Introduction

Today's software testing environment has changed. A common trend we are seeing these days is advertisements for software developers and testers that look virtually the same. Today, companies all seem to require software test professionals with in-depth knowledge of programming languages and with significant database skills. Testers are constantly striving to keep up with the knowledge required to be effective on the complex projects we encounter regularly.

A test engineer is expected to know at least a little about practically everything—from operating systems to networks to databases—in order to find bugs and report them articulately. What we always say to new testers is that this is a great profession for those of us who love to learn continuously. It's like you've never left college—you must study constantly. (Of course, that also makes it a great profession if you like to feel constantly inadequate! Because you can never know enough, can you?) So, this book is for that self-motivated test engineer who is intent on continually upgrading his or her knowledge and now wants to learn more about automated software testing using .NET.

We have also targeted this book toward nonprogramming computer professionals, such as those of you in Networking and IT professions. You are technical, but want to know more about programming in .NET in order to enhance your skills. The additional information about testing will only help to guide you in ways to uncover and deal with problems in systems.

Finally, this book is also for you test leads and managers who want to know what .NET can do for your test project. A not-so-well-kept secret of automated software testing is that the major tools available commercially don't do everything you need them to do, in spite of their advertisements. It's probably unrealistic to expect any tool to be able to fully support the automated testing required for so many diverse applications. This includes the additional new Team Test software added into Visual Studio's Team Edition software (see Chapter 11). This revolutionary new software will be a fabulous resource for mid- to large-size companies, but it is still not going to eliminate the need for testers to become more technically adept.

This is not to say that writing your own tools is always the right answer. However, supplementing automated tools with some scripting done by testers fluent in a traditional language can help a company get more out of its automated testing projects. It is our hope, in these pages, to help you see how you can do just that.

About This Book

This book has a specific, three-fold goal; it will teach the software test engineer the following:

- How to begin to use .NET as a testing tool, including how to create simple testing utilities and the basic mechanics of writing code to test an application

- What to look for in a well-written .NET program

- To understand the software development process and appreciate the efforts of the software developer

These chapters cover beginning to advanced topics in .NET, focusing on areas that can be used for software testing.

What This Book Is Not

Since the focus of this book is software testing with .NET, we will *not* cover all the development features of the Visual Studio development environment. There are many good books for that already.

This is not a software testing fundamentals book either. There are many good books available for that as well (see Appendix C). This book *is* intended to bridge the gap between those two types of books so that you can learn how to write code in .NET to support an automated test project. Even if you do not have a testing background, you should be able to read and understand this book; however, some of the terms and references to testing concepts may be unclear. Appendix C should help you find the information you need.

Who This Book Is For

This book is for software test professionals (usually we just call ourselves *testers*) who want to increase their knowledge of testing in a .NET environment. It is designed to jump-start the tester into using .NET both for automated software testing and for software development of small programs. This book will not cover any software testing basics—the presumption is that all readers are familiar with fundamental testing concepts. Testing experience is helpful, but not required. So, IT and Networking professionals should be able to use the material to help them become more proficient at coding in .NET. Software test managers and leads should also be able to derive some information to help them understand how to interleave .NET into their testing projects. Although other technical professionals should be able to gain some good information, we want to emphasize that this book is primarily targeted toward the test engineer on the test bench striving valiantly to ensure software quality.

Where to Start

We have written this book to support a variety of backgrounds. We'd like to help guide you in where to start.

First, *everyone* should read Appendix A, where you'll find information on downloading the exercise files for this book and help with choosing editions and installation of required software—including setting up your system to run web pages.

Then, if you have

- *No programming experience*: Start at Appendix B for an extensive programming primer, then move to Chapter 1 and proceed through all chapters progressively. Attempt each exercise to gain the most out of each chapter.

- *Programming experience, but no testing experience*: Read Chapter 1 for the testing perspective and then see the Table of Contents section to determine where you should begin, depending on your area of interest. If your programming experience is in another language, you should at least skim the earlier chapters starting with Chapter 2. A quick review of the primer in Appendix B may be useful as well.

- *Programming experience and testing experience*: You can skim earlier chapters as needed, but can probably jump directly into any chapter of interest to see what kinds of things you can do with .NET in a test project. Although the first few chapters are somewhat elementary, topics become increasingly challenging in later chapters.

A Note to Training Organizations and Teachers

A Tester's Guide to .NET Programming is intended to help in classroom instruction on software testing as part of an overall software testing curriculum. This book can be used as the basis for an introductory- to intermediate-level course in automated software testing in either a corporate or an academic setting. A class based on this text, *A Tester's Guide to .NET Programming,* is currently taught by both authors through Sammamish Software. For more information about using the book as the basis for a course, and additional materials for it, contact the authors at `msweeney@sammmamishsoftware.com` or `rroot@rootsource4training.com`.

The Practice Files: Answers to Exercises and Demo Code

Each chapter, beginning with Chapter 2, has exercises. Answers for these exercises, along with additional code demonstrating chapter topics, is available for download from the Source Code section of the Apress website at `www.apress.com`.

We will post additional topics of interest to testers learning and using .NET on the following website: `www.sammamishsoftware.com`. For comments, questions, or to report errata, contact the authors at `msweeney@sammamishsoftware.com` or `rroot@rootsource4training.com`.