

## Lab 20

### Creating Dynamic Controls (TextBoxes)

In most cases, Visual Basic programmers create their GUI objects using the GUI design window. When the programming drags and drops a GUI Control (such as a TextBox) on to their form, the Visual Basic's Form Designer will simply generate the code for creating that TextBox and hides the code in our program.

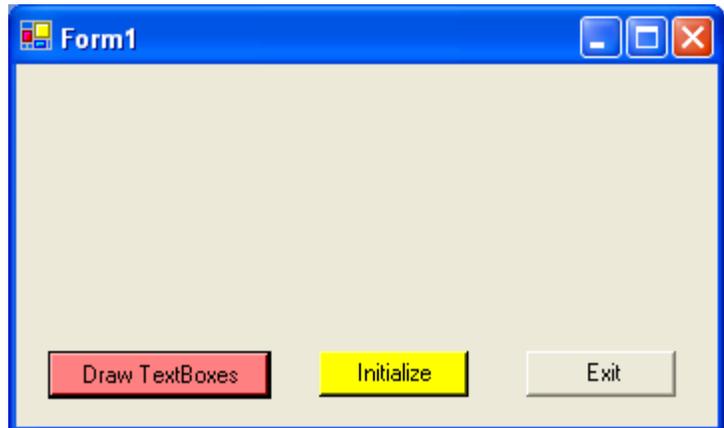
There are situations when the programmer needs to create such controls dynamically (at run time). In this lab our goal is to dynamically create a series of textboxes on our form.

**Step 1:** Let's begin by creating a simple form with only 3 buttons.

**Step 2:** Double click the "Exit" button, and write the code for the event handler.

**Step 3:** Immediately after the line "Inherits System.Windows.Forms.Form", insert the following array declaration:

```
Dim TextBoxArray(5) As TextBox
```



The above declaration will create an array of 6 TextBox objects. Note that at this point, this is simply an array of references to textboxes. Later, we must actually instantiate each textbox using the NEW operator.

**Step 4:** Double click the "Draw Textboxes" button and enter the following code in its event handler.

```
Dim Index As Integer

' The following FOR loop will:
'1) Create the array elements (e.g. textboxes) using the NEW operator.
'2) Set the property of each set of textboxes. (e.g. it's size, location, name, text)
'3) Add the textbox to the form

For Index = 0 To TextBoxArray.GetUpperBound(0)

    TextBoxArray(Index) = New System.Windows.Forms.TextBox 'Dynamically allocate a TextBox

    TextBoxArray(Index).AutoSize = False
    TextBoxArray(Index).Size = New System.Drawing.Size(45, 20)
    TextBoxArray(Index).Location = New System.Drawing.Point(Index * 48)
    TextBoxArray(Index).Name = "TextBox_" & CStr(Index)
    TextBoxArray(Index).Text = CStr(Index)

    Controls.Add(TextBoxArray(Index)) ' Add the Control to the form

Next Index

btnDraw.Hide() ' hide the draw button from the user
```

**Step 5:** Double click the "Initialize" button and enter the following code in its event handler.

```
Dim Index As Integer

For Index = 0 To TextBoxArray.GetUpperBound(0)
    TextBoxArray(Index).Text = "0"
Next Index
```

**Step 6:** Compile and Run your program.

How would you create another row of TextBoxes? How would you create 5 other rows of TextBoxes?

# Lab 18-A

## Creating Dynamic Controls (Radio Buttons)

**Step 1:** Begin by creating a simple form with only 4 buttons and a GroupBox.

**Step 2:** Immediately after the line “`Inherits System.Windows.Forms.Form`”, insert the following array declaration:

```
Dim RadioArray(5) As RadioButton
```

**Step 3:** Double click the “Draw Textboxes” button and enter the following code in its event handler.

```
Dim Index As Integer

' The following FOR loop will:
'1) Create the array elements (e.g. Radio Buttons) using the NEW operator.
'2) Set the property of each set of Radio Button. (e.g. it's location, name, text)
'3) Add the Radio Button to the groupbox or the form

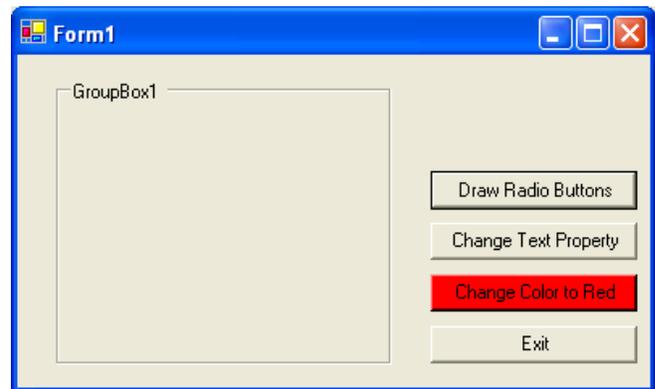
For Index = 0 To RadioArray.GetUpperBound(0)

    RadioArray(Index) = New RadioButton 'Dynamically allocate a RadioButton

    RadioArray(Index).Location = New System.Drawing.Point(15, 15 + (Index * 20))
    RadioArray(Index).Name = "RadioButton_" & CStr(Index)
    RadioArray(Index).Text = CStr(Index)

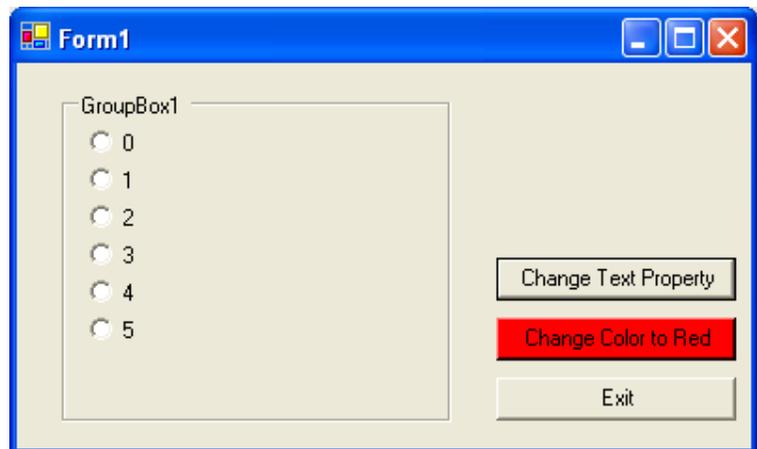
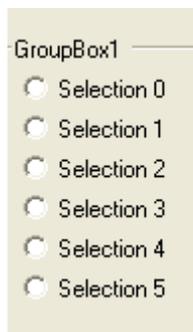
    GroupBox1.Controls.Add(RadioArray(Index)) ' Add the Control to the groupbox
    ' Controls.Add(TextboxArray(Index)) ' Add the Control to the form
Next Index

btnDraw.Hide()
```



### On Your Own:

**Step 4:** Write the event handler for the “Change Text Property” button, so that when the button is clicked, the text in front of the Radio buttons change to



**Step 5:** Write the event handler for the “Change Color to Red” button, so that when the button is clicked, the Font Color for the text in front of the Radio buttons change to red.

