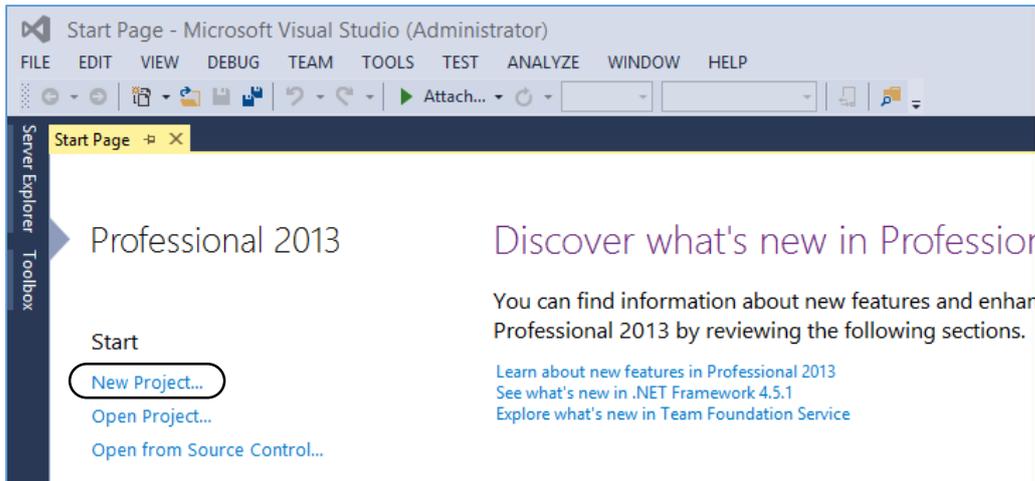


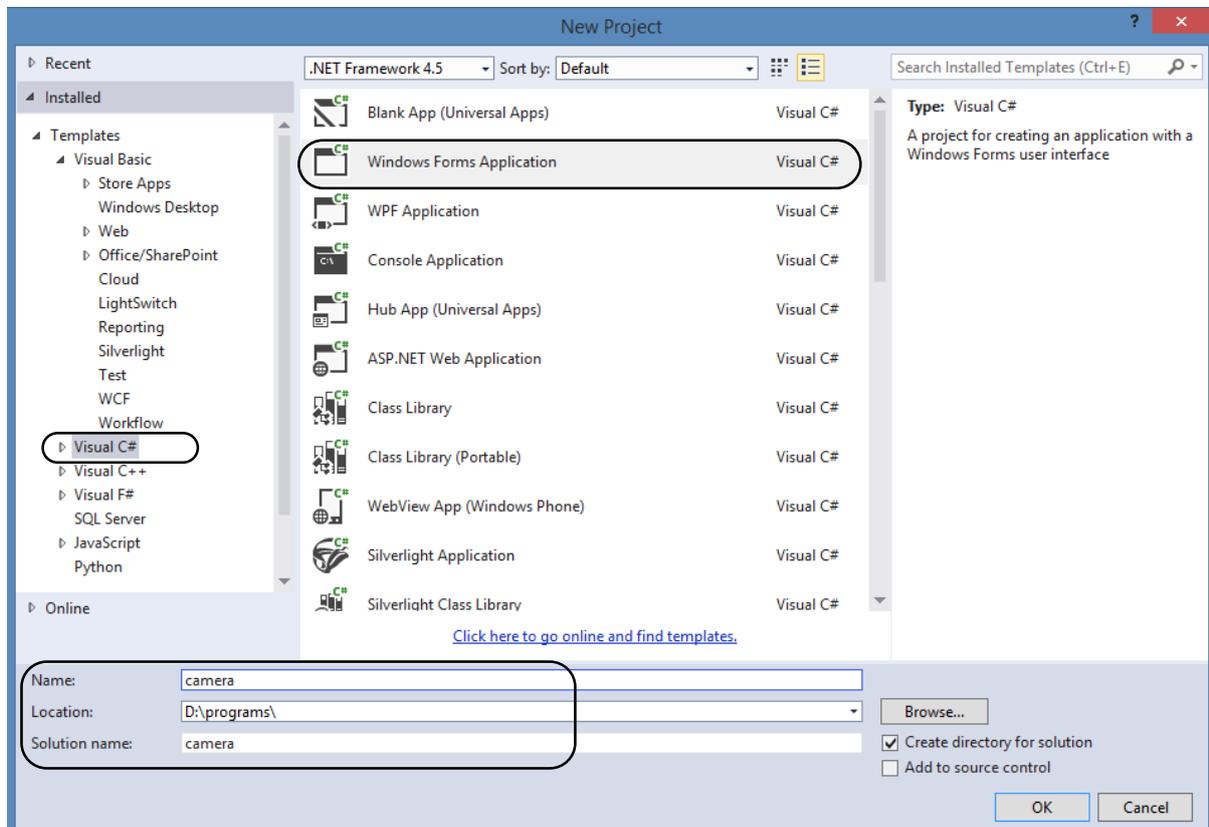
1 Camera

The first program we write will display a picture on a Windows screen, with buttons to make the picture appear and disappear.

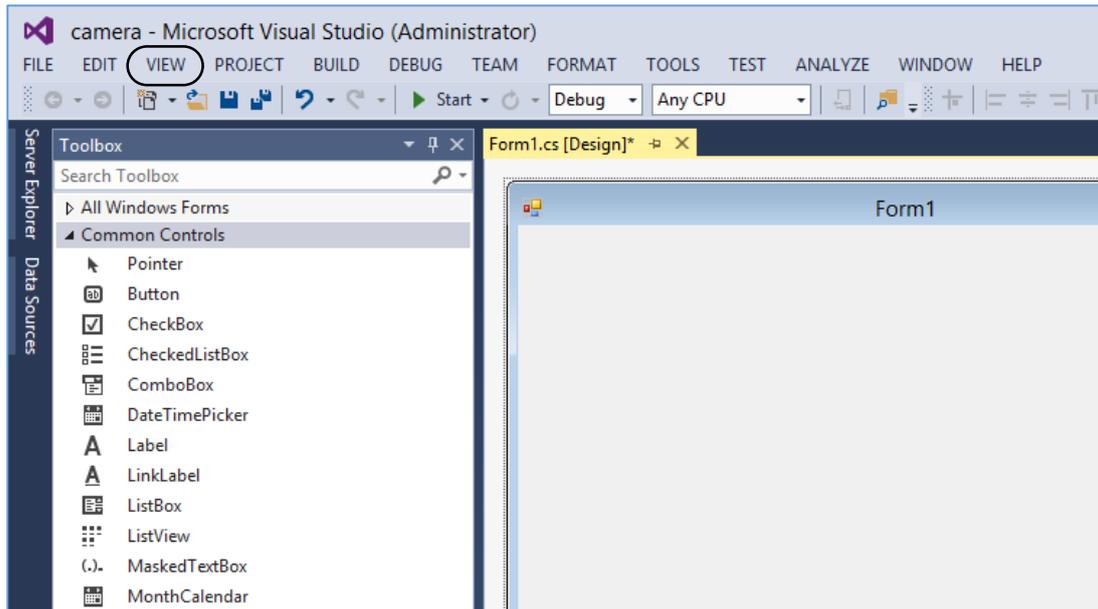
Begin by loading *Microsoft Visual Studio 2013*. From the introduction screen, choose **'New Project'**:



At the next page, select **'Windows Forms Application'**. Choose a location on your computer where you wish to store the program, and give it the name **'camera'**:



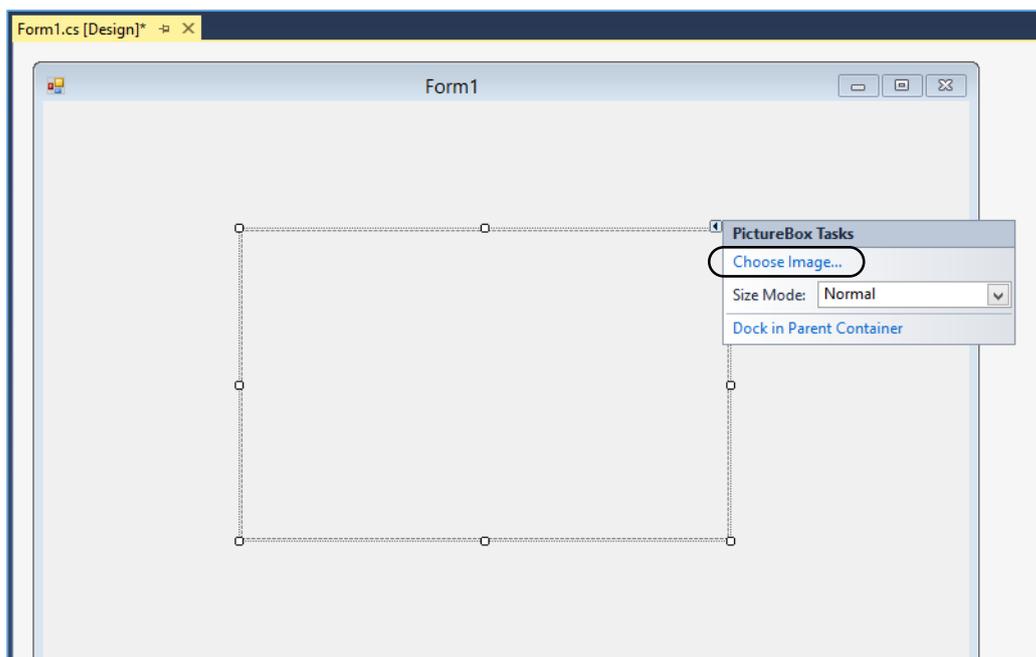
C# programs consist of a number of files, and Visual Studio will create a folder called **'camera'** in which all the necessary files will be stored. Click **'OK'** and an empty Windows form appears. You can change the size of this by dragging the side or corner.



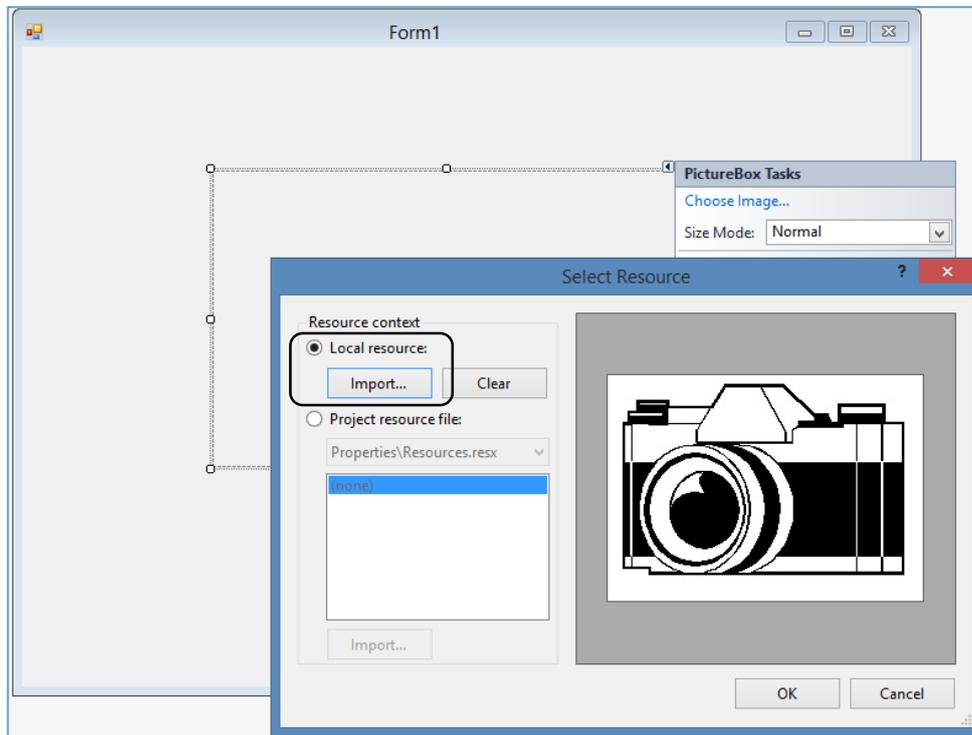
Open the **Toolbox**, either by clicking **'Toolbox'** on the left hand margin of the screen, or by selecting **View / Toolbox** from the top menu line.

In the Toolbox window, click the **'PictureBox'** component. Go to the **Form1** window and drag the mouse to create a PictureBox outline.

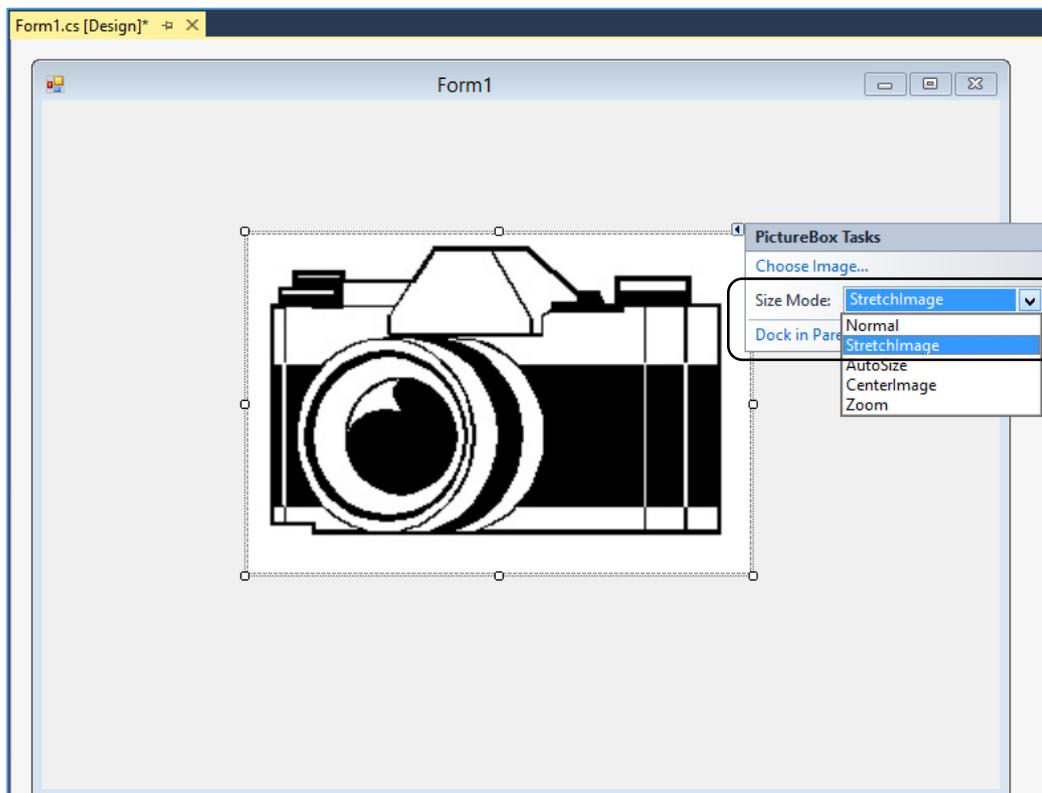
In the top right hand corner of the PictureBox frame is a small arrow. Click this to open an options window. Click **'Choose Image'**:



Select '**Local resource**'. Use the file dialog window to locate a suitable picture, then click the '**Import**' button:



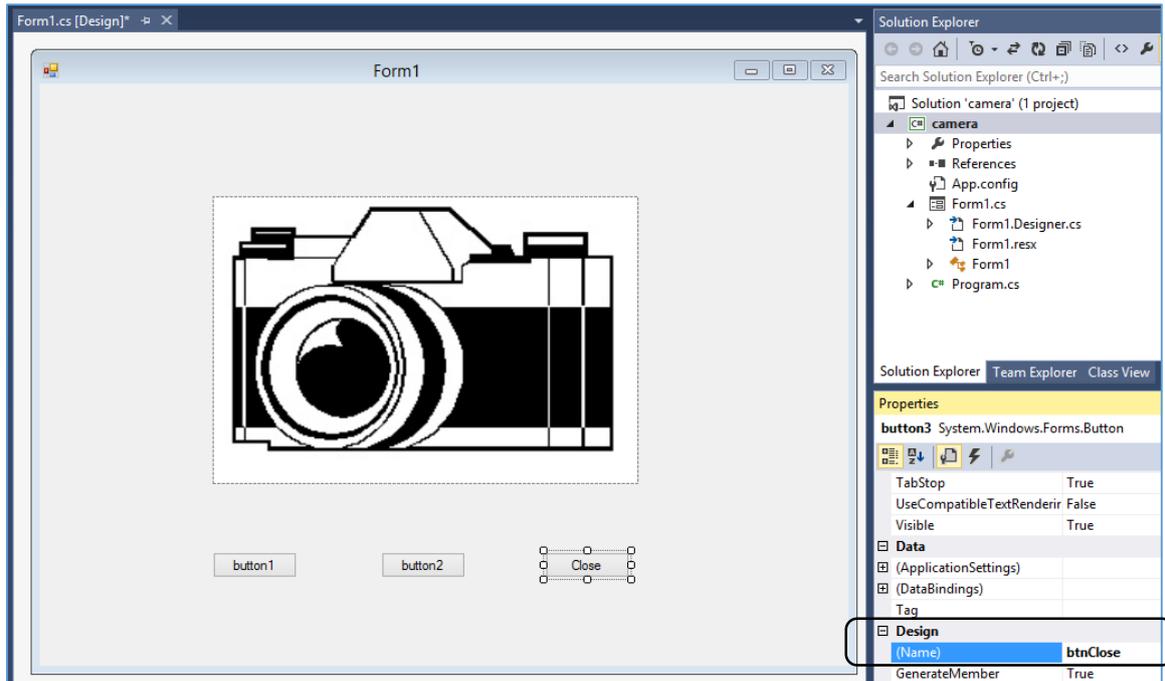
Select '**Size Mode / StretchImage**', so that the image fills the **PictureBox** frame. You can then drag the frame to a suitable size:



Select the **'Button'** component in the Toolbox. Use the mouse to create three buttons underneath the picture.

We will use the right hand button to close the program. Click once on the button to select it, then go to the **'Properties'** window in the bottom right of the screen. Locate the **'Text'** property in the alphabetical list, then change this to the word **'Close'**. This sets the caption which will appear on the button.

Go to the **'Design'** section of the **Properties** list, and change **'(Name)'** to **'btnClose'**. This will make the programming easier and avoid mistakes by clearly showing the purpose of this button.



Go back to the **Form1** screen and double click the **'Close'** button. A new window will appear in which our program is being written:

```
namespace camera
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void btnClose_Click(object sender, EventArgs e)
        {
            Close();
        }
    }
}
```

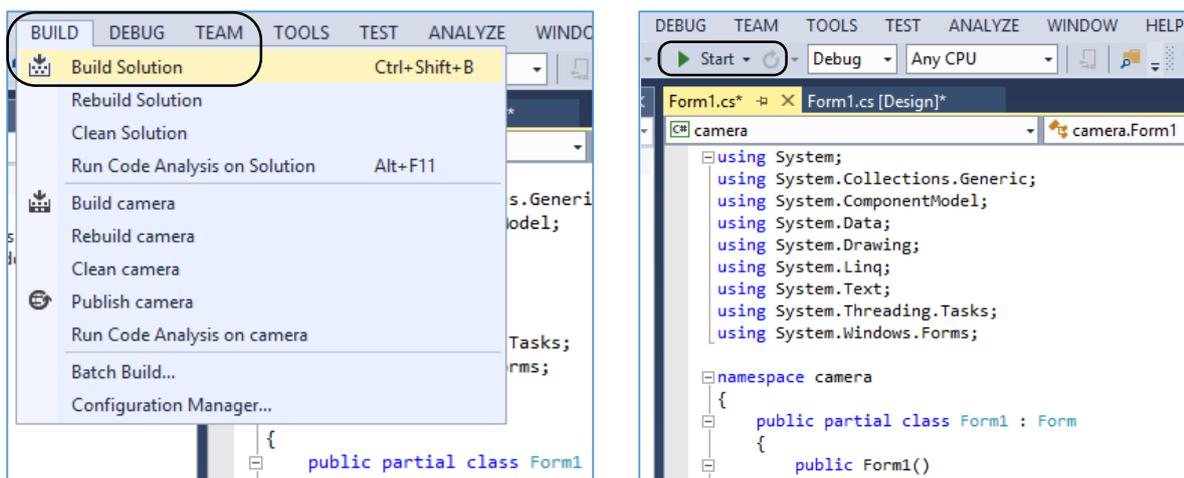
You will see that the computer has already created an empty method `'btnClose_Click'`. We put program code inside this method to carry out any required actions when the button is clicked. In this case, we just want the program to close, so add the command:

`Close();`

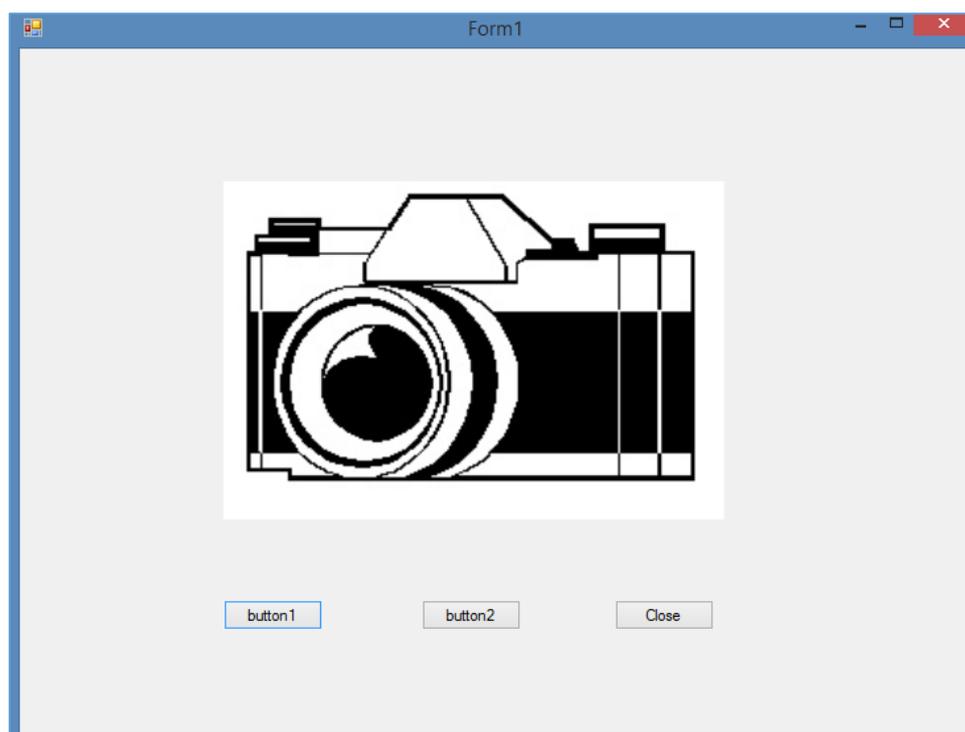
We can now test the program so far...

Go to the menu line and select **Build / Build Solution**. If there are any errors in the program code, you will receive a message at this point, and you must go back and correct the errors before continuing.

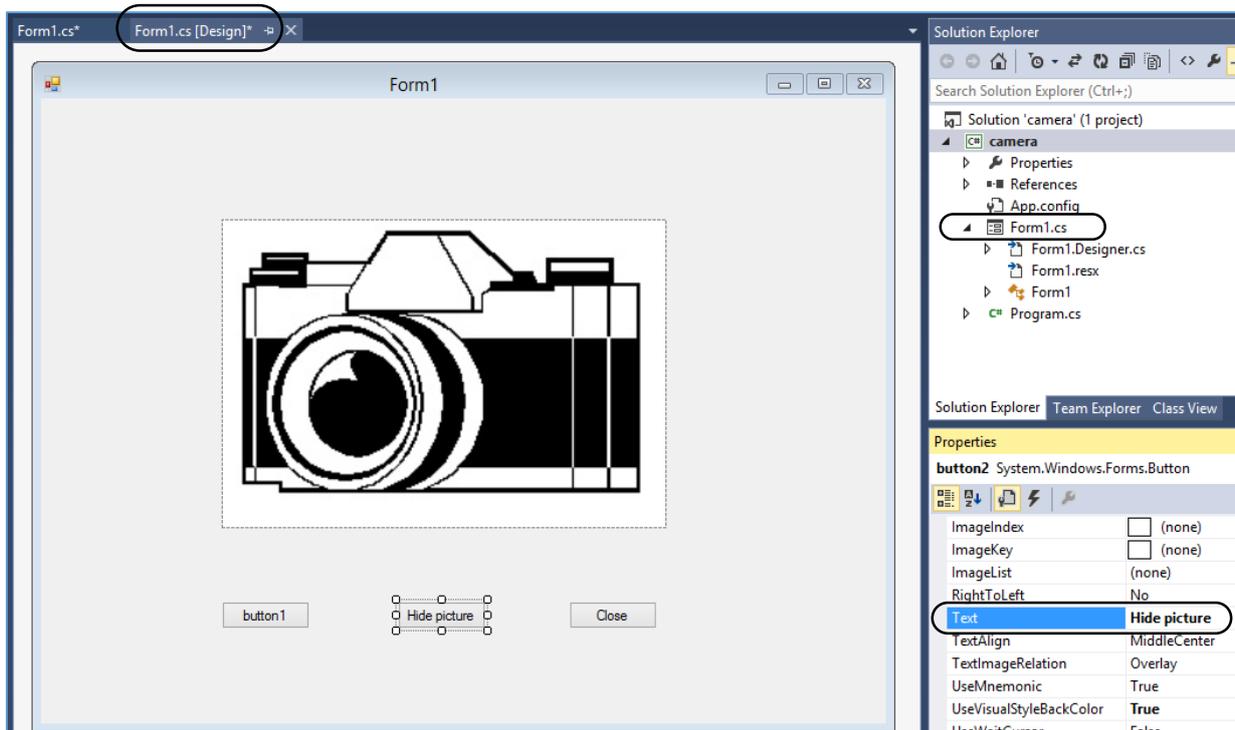
If all has gone well, click the green arrow icon to run the program:



The **Form1** window should appear, with the picture image displayed. Click the **'Close'** button, and the program will end – taking you back to the Visual Studio editing screen.



If the Form1 Design screen is not showing, select this by either clicking the **'Form1.cs(Design)'** tab in the programming window, or click the **'Form1.cs'** icon in the **'Solution Explorer'** window.



Select each of the remaining buttons in turn, and set the properties:

Left button text: **'Show picture'** name: **btnShow**

Middle button text: **'Hide picture'** name: **btnHide**

We are now going to add program code which will make the image appear and disappear when the buttons are clicked.

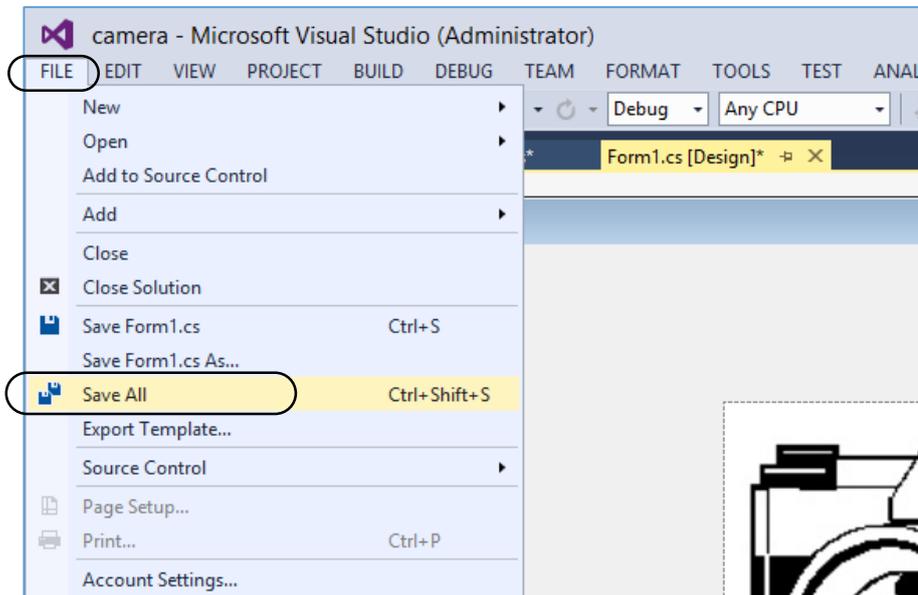
Double-click each button in turn, and add the lines of program shown below. The computer will create the empty button_click methods for you. Only the lines outlined need to be added:

```
private void btnClose_Click(object sender, EventArgs e)
{
    Close();
}

private void btnShow_Click(object sender, EventArgs e)
{
    pictureBox1.Visible = true;
}

private void btnHide_Click(object sender, EventArgs e)
{
    pictureBox1.Visible = false;
}
```

When you have added the program code, go to the '**File**' menu and select '**Save All**'. The computer will save all the necessary files for creating the program. Always save before running a program, just in case something goes badly wrong and your program files become corrupted. In that situation, you will be grateful that you remembered to save a back-up copy.



Use the **Build / Build Solution** menu option. If necessary, correct any errors before continuing.

Run the program by means of the green arrow icon.

The picture should appear and disappear when the corresponding buttons are clicked.