.NET Book Zero

What the C or C++ Programmer Needs to Know about C# and the .NET Framework

by

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Chapter 1. Why This Book?

Some books have a Chapter Zero. That's the chapter with the stuff the reader needs to know before reading Chapter One. Chapter Zero might be a refresher course in subjects the reader once knew but has now forgotten, or it might be a quick-and-dirty summary of prerequisites for the rest of the book.

This book originated as a Chapter Zero in my book *Applications = Code + Markup: A Guide to the Microsoft Windows Presentation Foundation* (Microsoft Press, 2006), which is about the new Windows client programming platform that's part of Microsoft .NET 3.0 and Microsoft Windows Vista.

I wanted *Applications = Code + Markup* to focus almost exclusively on the Windows Presentation Foundation. I knew there was enough to cover without going into the basics of general .NET programming and C#. Yet, I wasn't sure how much .NET my readers would know. I started writing a Chapter Zero for the book that would summarize all the basics of .NET and C# for the C and C++ programmers who might be coming to .NET for the very first time.

It soon became evident that this Chapter Zero would be very long. It occurred to me that I could extract the material and make it a book on its own. And so I did and this is it. What you have in your hands (or are reading on a screen) is an introduction to C# and those topics in .NET that are typically found in all .NET programming.

C# is a modern type-safe and object-oriented programming language based on the syntax of C and (to a certain extent) C++ and Java. Even if you're an experienced C++ programmer, you might be in for a few surprises. You may think you know the difference between a *class* and a *struct*, for example, but the difference between a *class* and a *struct* in C# is completely different from C++. (That difference is actually one of the lamest features of C++ and one of the most profound features of C#.) For that reason and others, I approach object-oriented programming concepts in this book almost as if you're learning about them for the very first time.

However, I do expect you to have some programming experience with a C-family language. If you're learning C# as a first programming language, you might be better off with a slower, gentler introduction, such as my book *Programming in the Key of C#: A Primer for Aspiring Programmers* (Microsoft Press, 2003).

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If you'd like to reference this book on your own Web site, I ask that you do so using a link to the page on my Web site where this book is found. That page is:

> *http://www.charlespetzold.com/dotnet*

That's the page where people can find the latest version of the book and download the source code I show in the pages that follow.

If you like this book, perhaps you'd like to read some other books I've written. Come to my web site, www.charlespetzold.com and check them out. These other books aren't free, alas. They will cost you money. But you will be pleased to know that I receive a small percentage of the price you pay for each book. That money helps me pay my rent and feed myself, and enables me to write more books in the future.

In writing this book, I've drawn upon some of my earlier writing about C# and the .NET Framework. Some of the earlier chapters are revisions of Chapter 1 in *Programming Microsoft Windows with C#* (Microsoft Press, 2001), which is an introduction to Windows Forms programming. Some of the later chapters were drawn from appendices of that book. The chapters specific to the object-oriented programming aspects of C# were drawn from my book *Programming in the Key of C#*.

As a .NET programmer, you'll probably specialize in a particular aspect of .NET, and you'll likely buy a couple books on that subject. But there are two essential books that every C# and .NET programmer should have.

The first essential book is *The C# Programming Language* by Anders Hejlsberg, Scott Wiltamuth, and Peter Golde (2nd edition, Addison-Wesley, 2006). This book is the official technical specification of the C# language. It is certainly not a tutorial for learning the language, but a great book to read *after* you've become adept at C# programming.

Downloadable versions of *The C# Programming Language* are available under the title *C# Language Specification* from this Web page:

> *http://msdn2.microsoft.com/en-us/vcsharp/aa336809.aspx*

Because the online title *C# Language Specification* is actually more accurate than the book title *The C# Programming Language*, I will refer to the online title rather than the book title when I sometimes refer to the book using chapter and section numbers.

The second essential .NET book is Jeffrey Richter's *CLR via C#* (Microsoft Press, 2006), which is actually the second edition of *Applied Microsoft .NET Framework Programming.* There are many subtle and interesting aspects of .NET programming that Richter's book explores in much more depth than you'll find in the pages ahead that I've written.

In *.NET Book Zero* and my other books, I tend to focus more on the C# language and the .NET Framework class libraries rather than Microsoft Visual Studio. As you probably know, Visual Studio is the primary programming environment for creating .NET applications. You might want to supplement your C# and .NET studies with a book specific to Visual Studio.

Because this book is intended to teach C# and the rudiments of .NET, much of the code I show in the pages ahead targets the traditional (and largely obsolete) command line using character-mode programming interfaces. I am well aware that you'll probably eventually be coding for graphical environments, and that you might consider learning about character-mode programming to be a complete waste of your time. This is not so. The character-formatting techniques you learn here are directly applicable to graphical programming as well.

This book is written in tutorial style, which means that it is intended to be read sequentially. The reader is encouraged to type in the programs as they are encountered in the book, to run them, and experiment with them.

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Version 1.1 was posted on January 1, 2007. It incorporated many minor corrections reported by Larry Danielle, Paul Dougherty, Paul Duggan, David Evans, Thorsten Franz, Konstantin Korobkov, Tyson Maxwell, Ryan McFarren, and Larry Smith.