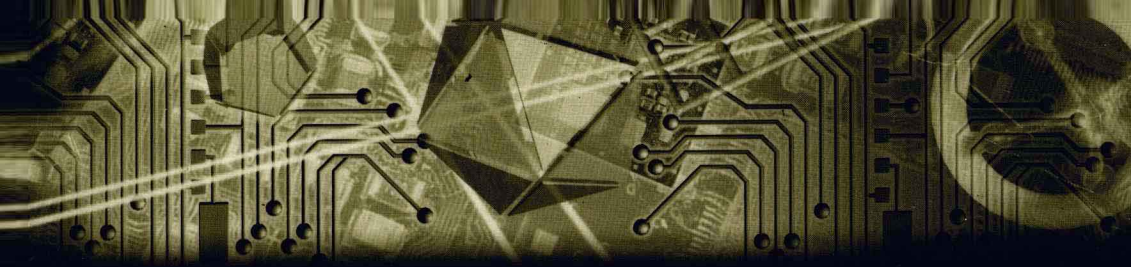

C#

Core Language

Little Black Book

Concise Problem Solver

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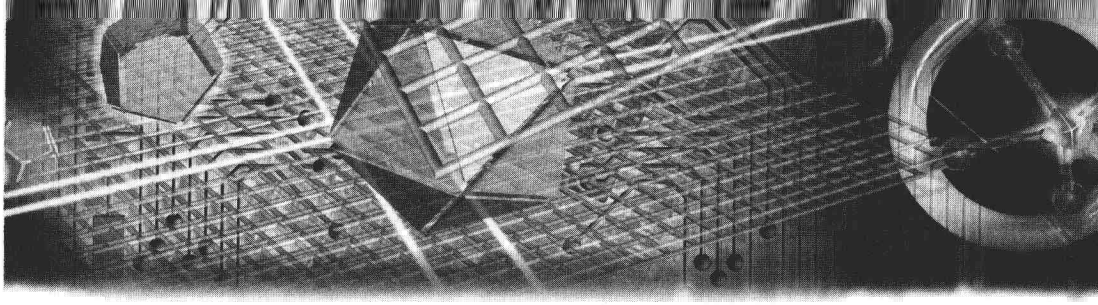

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To Lara, Sarah, and Scott.
But most of all, to Marlene, my lifelong love.

About the Author

Bill Wagner spends his days designing and writing software, as well as teaching others to do the same. He cofounded SRT Solutions so that he could continue to mentor software developers, design and develop software, and help new and emerging companies leverage technology effectively to grow their businesses.

Bill enjoys learning new software development tools and techniques and then teaching others to use them effectively. He has been a columnist for *Visual C++ Developers Journal* and has written for *Visual Studio Magazine* for more than a year, writing about C++, C#, and VisualStudio. NET. He has also been published in *Microsoft Systems Journal* (now, *MSDN Magazine*). He has written two eBooks on STL programming, available at **www.mightywords.com**. Bill has also given talks on exception safety and STL programming at Visual C++ developers conferences. He has given several talks at the Ann Arbor Computing Society and has taught week-long seminars for software developers. Topics have ranged from graphics programming, to the C++ programming language, to MFC and COM programming, Windows NT systems programming, DirectX, and OpenGL. In addition to training and mentoring, Bill still actively designs applications and developers software.

Bill has more than 15 years of experience writing software, designing applications, and mentoring software developers; he has been writing software for Windows for 10 years. He has worked in many different application domains, ranging from decision support systems and interactive Web sites to children's games. Bill has also developed software for genomic and proteomic research systems, document management systems, and networking software. Bill has written software using Pascal, C, C++, Java, and C#, and he also has written software for a variety of Unix systems. He is always looking for the next big innovation in software development and can't wait to use it.

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Writing a book involves so many people. First of all, I need to thank my business partners, Dianne Marsh and Bob Rasmussen, who helped keep our business running while I was writing this book. I want to thank acquisitions editors Jawahara Saidullah and Kevin Weeks, both of whom helped me to begin the process. Jessica Choi helped convert my original drafts of the first chapters into the far-more-useful text you are now holding. Don Eamon, the project editor, stewarded the project to its completion. Eric Kinateder did a fantastic job of technical editing. He deserves special accommodation for tech reviewing text based on .NET Beta 1 and for finding all the changes for Beta 2. Darren Meiss did the content editing in order to make the prose far more readable. Keith Lynch made sure all the notations were consistent. I also want to thank all the participants in C# newsgroups who faithfully answered my queries when the behavior of my samples did not match my original interpretation of the documents.

Finally, I need to thank my family for all the sacrifices they made so I could write this book. There were countless hours spent writing instead of having more enjoyable family time.

Introduction

Thanks for buying *C# Core Language Little Black Book*. I enjoyed writing it, having the opportunity to delve so deeply into C# in this way.

Over the course of writing this book, I became firmly convinced that C# will be an important language for future development. I find that I can write, correct, and complete programs more quickly in C# than in C++ or Java. I also find that I get better performance with C# than with either Visual Basic or Java. C# lets me program at a higher level of abstraction when I want to by using properties, indexers, and other RAD tools. It also lets me program at a lower level using unsafe techniques, such as pointer manipulation, when I need to for better performance. Finally, C# attributes let me replace entire repetitive blocks of code with a single keyword. This feature saves me time developing and understanding code that has already been written.

Read this book, and experiment with your own C# applications. I think you will agree that developing great applications just got easier and more fun.

Is This Book for You?

C# Core Language Little Black Book was written with the intermediate or advanced user in mind. Among the topics that are covered are:

- New C# syntax elements, such as properties and indexers
- How to write .NET compliant components in C#
- How C# integrates with the .NET framework, including ASP.NET and Web Services
- C# Exception support
- C# Multithreading support

How to Use This Book

This book is loosely divided into three sections. The first four chapters introduce the basic elements of the C# language. Readers who have experience with C, C++, or Java can skim these chapters. C# has some new subtle syntax differences, so I would recommend browsing these chapters.

Chapters 5 through 13 cover the new elements of the C# language and the more advanced C# language topics. These chapters build on each other, and you should try to read them in order. However, if you are looking for a specific solution, go ahead and leap to it. I have tried to make each chapter independent; because of the complex nature of C#, however, that is a bit difficult.

Chapters 14 through 21 cover how C# fits into the .NET framework as a whole. You will learn the ways in which C# integrates with the framework and how to create components that can be used in .NET programs written in other languages. You also learn techniques for reducing testing-cycle time and benchmarking C# code. These chapters are independent of each other, but you should rely on the information found in preceding chapters as a "knowledge base."

Finally, the appendices of the book provide a quick reference to the C# preprocessor directives and XML documentation keywords. I wrote these appendices not as a complete guide but as a quick page that you could use to find how to use these tools when you are creating programs. I can never remember all the keywords for these tools, so a quick reference organized by the task is helpful to me. I hope it is as helpful to you as well.

The *Little Black Book* Philosophy

Written by experienced professionals, Coriolis *Little Black Books* are terse, easily "thumb-able" question-answerers and problem solvers. The *Little Black Book*'s unique two-part chapter format—brief technical overviews followed by practical immediate solutions—is structured to help you use your knowledge, solve problems, and quickly master complex technical issues to become an expert. By breaking down complex topics into easily manageable components, this format helps you quickly find what you're looking for, with the diagrams and code you need to make it happen.

Each chapter contains samples that demonstrate the techniques involved, in concise format that you can reuse in your own work. Later

chapters demonstrate larger programs that show you how different techniques work together to solve larger problems.

I welcome your feedback on this book. You can either email The Coriolis Group at **ctp@coriolis.com** or email me directly at **wwagner@SRTsolutions.com**. Errata, updates, and more are available at **www.SRTsolutions.com/cslbb.htm**.

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