### Introduction to the Visual Basic Express 2008 IDE



Seeing is believing. – Proverb

#### *Form ever follows function.* – Louis Henri Sullivan

Intelligence ... is the faculty of making artificial objects, especially tools to make tools. – Henri-Louis Bergson

#### **OBJECTIVES**

In this chapter you will learn:

- The basics of the Visual Studio Integrated Development Environment (IDE) that assists you in writing, running and debugging your Visual Basic programs.
- Visual Studio's help features.
- Key commands contained in the IDE's menus and toolbars.



#### **OBJECTIVES**

- The purpose of the various kinds of windows in the Visual Studio 2008 IDE.
- What visual programming is and how it simplifies and speeds program development.
- To create, compile and execute a simple Visual Basic program that displays text and an image using the Visual Studio IDE and the technique of visual programming.



#### 2.1 Introduction

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- 2.2 Overview of the Visual Studio 2008 IDE
- 2.3 Menu Bar and Toolbar
- 2.4 Navigating the Visual Studio IDE
- 2.5 Using Help
- 2.6 Using Visual Programming to Create a Simple Program that Displays Text and an Image

#### **2.1 Introduction**

- Visual Studio 2008 is Microsoft's Integrated Development Environment (IDE) for creating, running and debugging programs.
- A simple Visual Basic program can be created by dragging and dropping predefined blocks into place through visual programming.

• Start Microsoft Visual Basic 2008 Express Edition. (Fig. 2.1)



Fig. 2.1 | Start Page in Visual Basic 2008 Express Edition.



- The **Recent Projects** section shows solutions you have been working on.
- Getting Started focuses on using the IDE for creating programs, learning Visual Basic, connecting to the developer community and providing development tools.
- Visual Basic Express Headlines and MSDN: Visual Basic Express Edition link to information about Visual Basic.



- The IDE also has an **internal web browser**.
- To request a web page, enter its URL into the location bar (Fig. 2.2).

Requested w	Ne	eb page (URL in location bar Selected tab for requested wel	page
drop-down	m	nenų)	- F~30
	J Vi	Visual Basic Developer Center - Microsoft Visual Basic 2008 Exponent Edition	
	File G	le Edit View Tools Window Help Back ○ II · · · · · · · · · · · · · · · · ·	
2	é L	Visual Basic Developer Center Start Page - ×	Solution Explorer - # ×
oolbo		URL: http://msdn2.microsoft.com/en-us/vbasic/default.aspx	
×	5	wedowine i sign in united states - englien V initiadorit.com Visual Basic Developer Center	
		Search MSDV with Live Search P V Home Library Learn Downloads Support Community	
		Product Information Evaluation Webcasts MODN Magazine MODN Subscriptions MISON >> Developer Centers >> Visual Basic Developer Center >> Home >>	
		Visual Basic Visual Basic is a tool for productively building type-safe and object- oriented applications. It allows developers to create a wide range of Windows, Web, mobile, and Office applications built on the .NET Framework.	Properties v 9 ×
	Don	ne	рт

Fig. 2.2 | Displaying a web page in Visual Studio.



- Select **File > New Project**... to create a new project (Fig. 2.3).
- Project templates are the project types users can create in Visual Basic.
  - A Windows Forms application has a graphical user interface (GUI).

Windows Forms Application (selected)

New Project	x
Image:	
A project for creating an application with a Windows user interface (.NET Framework 3.5)           Name:         WindowsApplication1           OK         Cancel	
Default project name Description of selected project (provided by Visual Studio) (provided by Visual Studio)	

Fig. 2.3 | New Project dialog.



• Click **OK** to display the IDE in **Design view** (Fig. 2.4).







- As you place controls on the Form, you'll be able to modify their properties.
- Figure 2.5 shows where the Form's title text can be modified

🖳 Wi	ndowsApplication1 - Microsoft Visual Basic 2008 Express Edition		
File	Edit View Project Build Debug Data Tools Window Help		
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25	Form1.vb [Design] Start Page	Solution Explorer 🚽 🕂 🗙	
Too			
lbox	💀 Form1 🗖 🖼 🖾	WindowsApplication1	
		My Project	
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		Solution Explo Data Sources	
		Properties 🗸 🕂 🗙	
		Form1 System.Windows.Forms.Fo -	
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		StartPosition WindowsDefaul	
		Text Form1	
		TopMost False	
		Text	
		The text associated with the control.	Text box (displaying the text Form1)
			which can be modified
	😸 Error List 🖭 Immediate Window		which can be modified
Kead	y	14.	

Fig. 2.5 | Text box control for modifying a property in the Visual Studio IDE.



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• Figure 2.6 shows a dialog in which a control's font properties can be modified.

Font			×	
Eont: Microsoft Sans Serif O Microsoft Sans Serif O Microsoft Uighur O Microsoft YaHei O Microsoft Yi Baiti O MingLiU O MingLiU_HKSCS O MingLiU_HKSCS-ExtB	Font style: Regular Regular Italic Bold Bold Italic	Size: 8 9 10 11 12 14 16 ▼	OK Cancel	OK button     Cancel button
Effects          Strikeout         Underline	Sample AaBbYyZz Script: Western			

Fig. 2.6 | Dialog for modifying a control's font properties in the Visual Studio IDE.



#### 2.3 Menu Bar and Toolbar

- Many commands are contained in menus (Fig. 2.7).
- The set of menus displayed depends on what you are currently doing in the IDE.

File Edit View Project Build Debug Data Format Tools Window Help Fig. 2.7 | Visual Studio menu bar.

Menu	Description	
File	Commands for opening, closing, adding and saving projects, as well as printing project data and exiting Visual Studio.	
Edit	Commands for editing programs, such as cut, copy, paste, undo, redo, delete, find and select.	
View	Commands for displaying IDE windows and for adding toolbars.	
Project	Commands for managing projects and their files.	
Build	Commands for compiling Visual Basic programs.	
Debug	Commands for debugging and running programs.	
Data	Commands for interacting with databases.	
Format	Commands for arranging and modifying a Form's controls.	
Tools	Commands for accessing additional IDE tools and options.	
Window	Commands for hiding, opening, closing and displaying IDE windows.	
Help	Commands for accessing the IDE's help features.	

Fig. 2.8 | Summary of Visual Studio 2008 IDE menus.



• You can access common commands from the toolbar icons (Fig. 2.9).



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- Select **View > Toolbars** (Fig. 2.10).
- Each toolbar you select is displayed at the top of the Visual Studio window.

WindowsApplication1 - Microsoft Visual Basic 2008		
File       Edit       View       Project       Build       Debug       Data         Start       Image: Start F       Designer       Shift+F7         Database Explorer       Ctrl+Alt+S         Solution Explorer       Ctrl+Alt+L         Object Browser       F2         Tab       Order         Image: Toolbog       Fror List         Ctrl+Alt+X       Other         Toolbog       Ctrl+Alt+X         Other Windows       F4	Fgrmat Iools Popfly Window Help → ♥ → ♥ → ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥	Additional Toolbars appear here
Ioolbars         Full Screen         Shift+Alt+Enter         Property Pages         Shift+F4	Build       Image: Solution Explored Sources         Data Design       Properties       Image: Solution Explored Sources         Database Diagram       Debug       Image: Solution Explored Sources         Debug       Help       Image: Solution Explored Sources         Layout       DoubleBufferei False       Image: Solution Explored Sources         Query Designer       Image: Solution Explored Sources       Image: Solution Explored Sources         V       Standard       True       Image: Solution Explored Sources         Vew Designer       ControlTex       FormBorderSty Sizable       Image: Solution Explored Sources         View Designer       Customize       The font used to display text in the control.       Sources	
Incouy		

Fig. 2.10 | Adding the Build toolbar to the IDE.



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• Some icons contain a down arrow that you can click to display related or commands (Fig. 2.11).



Fig. 2.11 | IDE toolbar icon showing additional commands.



• Positioning the mouse pointer over an icon highlights it and, after a brief pause, displays a description called a tool tip (Fig. 2.12).



Fig. 2.12 | Tool tip demonstration.

#### 2.4 Navigating the Visual Studio IDE

• The IDE provides windows for accessing project files and customizing controls (Fig. 2.13).



Fig. 2.13 | Toolbar icons for four Visual Studio windows.

- Visual Studio provides a space-saving feature called **auto-hide**.
  - When auto-hide is enabled, a tab appears along the edge of the IDE window (Fig. 2.14).

	🖳 WindowsApplication1 - Microsoft Visual Basic 2008 Express Edition		
Icon for hidden window (auto-hide enabled)	File Edit   File Edit   File Edit   File Form1.vb   Form1 Form1		

Fig. 2.14 | Auto-hide feature demonstration.



 Placing the mouse pointer over one of these icons displays that window (Fig. 2.15).



Fig. 2.15 | Displaying a hidden window when auto-hide is enabled.



- To "pin down" a window, click its pin icon.
- When auto-hide is enabled, the pin icon is horizontal.
- When a window is "pinned down," the pin is vertical (Fig. 2.16).

	WindowsApplication1 - Micro	soft V	isual Basic 2008 B	Express Edition	
Vertical orientation for pin	File Edit View Project E	Build	Debug Data	Tools Window Help	
icon	🚼 🗃 🗃 📲 📮 🛃 👗 🗈	1	1 🗟 1 🗄 😫	り・ペ・厚・鳥 🕨	Ç 🔛 🖽 👗 Ç
when window is pinned	Toolbox 🚽 🕂	×	Start Page Fo	orm1.vb [Design]	- ×
down	All Windows Forms				
domi	Common Controls		Earm1	-	
	Pointer		Point .		
	ab Button	=			
	CheckBox	-			
	CheckedListBox				
	E ComboBox				
	TimePicker				
	A Label				
	A LinkLabel				
	E ListBox				
	222 ListView				
	#- MaskedTextBox				
	MonthCalendar				
	2 NumericUpDown				
	PictureBox		Į	0	t
	ProgressBar	+			
	🗟 Error List 📰 Immediate Wind	low			
	Ready				

Fig. 2.16 | Disabling auto-hide ("pinning down" a window).



#### 2.4.1 Solution Explorer

- The **Solution Explorer** (Fig. 2.17) provides access to all of the solution's files.
- The solution's **startup project** is the one that runs when you select **Debug > Start Debugging**.



Fig. 2.17 | Solution Explorer with an open project.

• Clicking the Solution Explorer's Show All Files icon displays all the files in the solution (Fig. 2.18).



Fig. 2.18 | Solution Explorer showing plus boxes and minus boxes for expanding and collapsing the tree to reveal or hide project files.



- The plus and minus boxes can be clicked to expand and collapse the project tree.
  - Click the plus box to the left of **My Project** (Fig. 2.19).



Fig. 2.19 | Solution Explorer expanding the My Project file after clicking its plus box.



Click the minus box to collapse the tree from its expanded state (Fig. 2.20).



Fig. 2.20 | Solution Explorer showing collapsed nodes after all minus boxes are clicked.



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#### 2.4.2 Toolbox



Fig. 2.21 | Toolbox window displaying controls for the Common Controls group.



# 2.4 Navigating the Visual Studio IDE (Cont.)2.4.3 Properties Window

- Select View > Properties Window (Fig. 2.22).
  - The **Properties** window allows you to modify a control's properties visually, without writing code.
  - At the top of the **Properties** window is the component selection drop-down list.





Fig. 2.22 | Properties window.



#### 2.5 Using Help

#### • Some Help menu commands are summarized in Fig. 2.23.

Command	Description
How Do I?	Contains links to relevant topics, including how to upgrade programs and learn more about Web services, architecture and design, files and I/O, data, debugging and more.
Search	Finds help articles based on search keywords.
Index	Displays an alphabetized list of topics you can browse.
Contents	Displays a categorized table of contents in which help articles are organized by topic.

Fig. 2.23 | Help menu commands.



### 2.5 Using Help (Cont.)

• To use context-sensitive help, click an item, then press the *F1* key (Fig. 2.24).



Fig. 2.24 | Using context-sensitive help.



### 2.5 Using Help (Cont.)

- The **Help** options can be set by selecting **Tools** > **Options**
- Make sure that **Show all settings** is checked (Fig. 2.25).
- Select **Help**, then set the **Show Help using:** drop-down list to External Help.

Options	
Environment General AutoRecover Documents Find and Replace Fonts and Colors Help Import and Export Settings International Settings Keyboard Startup Task List Web Browser Projects and Solutions Text Editor Database Tools Windows Forms Designer	Show Help using: External Help Viewer Integrated Help Viewer 20 Show topic abstracts Reuse topic window Highlight search terms Include partial matches in local search results Online topic language: English Also show English topics

Fig. 2.25 | Options dialog displaying Help settings.



• Figure 2.26 shows the result of a program as it executes.



Fig. 2.26 | Simple program executing.



- Select File > New Project (Fig. 2.27).
- From the template options, select **Windows Forms Application**.
  - Name the project **ASimpleProgram** and click **OK**.

	New Project	
	Image:	
Type the project name	A project for creating an application with a Windows user interface (.NET Framework 3.5)           Name:         ASimpleProgram           OK         Cancel	Template types
	Fig. 2.27   New Project dialog.	_



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• Select File > Save All to display the Save Project dialog (Fig. 2.28).

Save Project		? <mark>×</mark>
<u>N</u> ame:	ASimpleProgram	
Location:	C:\MyProjects	▼ Browse
Solution Name:	ASimpleProgram	Create <u>directory</u> for solution
		<u>S</u> ave Cancel

Fig. 2.28 | Save Project dialog.



 To set the project location, click the Browse... button (Fig. 2.29).



Fig. 2.29 | Setting the project location in the Project Location dialog.



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- When you first begin working in the IDE, it is in **Design Mode**.
  - The text in the Form's title bar is determined by the Form's **Text property** (Fig. 2.30).

	Properties	<b>→</b> ╄ X	
	Form1 System.Window	s.Forms.Form 🗕 🗸 🗸	Name and type of object
	8≣ ᢓ↓ 💷 🖋 🛛 📼		
	StartPosition	WindowsDefaultLocat 🔺	
	Tag		
Selected property	Text	A Simple Program	Property value
	TopMost	False	
	TransparencyKey		J
	UseWaitCursor	False 🔻	_
	Text		
Property description	The text associated with	the control.	

Fig. 2.30 | Setting the Form's Text property in the **Properties** window.



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– Press the *Enter* key when finished (Fig. 2.31).

- Click and drag sizing handles to resize the Form.



Fig. 2.31 | Form with enabled sizing handles.

- Click and drag one of the Form's enabled sizing handles to make the Form larger (Fig. 2.32).



Fig. 2.32 | Resized Form.



- Clicking BackCol or in the **Properties** window causes a down-arrow button to appear (Fig. 2.33).
- The arrow displays tabs for **Custom**, **Web** and **System**. Click the **Custom tab** to display the **palette**.



Fig. 2.33 | Changing the Form' s BackCol or property.



• Once you select a color, the palette closes and the Form's background color changes (Fig. 2.34).

	🖳 A Simple Program	
New background colo <del>r</del>		
		P

Fig. 2.34 | Form with new BackCol or property applied.



- Select **View > Toolbox** to display the set of controls.
- Double click the Label control in the **Toolbox** (Fig. 2.35).



Fig. 2.35 | Adding a Label to the Form.



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- Set the Label 's Text property to Welcome to Visual Basic!.
- Set the AutoSi ze property to Fal se (Fig. 2.36) so that you can resize the Label on your own.



Fig. 2.36 | Changing the Label 's AutoSi ze property to Fal se.



- Resize the Label so that the text fits.
- Center the Label control horizontally by selecting Format > Center In Form
   Horizontally (Fig. 2.37).



Fig. 2.37 | GUI after the Form and Label have been customized.



# 2.6 Using Visual Programming to Create a Simple Program that Displays Text and an Image (Cont.)

• Select the **Font property**, which causes an **ellipsis button** to appear next to the value (Fig. 2.38).

	~
Label1 System.Windows.Forms.Label	•
∄∄ ᢓ↓ 💷 🖋 I 📼	
Enabled True	*
FlatStyle Standard	-
Font Microsoft Sans Serif, 8.25	_
ForeColor ControlText	÷

Fig. 2.38 | Properties window displaying the Label 's properties.



- When the ellipsis button is clicked, the **Font dialog** (Fig. 2.39) is displayed.
  - Under Font, select Segoe UI.
  - Under Size, select 24 points and click OK.



Fig. 2.39 | Font dialog for selecting fonts, styles and sizes.



- Select the TextAl i gn property (Fig. 2.40).
  - Set the TextAl i gn property to Mi ddl eCenter to have the text to appear centered in the Label.

Ρ	roperties	<b>-</b> ₽ X		Tout alignment
L	Label1 System.Windows.Forms.Label			options
C	1 🛃 🔲 🖋   🖾			
	Text	Welcome to Visual Basic! 🗡		
	TextAlign	MiddleCenter 🖌		
	UseCompatibleTextRendering			
T	UseMnemonic <b>extAlign</b> etermines the position of the t			Middle-center alignment option

Fig. 2.40 | Centering the Label 's text.



- The PictureBox control displays images.
- Locate the Pi ctureBox in the Toolbox and double click it to add it to the Form (Fig. 2.41).



Fig. 2.41 | Inserting and aligning a Pi ctureBox.



- Locate the I mage property (Fig. 2.42).
- No picture has been assigned, so the value of the Image property displays (none).

Properties		🗕 🕂 🗡	¢	
PictureBox1 System.Wir	ndows.Forms.Pictur	eBox -	•	
∄ 2↓ 🗉 🗲 🖂				
GenerateMember	True	-	•	Image property value
Image	(none)			 (no image selected)
ImageLocation			_	· · · · · · · · · · · · · · · · · · ·
	System.Drav	ving.Bitr 🏾	-	
Choose Image				
			_	
Image				
The image displayed in the	he PictureBox.			

Fig. 2.42 | I mage property of the Pi ctureBox.



• Click the ellipsis button to display the **Select Resource dialog** (Fig. 2.43).

Select Resource	2 <mark>×</mark>
Resource context © Local resource: Import Clear	
<ul> <li>Project resource file:</li> <li>Resources.resx</li> <li>(none)</li> </ul>	
Import	
	OK Cancel

Fig. 2.43 | Select Resource dialog to select an image for the Pi ctureBox.



- Click the **Import**...button.
- Locate bug. png, select it and click **OK**
- The resource named bug represents bug. png (Fig. 2.44).



Fig. 2.44 | Select Resource dialog displaying a preview of selected image.



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- Click **OK** to place the image in your program. Supported image formats include PNG, GIF, JPEG and BMP.
- To size the image to the Pi ctureBox, change the Si zeMode property to Stretchl mage (Fig. 2.45).

	Properties – 🕂 🗙	
	PictureBox1 System.Windows.Forms.Picture -	
	₿≣ 🛃 🔲 🖋 🛛 📼	
C:W-4-	Size 133, 75	SizeMode
property	SizeMode StretchImage	property set to
P. 0P 0. 1)	Tag	StretchImage
	UseWaitCursor False	
	Choose Image	
	SizeMode	
	Controls how the PictureBox will handle image placement and control sizing.	

Fig. 2.45 | Scaling an image to the size of the Pi ctureBox.



- Resize the Pi ctureBox, making it larger (Fig. 2.46).
- Select **File > Save All** to save the entire solution.



Fig. 2.46 | Pi ctureBox displaying an image.



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• Select **Debug > Start Debugging** to execute the program (Fig. 2.47).



Fig. 2.47 | Debugging a solution.



• In **run mode**, the program is executing, and you can interact with only a few of the IDE features (Fig. 2.48).



Fig. 2.48 | IDE in run mode, with the running program in the foreground.



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