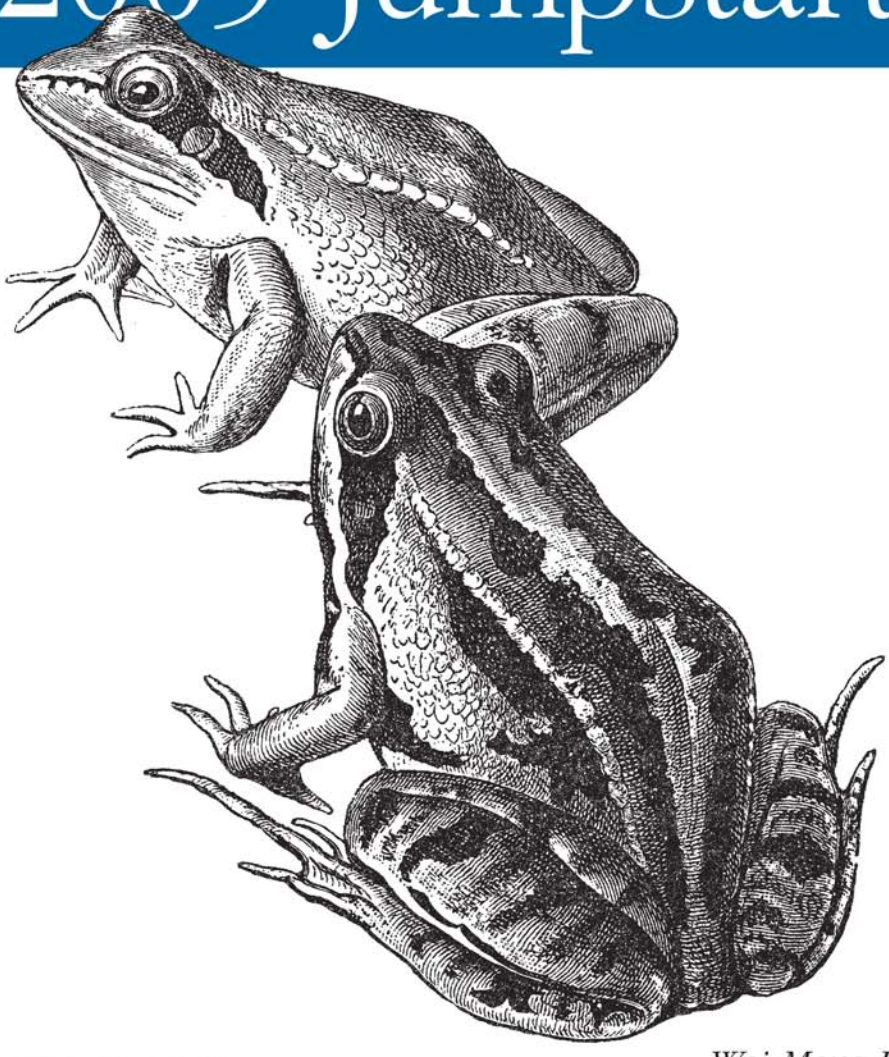
Make Your Move Now from VB 6 to VB 2005

Visual Basic 2005 Jumpstart



Wei-Meng Lee
Foreword by Jay Roxe

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Visual Basic 2005 Jumpstart

"…a great way to take your Visual Basic 6.0 development skills forward to become an expert in Visual Basic 2005 programming."

—From the foreword by Jay Roxe, Product Manager, Visual Basic, Microsoft Corporation

When Microsoft released Visual Basic .NET, many developers willingly upgraded to take advantage of new web, security, and performance features provided by the .NET platform. But many also felt they were leaving behind the very features that had made Visual Basic 6.0 such a productive way to quickly build Windows applications. No longer.

With VB 2005, Microsoft has given VB 6 developers a host of reasons to upgrade now, and *Visual Basic 2005 Jumpstart* spells these reasons out in dozens of code examples and three complete projects.

Topics covered include:

- New Visual Studio productivity features, including improved IntelliSense, Smart Tasks menus, Edit and Continue, the Class Designer, templates, code snippets, and scores of new controls
- Visual Basic language keywords and syntax, including support for object-oriented programming, structured error handling, and the My namespace
- Building a Windows application from scratch using Windows Forms, web services, new data access controls and data binding controls, SQL Server 2005 Express, and ClickOnce deployment
- Building a web application with a shopping cart from scratch, using ASP.NET 2.0, master pages, new controls for authenticating and authorizing users, the Membership class, and the Profile service
- Migrating from VB 6 to VB 2005, with introductions to COM Interop, the built-in Code Adviser, and the Visual Basic Upgrade wizard

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Visual Basic 2005 Jumpstart

Wei-Meng Lee

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Visual Basic 2005 Jumpstart
by Wei-Meng Lee

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Foreword

Visual Basic revolutionized programming when it was first released in 1991 by making it easier than ever for developers to build Windows programs. This success continued with Visual Basic 6.0, which became one of the world's most popular programming languages. The transition from Visual Basic 6.0 to Visual Basic .NET offered developers a new range of development possibilities. Using the same set of development skills, developers could now target Windows, Web, Mobile, and Office applications better than ever before. Visual Basic 2005 is the most powerful and accessible version of Visual Basic. The addition of features like the My namespace and Edit and Continue help developers to address business problems with the productivity that is the hallmark of Visual Basic development.

This book is a great way to take your Visual Basic 6.0 development skills forward to become an expert in Visual Basic 2005 programming. I'm happy to have partnered with Wei-Meng and O'Reilly to create this book which is a part of an ongoing effort to enable Visual Basic 6.0 developers to leverage their existing skills. Experienced VB programmers will see how their existing Visual Basic skills can be applied to quickly become productive in Visual Basic 2005.

I hope that you find this book useful and look forward to hearing from you with any comments. Please feel free to contact me directly at *jroxe@microsoft.com*.

—Jay Roxe
Product Manager, Visual Basic
Microsoft Corporation

Preface

Who This Book Is For

Visual Basic 2005 Jumpstart is written for VB 6 programmers who have yet to move to Visual Basic 2005, the latest release of Microsoft Visual Basic, one of the world's most popular programming languages. With VB 2005, Microsoft has given VB 6 developers a host of reasons to upgrade now, including the return of VB 6 features omitted from earlier versions of VB.NET.

My aim is to provide you with a starting point—a jumpstart—that demonstrates how easy it is to become productive with the new language when it's paired with the Visual Studio 2005 development environment.

To get the most out of this book, you'll need a copy of Visual Studio 2005 that supports Visual Basic (see "What You Need to Use This Book"). I encourage you to work your way through the sample applications, especially those in Chapters 1, 4, and 5, as they are purposefully small and designed to show off the best of the new features in VB 2005. You'll be surprised at how easily and quickly you can build a relatively sophisticated Windows or web application. The complete source code for the book (along with any errata) is available on the O'Reilly web page for this book, *http://www.oreilly.com/catalog/vbjumpstart/*.

How This Book Is Organized

Visual Basic 2005 Jumpstart consists of six chapters, each of which focuses on a particular aspect of the VB 2005 language or a type of project that VB 6 programmers are likely to encounter in making the move to the new tool.

Chapter 1, *Introducing Visual Basic 2005*
: You'll use VB 2005 and Visual Studio 2005 to build a simple Windows application that any VB 6 programmer will recognize. Though the application is simple, building it illustrates a number of powerful features present in the VB 2005 language and the Visual Studio 2005 development tool. Among these are new Windows controls with Smart Tasks, new Windows application templates, restored support for edit-and-continue, improved IntelliSense and Code Editor facilities, the Data Source Configuration Wizard, and Application Settings.

Chapter 2, *Programming with Visual Basic*
: you will be taken on a whirlwind tour of the VB 2005 language and its syntax, and you'll see how it compares with that of VB 6. If you are a VB 6 programmer, you'll be happy to learn that much of what you already know is still supported (or enhanced) in VB 2005. You'll also be introduced to the `My` namespace, which vastly expands the trove of functions available to Visual Basic programmers and provides easier access to the rich functionality of the .NET Framework Class Library.

Chapter 3, *Putting Object-Oriented Programming to Work*
: You will be introduced to the support for object-oriented programming (OOP) available in VB 2005 and will learn why it matters. A principal reason for using OOP features in VB 2005 is the support they provide for reusing, customizing, and controlling the use others make of your code, and you'll learn about a variety of techniques for accomplishing these tasks. You'll also learn about the VB 2005 Class Designer, how to extend an existing class by inheriting from it, generic classes, Partial classes, and advanced OOP concepts such as abstract classes and methods, interfaces, attributes, and access modifiers.

Chapter 4, *Developing a Windows Application*
: You will build a Windows application that demonstrates the ease with which Visual Studio 2005 and VB 2005 can be used to create professional Windows applications. You will also learn how to consume web services and how data can be persisted in a SQL database, and you will see how ClickOnce makes deployment and updating of smart clients easy and effortless.

Chapter 5, *Building Web Applications*
: You will build a simple e-commerce web application using new controls in ASP.NET 2.0 that let you build powerful applications without writing much VB 2005 code at all. You will see how to use a Master Page to maintain a consistent look and feel for the pages of your site. You will also see how information about users could be persisted using the new Profile service. Last but not least, you will learn how easy it is to

implement security in your web applications using new ASP.NET 2.0 security controls with the `Membership` class that powers them.

Chapter 6, *Moving from VB 6 to VB 2005*
: You will learn about the various factors that you need to consider when deciding whether to upgrade an exisitng application. Upgrading from VB 6 to VB 2005 requires careful review of the application as well as analysis of the various benefits that a migration will bring you. You will also learn how you can continue to use your legacy COM components in VB 2005 and how the new RegFree COM feature in VB 2005 shields you from the notorious DLL hell problem. Finally, the chapter ends with a demonstration of the Visual Basic 6.0 Code Advisor and the Upgrade Wizard, which aim to ease the upgrade of your existing VB 6 applications to VB 2005, should you decide to go that route.

What You Need to Use This Book

To try out the many hands-on projects and code samples in this book, you'll need to install any edition of Visual Studio 2005 on a computer running Windows. You can also use a combination of the new Visual Studio Express Editions. To work your way through all of the examples, you'll need to install Visual Basic 2005 Express Edition, Visual Web Developer 2005 Express Edition, and SQL Server 2005 Express Edition, all of which are available on the MSDN web site.

Conventions Used in This Book

The following typographical conventions are used in this book:

Plain text
: Indicates menu titles, menu options, menu buttons, and keyboard accelerators (such as Alt and Ctrl).

Italic
: Indicates new terms, URLs, email addresses, filenames, file extensions, pathnames, directories, and Unix utilities.

`Constant width`
: Indicates commands, options, switches, variables, attributes, keys, functions, types, controls, classes, namespaces, methods, modules, properties, parameters, values, objects, events, event handlers, XML tags, HTML tags, macros, the contents of files, or the output from commands.

`Constant width bold`
: Shows commands or other text that should be typed literally by the user. Bold is also used in code samples to highlight lines of code that are discussed in the text.

`Constant width italic`
: Shows text that should be replaced with user-supplied values.

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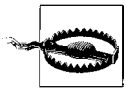

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I am very grateful to my editor, John Osborn, for giving me this opportunity to write a book on VB 2005. His patience and attention to detail have definitely made this book a better read. John has painstakingly read and reread every single word I have written and has always challenged me to rethink what I have written, and for this I am much honored to work with John. A big thank you, John!

Special thanks are also due to Jay Roxe, Product Manager of Visual Basic at Microsoft, for his support and review of this book. Jay has played an instrumental role in shaping the outline of this book and provided many useful suggestions for improving its content. Thanks for the hard work, Jay!

I also wish to express my gratitude to the reviewers for their comments and numerous suggestions. They include Robert Green, Jeff Barr, Paul Yuknewicz, and Joseph Binder.

As always, it has been a pleasure working with the O'Reilly team. A big thank you to the unsung heroes behind the scenes that made this book possible. Thanks!

CHAPTER 1
Introducing Visual Basic 2005

When Microsoft released its new version of Visual Basic in 2002, many developers willingly upgraded to take advantage of the new web functionality, security, and performance provided by the .NET platform on which it was built. But in doing so, many also felt they were leaving behind the features that had made Visual Basic 6.0 such a popular tool for the rapid development of Windows applications in the first place.

The release of Visual Basic 2005 (VB 2005) is in many ways a return to Visual Basic's roots as the Rapid Application Development (RAD) tool of choice. Many of the most popular features of earlier versions are back, such as Edit and Continue, along with dozens of new controls, better IntelliSense, an improved debugger, and a host of other tools that speed up programming, debugging, testing, and deployment.

Besides the many tools added to its interactive development environment (IDE), Visual Basic 2005 provides more support than ever for developing the next generation of network-enabled Windows clients and web applications, while a new set of functionality unique to VB 2005—the `My` namespace—gives you the means by which to perform many common tasks without having to work your way through the complex types of the .NET class libraries.

The best way to learn about Visual Studio 2005 is by using the tool to build an application. In the following sections, you'll assemble a straightforward Windows client that enables users to connect to a database and browse or update the information they find there. You'll work with the *authors* table of the *pub's* database that ships with SQL Server 2005. You'll also see how you can extend the application using some of the features new to VB 2005, such as project templates and application configuration tools. Figure 1-1 shows how the main window of the the completed application will look when you've finished your work.

Although this book uses Microsoft Visual Studio 2005 as the tool to build the sample applications, you can also use Microsoft Visual Basic 2005 Express Edition.

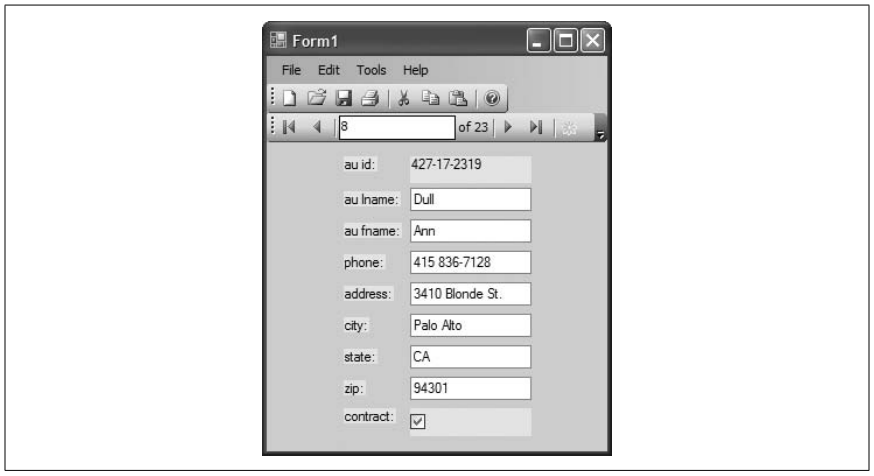

Figure 1-1. The completed pubs database Windows client

Create the Application and Its Main Window

Let's start by using Visual Studio 2005 to create a Windows application, one that you can program with VB 2005.

1. First, you need to fire up Visual Studio 2005 and open a new project by selecting File → New Project... on the Visual Studio 2005 menu. Visual Studio displays the New Project dialog shown in Figure 1-2.
2. In the Project types window of the New Project dialog, select Visual Basic and then select the Windows Application template in the Visual Studio installed templates dialog window. Keep the default project Name, WindowsApplication1, provided by Visual Studio. Click OK.

   Visual Studio 2005 will present you with its familiar Windows development environment, shown in Figure 1-3, including a designer surface for Form1, which will become the startup window of your application.

Add a Menu and Toolbar

Let's now add a menu and toolbar to the form. In VB 2005, you can create professional looking Windows applications, complete with menus and toolbars that look like those used with Microsoft Office applications.

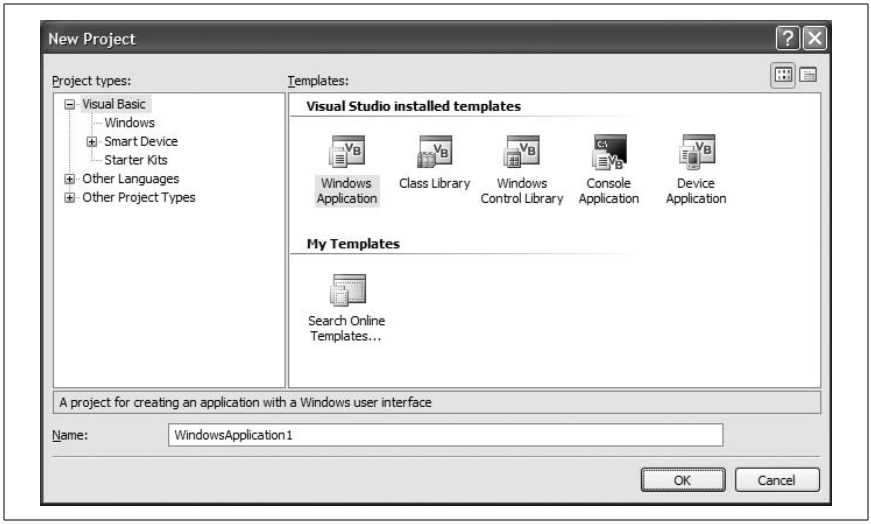

Figure 1-2. Creating a new Windows application

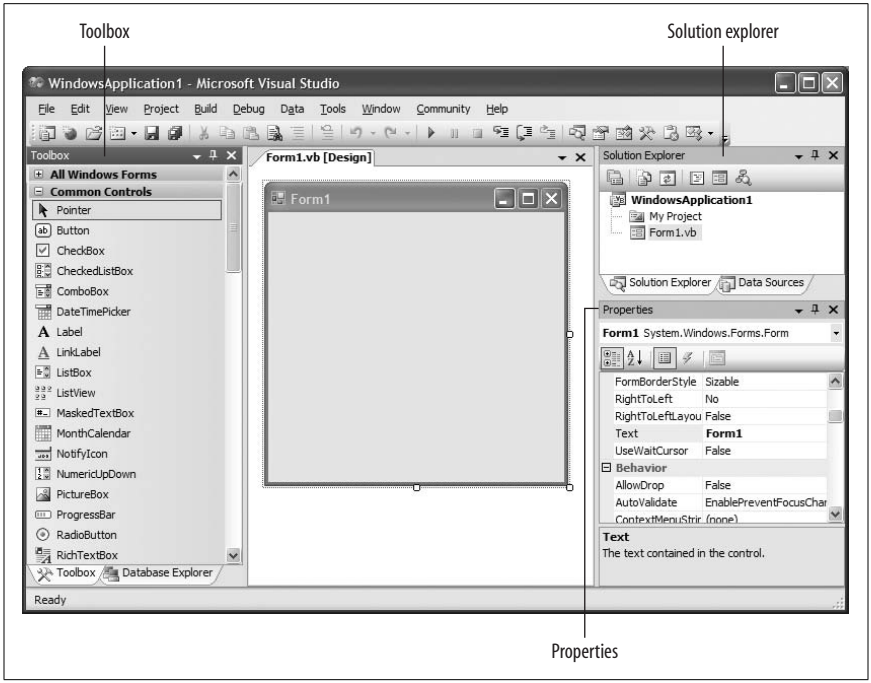

Figure 1-3. The development environment of Visual Studio 2005

1. In the Menus & Toolbars tab in Toolbox, shown in Figure 1-4, locate and then drag and drop the `ToolStripContainer` control onto the form. The `ToolStripContainer` control allows other controls (such as the `ToolStrip` control) to anchor in the four positions available (left, right, top, and bottom).

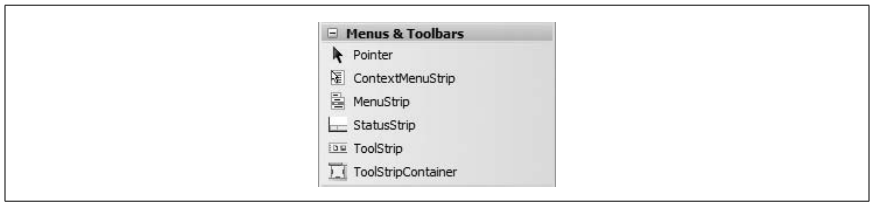

Figure 1-4. The various controls under the Menus & Toolbars tab in Toolbox

In the `ToolStripContainer` Tasks menu, click on the "Dock Fill in Form" link (see Figure 1-5) to dock the `ToolStripContainer` control onto the form. This will cause the `ToolStripContainer` control to fill up the entire form and automatically resize itself when the form is resized.

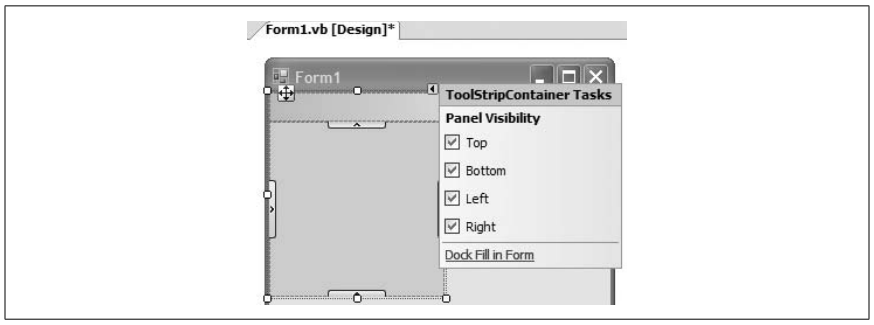

Figure 1-5. Filling the entire form with the ToolStripContainer control

2. Now you'll add the application menu. Double-click on the `MenuStrip` control in the Toolbox to add it to the form. The `MenuStrip` control displays a standard list of drop-down menus at the top of a window. In the `MenuStrip` Tasks menu, click on the Insert Standard Items link to add a list of commonly used menu items to the control (see Figure 1-6).

   Your form should now look like the one shown in Figure 1-7.

   Now you'll add a toolbar to Form1. Select the `MenuStrip` control that you have just added by single-clicking on it. In the Toolbox, double click on the `ToolStrip` control (or drag and drop it) to add it to the form. This will add the `ToolStrip` control to the top of the `ToolStripContainer` control, thereby making it moveable. You use the `ToolStrip` control to display buttons for tasks users will commonly want

Smart Tasks Menu

When you need to configure a control in VB6, you normally use its Properties window to do so. However, a properties list can be quite long, making it difficult for a beginner to find a particular property. In Visual Studio 2005, the Smart Tasks menu simplifies the task of configuring controls by listing several commonly used properties and wizards in the new Smart Tasks menu. You can display the Smart Tasks menu for any control by clicking the arrow at the top-right corner of the control.

Figure 1-5 shows the `ToolStripContainer` Tasks menu. Using this Smart Tasks menu, you can set the visibility of the Panel (Top, Bottom, Left, and Right) as well as cause the control to fill up the form.

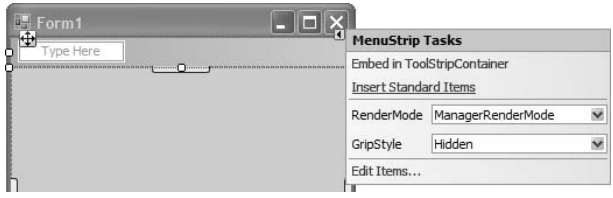

Figure 1-6. Inserting standard menu items into the MenuStrip control

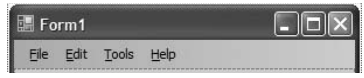

Figure 1-7. The MenuStrip control

to perform. Initially, the toolbar is blank. To add common toolbar items, click on the Insert Standard Items link in the `ToolStrip` Tasks menus. Your form should now look like Figure 1-8.

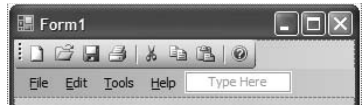

Figure 1-8. The MenuStrip and ToolStrip controls

3. To test the application, press F5. You will now be able to drag the `ToolStrip` control and anchor it in one of the four positions (see Figure 1-9).

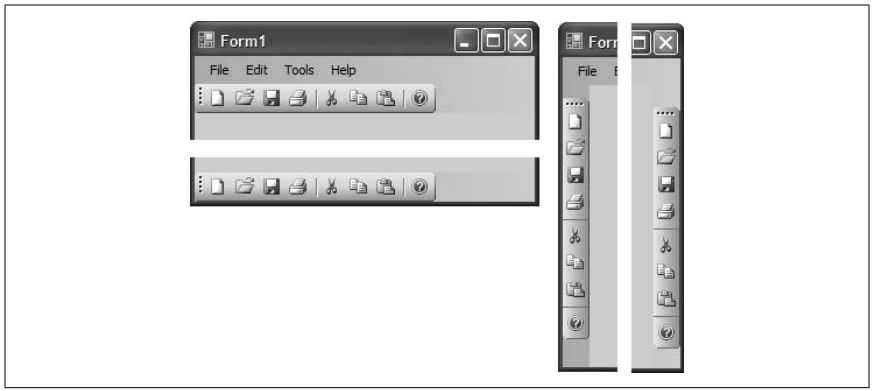

Figure 1-9. Anchoring the ToolStrip control in various positions

Connect to a Database and Browse Records

One great time-saving feature in VB 2005 is its new support for automatic data binding. The automatic–data binding feature allows you to connect to a data source and then drag and drop the connection onto a Windows Forms application. A set of controls bound to the data source will then be automatically added to the form, and you can perform a variety of operations on the data source, such as navigating through records, searching for a specific record, and more, without having to write any code.

To see how automatic data binding works, you will now connect to a database and then drag and drop one of its tables onto your form so that you can view and work with its records. You will use SQL Server 2005 Express and the *pubs* database and then view and edit the records in the *authors* table.

1. Select Data → Show Data Sources to display the Data Sources window, as shown in Figure 1-10. The Data Sources window allows you to connect to your data sources (such as databases, web services, and business objects) and view their content. Click on the Add New Data Source... link to add a new data source to your project (see Figure 1-10).

   When the Data Source Configuration Wizard appears, click Next.

2. The Choose a Data Source dialog, which appears next, lets you choose between a database, a web service, or some other object as the source of your data. You'll be using a database, so click the Database icon and then click Next.

3. Now you need to select a data connection to use to connect to your database. In the "Choose your data connection" dialog, click New Connection....