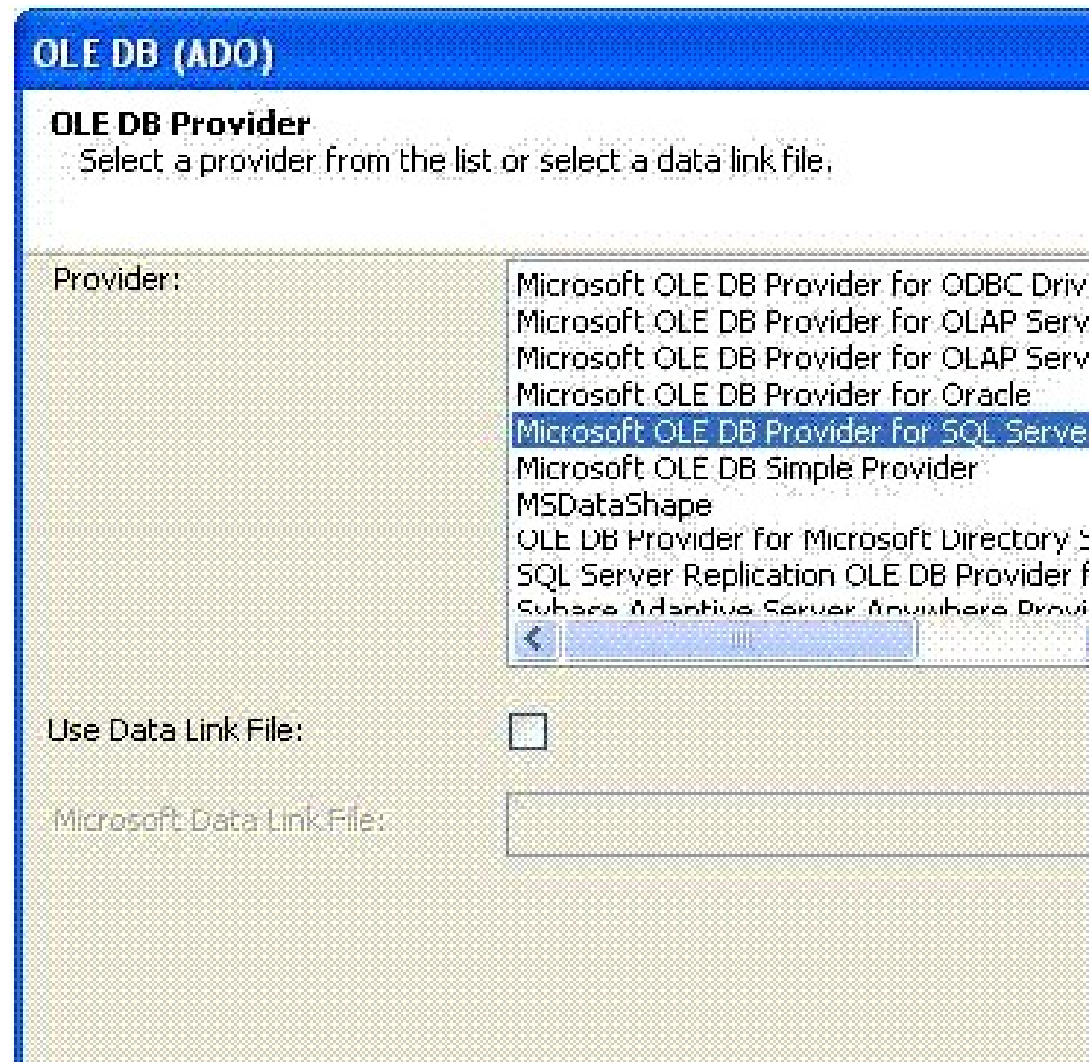
•OLAP



Step : 4 → Next step is to select the appropriate connection to your database
Here we are going to select **OLEDB Connection** for SQL Server to connect
Crystal Reports in C#.
→ Select OLE DB (ADO) from Create New Connection.

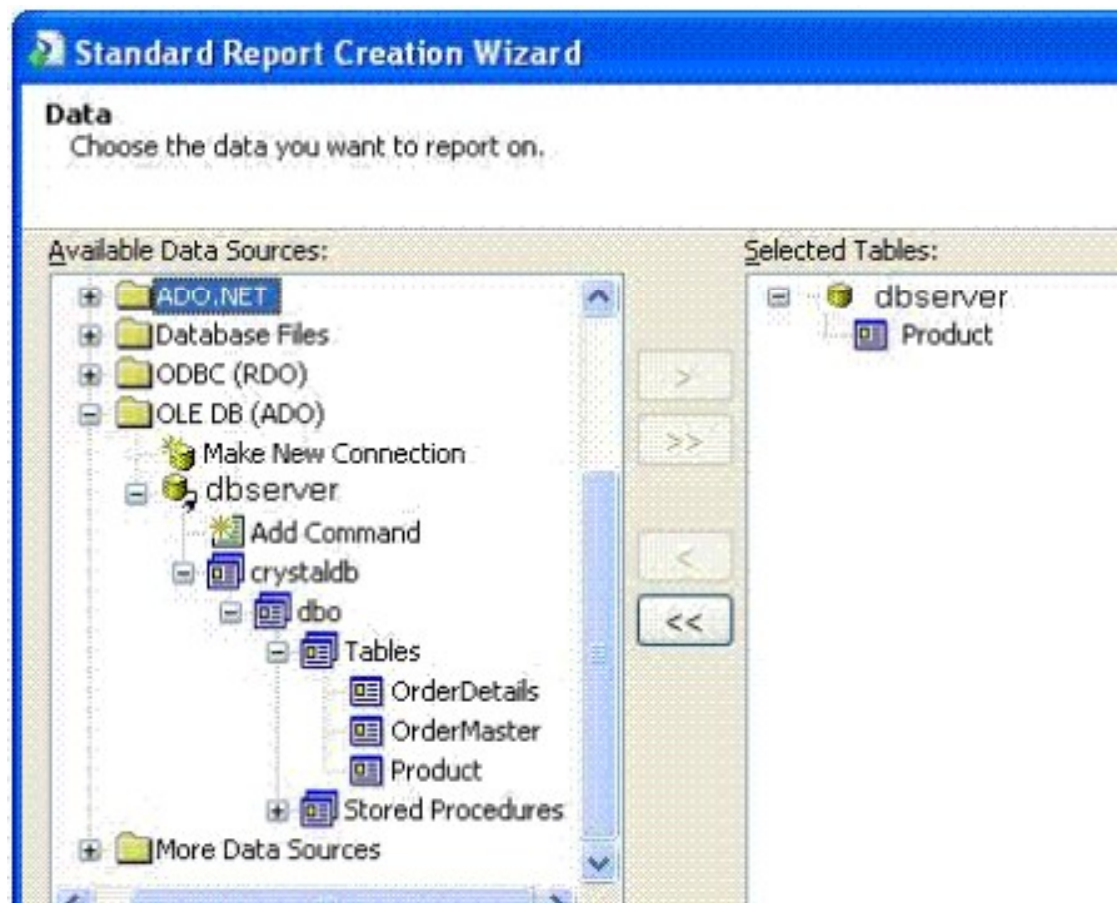


Step : 5 → Select Microsoft OLE DB Provider for SQL Server.



Step : 6 → the next window you will get your Server name under OLEDB Connection, from there selected database name (Crystaldb**) and click the tables , then you can see all your tables from your database.**

Step : 7 → From the tables list double click the Product table then you can see the Product table will come in the right side list.



Step : 8 → Select all fields from Product table to the right side list .

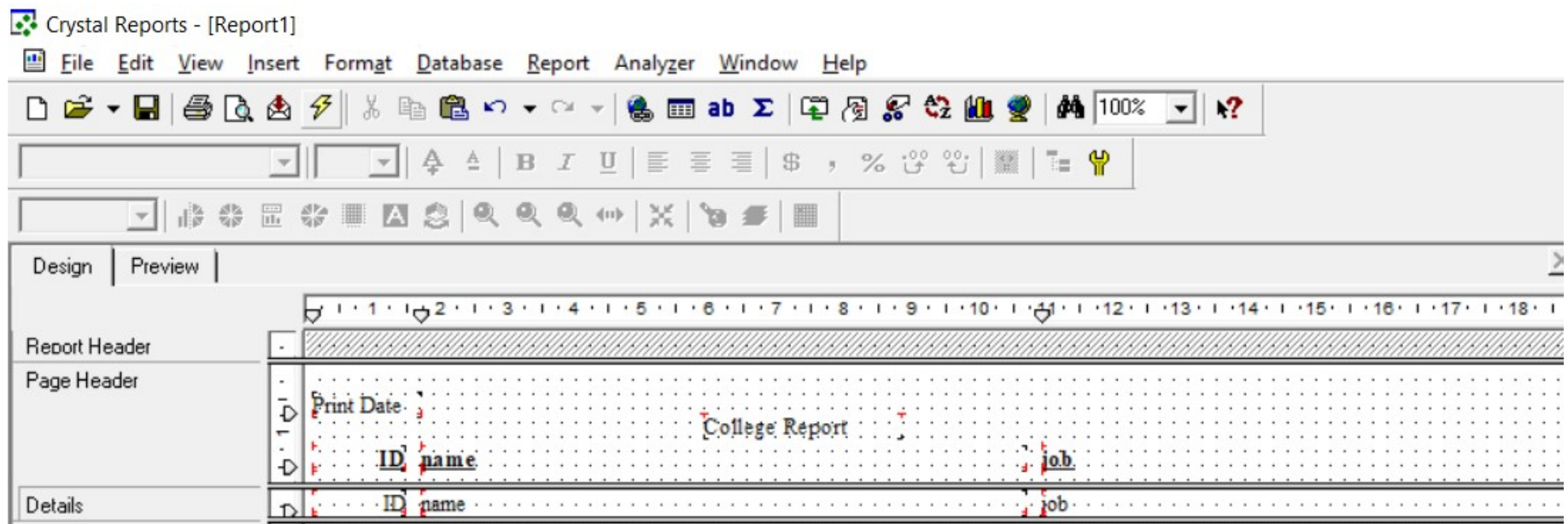


Step : 9 → Click Finish Button. Then you can see the Crystal Reports designer window in your C# project.

In the Crystal Reports designer window you can see the selected fields from Product table.

You can arrange the field Objects and design of the screen according your requirements.

Now Your Report is ready.



**Step : 10 → Open Visual Studio .NET and
And add Following namespace in Windows Form :**

using CrystalDecisions.CrystalReports.Engine;

Example For adding crystal report into windows Fom:

using System;

using System.Windows.Forms;

using CrystalDecisions.CrystalReports.Engine;

namespace WindowsApplication1

{

 public partial class Form1 : Form

 {

 private void button1_Click(object sender, EventArgs e) {

 ReportDocument cryRpt = new ReportDocument();

 cryRpt.Load("PUT CRYSTAL REPORT PATH
HERE\\Report1.rpt");

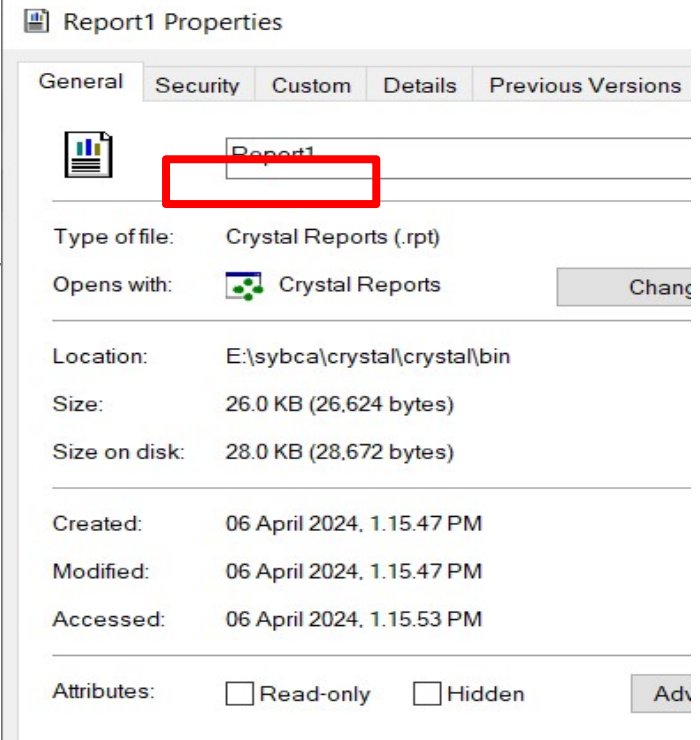
 crystalReportViewer1.ReportSource = cryRpt;

 crystalReportViewer1.Refresh();

 }

 }

}



Type of Crystal Reports :

- ▶ There are Three Types of Crystal report .
 1. **Using a Report Wizard**
 2. **As a blank Report.**
 3. **From an Existing Report.**

1. Using a Report Wizard :

- ▶ Selecting this option will open the crystal report wizard which takes you through the various steps to help you in creating the report.
- ▶ **Standard Format.**
This expert will create the standard report.
it provides eight tabs many
- ▶ **Cross Tab.**
This expert will create a specialized report known as cross tab report.
- ▶ **Mail Label.**
This expert will create mailing label report where data is displayed in a format that is suitable for use as address labels on envelopes.

2. As a Blank Report

When we want to create blank report then we can select this type of report.

3. From an Existing Report

- ▶ Used when we create a report from the existing report.

Crystal Reports - Report Sections :

Crystal Reports by default provides five main sections :

1. Report Header
2. Page Header
3. Body
4. Report Footer
5. Page Footer

1. **Report Header :**

This section is typically used for the report title and other information you want to appear at the beginning of the report. It can also be used for charts and cross-tabs that include data for the entire report.

2. **Page Header :**

This section is typically used for information that you want to appear at the top of each page. This can include such things as chapter names, the name of the document, and other similar information. This section can also be used to display field titles above the fields on a report.

3. **Body / Details :**

This section is used for the body of the report, and is printed once per record. The bulk of the report data typically appears in this section.

4. **Report Footer :**

This section is used for information you want to appear only once at the end of the report (such as grand totals) and for charts and cross-tabs that include data for the entire report.

5. **Page Footer :**

This section typically contains the page number and any other information you want to appear on the bottom of each page.

		1112131415161718
Report Header	111	
Page Header	111	
Details	111	
Report Footer	111	

- ▶ If a group, summary, or subtotal is added to the report, the program creates two additional sections:

- ▶ **Group Header**

This section typically holds the group name field, and can be used to display charts or cross-tabs that include data specific to the group. It is printed once at the beginning of a group.

- ▶ **Group Footer**

This section typically holds the summary value, if any, and can be used to display charts or cross-tabs. It is printed once at the end of a group.

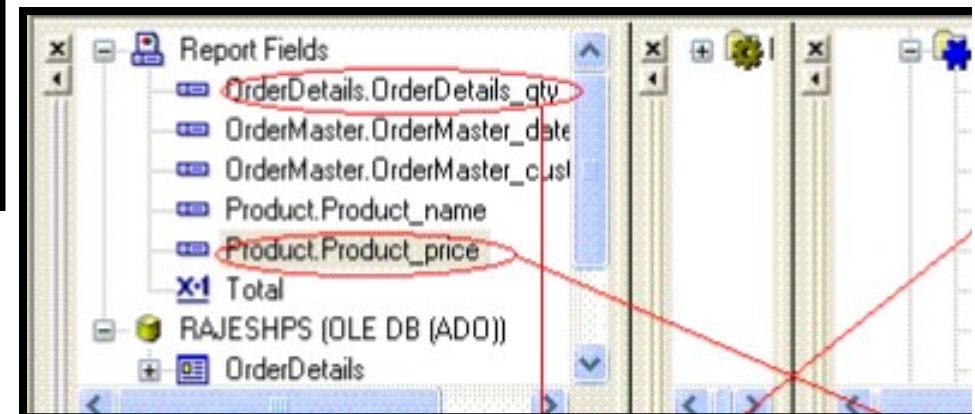
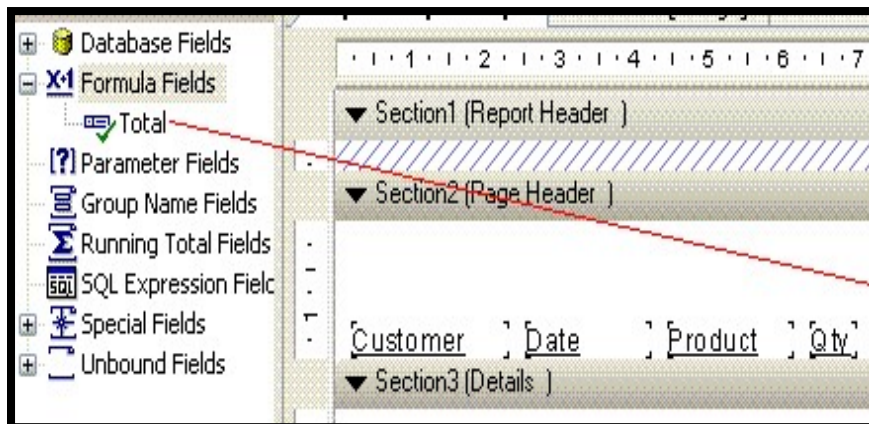
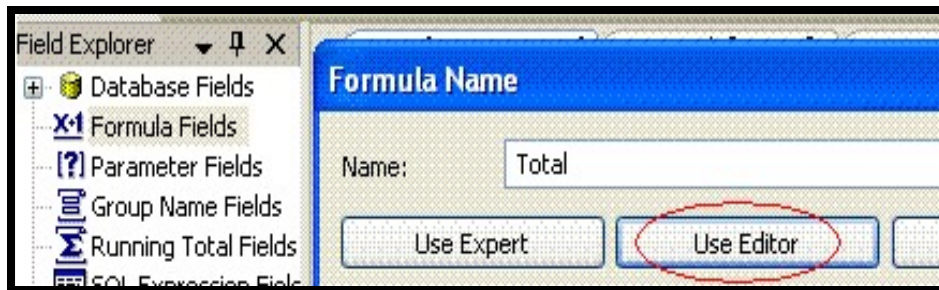
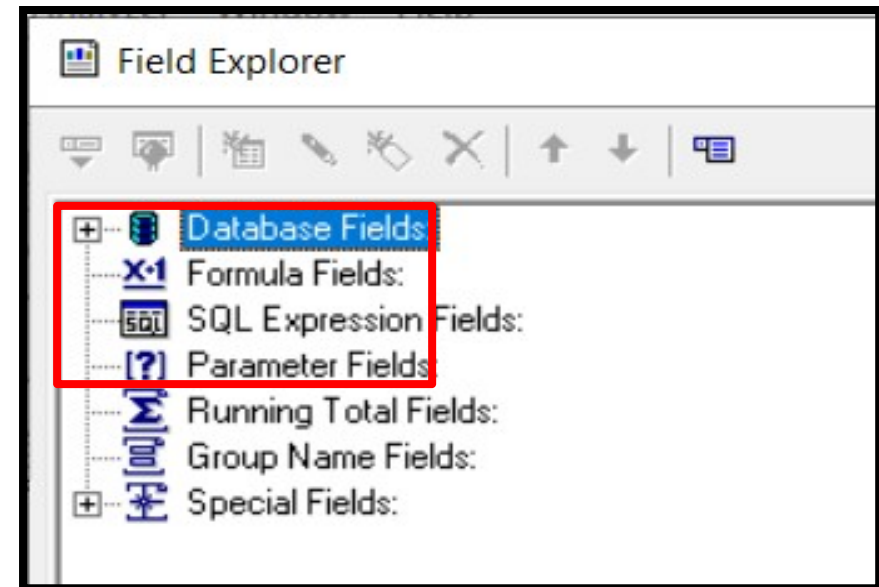
When a group, summary, or subtotal is added, the Group Header area appears directly above the Details area and the Group Footer area appears directly below the Details area.

Formula Field Crystal Report :

- ▶ Formulas are used to insert data in the report that does not exist with any of the objects. If there is a need to perform some calculations or to add specialized data in the report, you can use formulas.
- ▶ **Example** : (Emp_details.sal)*0.15
- ▶ **Common formulas** are – Calculations, string functions like UPPERCASE, date functions, etc.
- ▶ Formula contains two parts in the report –
- ▶ **Syntax** :
- ▶ Components
- ▶ The **components** are used to create formulas.
- ▶ Crystal Reports has the following types of formulas – Report formulas and conditional formatting formulas.
- ▶ **Report formulas** are used as standalone in a report. **Conditional formatting formulas** define the condition on which report formulas are applied.
- ▶ <https://net-informations.com/csharp/crystal-reports/csharp-crystal-reports-formula-field.htm>

► There are 4 Formula Fields :

1. SQL Expression Field
2. Parameter Field
3. Running Total Field
4. Group Name Field



<u>Customer</u>	<u>Date</u>	<u>Product</u>	<u>Qty</u>	<u>Price</u>
customer1	01/01/2007	Product3	2	350.00
customer1	01/01/2007	Product2	2	15.00
customer2	18/01/2007	Product5	1	100.00
customer2	18/01/2007	Product1	2	10.00

Special Field :

- ▶ Special fields contain the types of information that aren't derived from an underlying database table or from a report formula. The embedded SAP Crystal Reports Designer provides a list of Special Fields to choose from.
- ▶ **Print Date :**
Use the Print Date Field to include the current date when the report prints. This field can be placed in any section of your report, depending on how often you want it to print. The date can be changed in the Set Print Date and Time Dialog Box.
- ▶ **Print Time :**
Use the Print Time Field to include a field that contains the time when the report prints. This field can be placed in any section of your report, depending on how often you want it to print.
- ▶ **Modification Date :**
Use the Modification Date Field to include a field that contains the date the report was last modified.
- ▶ **Modification Time :**
Use the Modification Time Field to include a field that contains the time the report was last modified.

▶ **Data Time :**

Use the Data Time Field to include a field that contains the time the data was last retrieved (refreshed).

▶ **Record Number :**

Use the Record Number Field to number each record printed in the Details section of your report.

▶ **Page Number :**

Use the Page Number Field to insert a field that prints the current page number. These fields are most often placed in the Page Header or Page Footer sections.

▶ **Group Number :**

Use the Group Number Field to number each group in your report. You can place this field in either the Group Header or Group Footer section of your report.

▶ **Total Page Count :**

Use the Total Page Count Field to print the total number of pages in the report. You can use this field in a variety of instances.

▶ **Report Title :**

Use the Report Title Field to include a field that contains the title you specified in the Document Properties Dialog Box.

▶ **Report Comments :**

Use the Report Comments Field to include a field that contains the comments you specified in the Document Properties Dialog Box.

▶ **Record Selection Formula :**

Use the Record Selection Formula Field to insert a record selection formula field into your report.

▶ **Group Selection Formula :**

Use the Group Selection Formula Field to insert a group selection formula field into your report.

▶ **File Path and Name :**

Use the File Path and Name field command to insert a field that displays the file path and file name for the report.

▶ **File Author :**

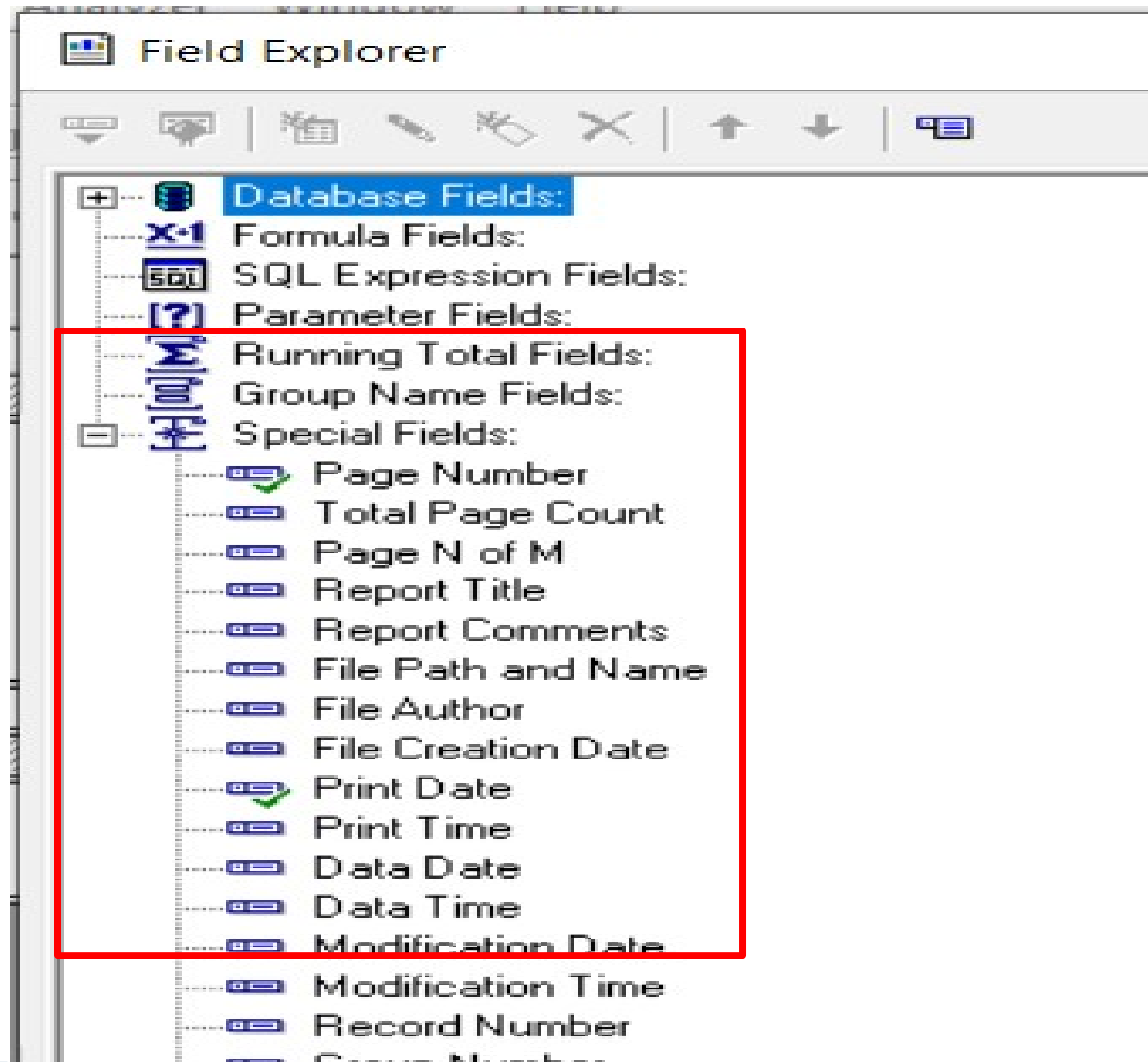
Use the File Author Field command to include a field that displays the name of the author of the report.

▶ **File Creation Date :**

Use the File Creation Date Field command to include a field that displays the date when you created the report.

▶ **Page N of M :**

▶ Use the Page N of M Field to insert a field that specifies the page number and the total number of pages in the report.



Summary in Crystal Report :

- ▶ One of the primary purposes for breaking data into groups is to run calculations on each group of records instead of on all the records in the report.
- ▶ When the program summarizes data, it sorts the data, breaks it into groups, and then summarizes the values in each group. It does this all automatically.
- ▶ The program includes a number of summarizing options.
- ▶ Depending on the data type of the field you plan to summarize,
- ▶ you can:
 - Sum the values in each group.
 - ▶ Count all the values or only those values that are distinct from one another.
 - ▶ Determine the maximum, minimum, average, or Nth largest value.
 - ▶ Calculate up to two kinds of standard deviations and variances.
- ▶ For example: Customer List reports determine the number of customers in each state.
 - ▶ The summary would count the distinct customers in each state group.
 - ▶ Order reports determine the average order placed each month. The summary would calculate the size of the average order for each month group.
 - ▶ Sales reports determine the total sales per sales representative. The summary would sum or subtotal the order amounts for each sales representative group.

Available Summaries for Numeric fields

Insert Summary

Choose the field to summarize:

Customer.Customer Name

Calculate this summary:

Maximum

Summary location

Grand Total (Report Footer)

☐ Add to all group levels

Insert Group...

Options

☐ Show as a percentage of

☐ Summarize across hierarchy

OK Cancel Help

Insert Summary

Choose the field to summarize:

Customer.Last Year's Sales

Calculate this summary:

Maximum
Sum
Average
Sample variance
Sample standard deviation
Maximum
Minimum
Count
Distinct count
Correlation with
Covariance with
Median
Mode
Nth largest, N is:
Nth smallest, N is:
Nth most frequent, N is:
Pth percentile, P is:
Population variance
Population standard deviation
Weighted average with

OK

Insert Summary

Choose the field to summarize:

Customer.Customer Name

Calculate this summary:

Maximum
Maximum
Minimum
Count
Distinct count
Mode
Nth largest, N is:
Nth smallest, N is:
Nth most frequent, N is:

Steps to adding Summary Report :

1. Go to Insert > Summary
 2. Select the field to summarize from the first drop down
 3. Select a calculation option (sum, distinct count, maximum, etc) from the second drop down
 4. Select which group level you would like to calculate the summary for or leave Grand Total to calculate a grand total for the whole report, in the third drop down
 5. Click OK
- ▶ The summary field will display in the Group Footer or Report Footer section

-
- ▶ Symmary Report :
 - ▶ <https://www.universalclass.com/articles/computers/how-to-add-data-and-work-with-parameter-and-summary-fields-in-a-crystal-report.htm>

Types of Setup Project :



Project type	When to use
Setup Project	For applications that will be installed on the end user's computer.
Web Setup Project	For applications that will be installed on or deployed through a web server.
Merge Module Project	For components that will be used by other applications. (Merge modules can be imported into either normal applications or web applications.)
Cab Project	For legacy component installation through a web browser. (Typically used for ActiveX controls.)
Setup Wizard	To create one of the four other project types, according to the selection made in the wizard.

► I. Setup Project :

The Setup Project template is the standard project that will create the familiar deployment package with a setup.exe file that the user can run to start the install.

This installation option will generate MSI files by default for packaging the application files.

The application will install into a folder under the Program Files folder on the system.

You can also specify any Registry settings and location of Start menu and Desktop shortcuts, install components in the GAC, install other files or setup projects that might be needed , and even do conditional installs based on the operating system.

This is the option that you will use to deploy a Windows application to a client computer.

► 1. Web Setup Project :

The Web Setup Project template is similar to the Setup Project template except that the Web Setup Project installs in a virtual directory under the Virtual Root directory on a web server as opposed to the file system. It is used to generate packages for installing web applications.

2 . Merge Module Project :

The Merge Module Project template packages assemblies that might be shared by other setup projects.

When this project is built, it will generate an .msm file that can be added to other setup projects.

The MSM file contains all the files and Registry settings and the setup configuration for installing the assemblies.

They must be used from within a setup project and cannot be run alone. Merge modules should never be modified after they are distributed because this can lead to dependency and versioning problems.

You should create a new merge module for each version of your assembly.

▶ **3 . Setup Wizard :**

The Setup Wizard template helps you get started by providing a wizard that generates a setup project.

▶ **4. Cab Project :**

The Cab Project template enables you to package ActiveX controls for downloading into Internet Explorer.

This is used to support legacy applications or to wrap an MSI file for distribution via Internet Explorer.

Creating Setup Project :

- ▶ File System Editor
- ▶ User Interface Editor
- ▶ Launch Conditions Editor

- ▶ Use any of the following six editors to add to or modify the contents of the setup project and to control where you want the files of your application to be placed:
 1. **File System Editor** Lets you create the directories and place files where they will be installed. You can also choose to install files in special locations such as the desktop or GAC.
 2. **User Interface Editor** Lets you customize the appearance of the Installation Wizard. For example, you could customize the install screens with your company's logo.
 3. **Launch Conditions Editor** Lets you set conditions that have to be met before the application will install on a computer. For example, if your application depends on another application or on a specific version of an application, you can search for files and Registry keys specific to the application; if they are not found, the associated launch condition will present an error message.
 4. **Custom Actions Editor** Lets you create code called custom actions to be run during the installation or in response to four stages of the install.
 5. **File Types Editor** Lets you create associations for file extensions that your application will use. For example, if you create an application that uses .xyz extensions, you can associate all files with .xyz extensions with your application's executable.
 6. **Registry Editor** Lets you specify the Registry keys and values that your application will write to the Registry on installation.

-
- ▶ **Special Fields :**
 - ▶ <https://www.universalclass.com/articles/computers/exploring-special-data-fields-in-crystal-reports.htm>
 - ▶ **Formula in crystal report :**
 - ▶ <https://www.c-sharpcorner.com/learn/crystal-reports-tutorials/create-and-modify-formulas>
 - ▶ **Setup Project :**
 - ▶ <https://flylib.com/books/en/2.388.1.97/1/>
 - ▶ <https://docs.devexpress.com/eXpressAppFramework/113235/deployment/winforms/setup-project-deployment-of-a-windows-forms-application>

► For other formula :

- <https://www.universalclass.com/articles/computers/crystal-reports-working-with-formulas.htm>
- https://www.tutorialspoint.com/crystal_reports/crystal_reports_formula_workshop.htm
- https://www.tutorialspoint.com/crystal_reports/crystal_reports_creating_modifying_formulas.htm
- https://www.tutorialspoint.com/crystal_reports/crystal_reports_if_then_else.htm

5 (a) Attempt the following :

- 1 _____ control is used on form to view the crystal Report.
- 2 By default, How many sections are provided in crystal Report?
- 3 _____ field of crystal report is used to create Formula.
- 4 Drop Down is a type of crystal Report. (TRUE / FALSE)

(b) Attempt any one :

- 1 List out types of Reports.
- 2 Write the name of any four Special Fields of Crystal Report.

(c) Attempt any one :

- 1 Explain types of setup Projects.
- 2 Explain summery field in crystal Report.

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(a) Answer the following Questions :

(1) LINQ stands for Language Integrated Query

(2) Formula field of Crystal report is used to enter the Formula.

(3) Drop Down is a type of Crystal report. (TRUE/FALSE)

Crystal Report (1) Viewers control is used to View the Report.

(b) Answer the following Questions in Brief :

(1) What is user Control ? Write steps to Create user Control.

(2) Write the names of any four Special Features of Crystal Report.

(c) Answer the following Questions in Detail :

(1) Explain Types of Setup projects.

(2) Explain types of Crystal Reports.