Introduction to Visual Basic .NET

Your First Visual Basic .NET Application

VB.NET Controls

- Invoking VB.NET
  - Creating a new project
  - Blank Form
  - Files created
- A Text Box Walkthrough
- A Button Walkthrough
- A Label Walkthrough
- A List Box Walkthrough
- The Name Property
- A Help Walkthrough
- Fonts / Auto Hide

Form1

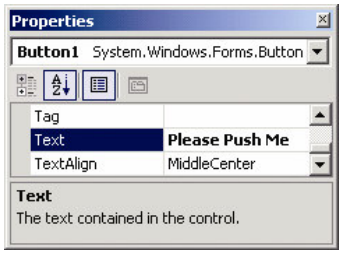
- This is the default name of the form
- You can type a new name in the Properties window
  - Notice that the file is still named Form1.vb
  - You can rename the file by right-clicking on the file name in the Solution Explorer

A Text Box Walkthrough

- Drag Text Box from ToolBox
- Sizing
- Delete
- Properties
  - Text, Color, Font, Size, Location, Visible, Enabled

A Button Walkthrough

- Add the button
- Change the Text property

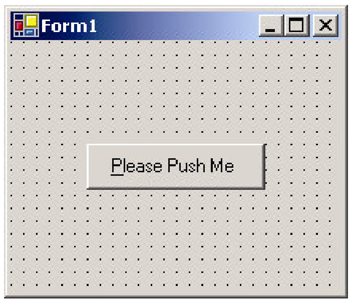

Properties

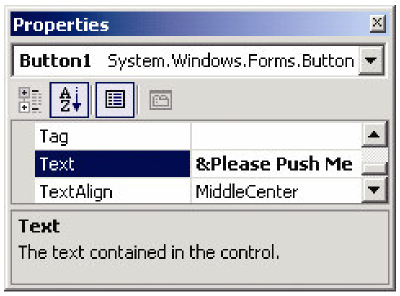
Button1 System.Windows.Forms.Button

Tag	
Text	Please Push Me
TextAlign	MiddleCenter

Text
The text contained in the control.

Add an "access key"




Properties

Button1 System.Windows.Forms.Button

Tag	
Text	&Please Push Me
TextAlign	MiddleCenter

Text
The text contained in the control.

A Label Walkthrough

- Add the Label
- Change the Text property
- Text Alignment
- Resize the control

A List Box Walkthrough

- Add the List Box
- Add data
- Resize the control

PictureBox

- Use the PictureBox control to put a picture on the form
- Navigate to a file that contains the image
- We'll cover more about pictures and images later

The Name Property

- How the programmer refers to a control in code
- Name must begin with a letter
- Must be less than 215 characters long
- May include numbers and the underscore
- Naming convention: use appropriate 3 character naming prefix
  - First three letters identifies the type of control
  - Remaining letters identifies the purpose
  - E.g. a text box to store a social security number would be called **txtSocialSecurity**

Common Control Name Prefixes

Control	**Prefix**	**Example**
button	btn	btnComputeTotal
label	lbl	lblInstructions
list box	lst	lstOutput
text box	txt	txtAddress

Fonts

- Proportional width fonts take up less space for "I" than for "W" – like Microsoft Sans Serif
- Fixed-width fonts take up the same amount of space for each character – like Courier New
- Fixed-width fonts are good for tables

Auto Hide

- Hides tool windows when not in use
- Vertical push pin icon indicates auto hide is disabled
- Click the push pin to make it horizontal and enable auto hide

Viewing the Code

- The GUI Forms Designer generates textual code
  - Prior to VB programmers wrote everything in textual code
- Click on the “Form1.VB” tab to see the code (not the design tab)

An Event Procedure Walkthrough

- An event is an action, such as:
  - The user clicks on a button
  - A form is minimized
  - The mouse enters or exits a control
  - The form is re-drawn
- Usually, nothing happens until an event occurs

The three steps in creating a VB.NET program:

1. Create the interface; that is, generate, position, and size the objects.
2. Set properties; that is, configure the appearance of the objects.
3. Write the code that executes when events occur.

Changing Properties

- Properties are changed in code with the following:

```
controlName.property = setting
```

- This is an assignment statement
- Examples:

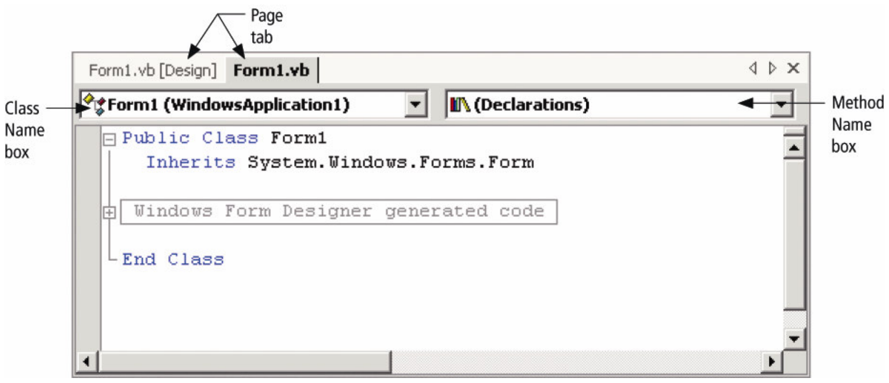
```
txtBox.ForeColor = Color.Red
txtName.Text = "Hello There"
txtName.Visible = False
txtName.Location.X = 100
```

Be sure to pick colors with good contrast for viewability

Adding Code to an Event

- To add code for an event:
  - In the VB Code Window select the control on the left side menu and the event of interest on the right side menu
  - Or double-click the control in the designer to bring up the most common event for that control
- Other methods for opening the Code window:
  - If the Code window is visible, click on it
  - Double-click anywhere on the Form window
  - Select the Code option from the View menu
  - Press the F7 method key anywhere on the design form
  - Select the View Code icon from the Project Window

Program Region



```
Public Class Form1
  Inherits System.Windows.Forms.Form

  Windows Form Designer generated code

End Class
```

Event Procedures - Subroutines

```
Private Sub objectName_event(ByVal sender As
   System.Object, ByVal e As System.EventArgs)
   Handles objectName.event
```

For now you can ignore most of this, aside from knowing the name of the subroutine:

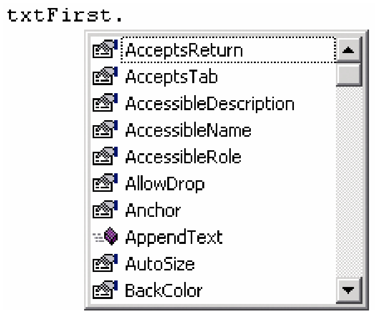
```
Private Sub objectName_event(…) Handles
   objectName.event
```

Structure of an Event Procedure

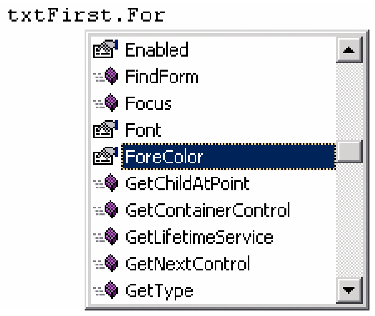
```
Private Sub objectName_event(...)
    Handles objectName.event
  statements    ' Your code goes here
End Sub
```

IntelliSense

Automatically pops up to give the programmer help.



```
txtFirst.
```



```
txtFirst.For
```

Code for Walkthrough

```
Private Sub txtFirst_TextChanged(...)
    Handles txtFirst.TextChanged
  txtFirst.ForeColor = Color.Blue
End Sub

Private Sub btnRed_Click(...)
   Handles  btnRed.Click
  txtFirst.ForeColor = Color.Red
End Sub

Private Sub txtFirst_Leave(...)
    Handles txtFirst.Leave
  txtFirst.ForeColor = Color.Black
End Sub
```

Assigning properties in code

- The following won't work:
  `Form1.Text = "Demonstration"`

- The current form is referred to by the keyword *M*e.
  `Me.Text = "Demonstration"`

The Declaration Statement of an Event Procedure

- A declaration statement for an event procedure:

```
Private Sub btnOne_Click(...) Handles btnOne.Click
```

- The name can be changed at will. For example

```
Private Sub ButtonPushed(...) Handles btnOne.Click
```

- Handling more than one event:

```
Private Sub ButtonPushed(...) Handles btnOne.Click,
  btnTwo.Click
```

The MessageBox.Show Method

- The MessageBox.Show method is used to display a box with a message for the user
- The message box also contains a title and an icon
- General forms of the MessageBox.Show method
  - MessageBox.Show(text)
  - MessageBox.Show(text, caption)
  - MessageBox.Show(text, caption, buttons)
  - MessageBox.Show(text, caption, buttons, icon)
  - MessageBox.Show(text, caption, buttons, icon, defaultbutton)

- To do: Add a MessageBox.Show to the button click event

Console.WriteLine

- Another handy way to output information is to the Console:
  - Console.WriteLine("Hello there")
    - Outputs the message in double quotes and adds a newline
  - Console.Write("Hello again. ")
    - Outputs the message in double quotes without a newline
- Useful for debugging, don't have to push the OK button and clutter up the screen with message boxes

Adding Additional Event Procedures

- Comments
  - Explanatory remarks made within a program
  - Indicated by an apostrophe or the keyword Rem
- Statement categories
  - An executable statement causes some specific action to be performed by the compiler or interpreter
  - A nonexecutable statement is a statement that describes some feature of either the program or its data but does not cause the computer to perform any action

Knowing About: The Help Facility

- Visual Basic’s Help Facility can be accessed by selecting either the Contents, Search, or Index options from the Help menu
- The Contents tab displays a Table of Contents for the documentation
- The Index tab provides both a general index of topics and a text box for user entry of a specific topic
- The Search tab provides a means of entering a search word or phrase

Knowing About: The Help Facility (Continued)

- Dynamic Help
  - The Dynamic Help window displays a list of help topics that changes as you perform operations
  - To open the Dynamic Help window, click Help on the menu bar and then click Dynamic Help
- Context-sensitive Help
  - Context-sensitive Help immediately displays a relevant article for a topic
  - To use this facility, select an object and press F1

Common Programming Errors and Problems

- A common problem is not being able to locate all of the elements needed to create an application
  - Can usually get these windows back from the V)iew menu
- A common error is forgetting to save a project at periodic intervals at design time

Turning In Files

- Compress your files into a ZIP file and email it to me
- Your files are located in your “My Documents/Visual Studio Projects” folder by default
- Right-click the folder, compress the entire contents, and email it to me