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MCAD/MCSD: Visual Basic .NET Windows and Web Applications Study Guide

by Brian Reisman and Mitch Ruebush

ISBN:0782141617

Sybex © 2003 (848 pages)

This Study Guide will help you prepare for the Developing Web Applications (70-305) and Developing Windows-based Applications (70-306) MCAD and MCSD exams.

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# MCAD/MCSD—Visual Basic .NET Windows and Web Applications Study Guide

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Library of Congress Card Number: 2002113841

ISBN: 0-7821-4161-7

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Thank you for looking to Sybex for your Microsoft certification exam prep needs. We at Sybex are proud of the reputation we've established for providing certification candidates with the practical knowledge and skills needed to succeed in the highly competitive IT marketplace.

We believe that the MCSD program, recently updated for Visual Studio .NET, better reflects the skill set demanded of developers in today's marketplace and offers candidates a clearer structure for acquiring the skills necessary to advance their careers. And with their recent creation of the MCAD program, Microsoft programmers can now choose to pursue the certification that best suits their career goals.

Just as Microsoft is committed to establishing measurable standards for certifying developers, Sybex is committed to providing those professionals with the means of acquiring the skills and knowledge they need to meet those standards.

The Sybex team of authors, editors, and technical reviewers have worked hard to ensure that this Study Guide is comprehensive, in-depth, and pedagogically sound. We're confident that this book, along with the collection of cutting-edge software study tools included on the CD, will meet and exceed the demanding standards of the certification marketplace and help you, the Microsoft certification exam candidate, succeed in your endeavors.

Good luck in pursuit of your MCAD or MCSD certification!



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*This book is dedicated to my wife Tami and son Thatcher—without their unwavering love and support, this book would have never been completed. I love you both.*

—Brian Reisman

*For Jenn and Elliott—I love you both!*

—Mitch Ruebush

### **Acknowledgments**

I would first like to thank my parents for their support throughout my life. Specifically, my father, Joel Reisman, for buying the family our first computer and letting me be a SysOp of my own BBS. The rest, as they say, is history. I'd like to also thank my mother, Alice Reisman, for teaching me to never give up on my dreams.

I would like to thank my sister and brother-in-law, Pam and Charles Cuneo, for helping my family take care of my house while I was clicking away at the keyboard. I would like to thank my father-in-law, Jim Fuglie, for giving up a vacation to help fix up our home, and my mother-in-law, Kay Fuglie, for caring for my son while I was writing and everyone else was performing manual labor.

I would like to thank Mitch Ruebush for being ready, willing, and able to become a co-author when I began to

fall behind. If not for him, another year might have gone by before you would have read this. In addition to Mitch, I would like to thank his family, Jenn and Elliot, for dealing with Mitch's loss of free time.

This book could not have been completed without the direction of Jeff Kellum, our developmental editor. Jeff was always supportive, even when I was late on a deadline. Thanks go to Erica Yee, our production editor, who, along with Jeff, somehow kept this project rolling, and to technical editors Mike Stover, Helen O'Boyle, Joe Karam, Scott Hanselman, Wayne Myers and Tim Pfeiffer for reading our code and checking it twice to make sure that it was right on the money. Mike and Helen also played an integral role in the evolution of this book, helping refocus the topics toward what the readers are looking for. I'd also like to thank Suzanne Goraj, our copy editor, who somehow was able to understand what I was writing and help me make it sound good. She doesn't miss a beat. Obviously, I'd also like to thank the compositor, Rozi Harris at Interactive Composition Corporation, and the proofreaders, Emily Hsuan, Laurie O'Connell, Nancy Riddiough, Sarah Tannehill, and Monique van den Berg for ensuring the high quality of this work.

Others I would like to thank are Mike, Becky, and Sydney Wallick, Jim Palic, Andy Williamson, and Rena Cuneo.

Finally, I would like to thank ThinkGeek.com for keeping me awake with caffeinated water, candy, and, of course, Jolt cola!

—Brian Reisman

There were many people involved in keeping this book on schedule and improving the quality of it. I would like to thank Suzanne Goraj for her great job with copy editing. She always had great suggestions to improve the readability of the book. I would also like to thank Jeff Kellum, the acquisitions and development editor, for his support and suggestions. My gratitude goes out to the technical editors, Mike Stover and Helen O'Boyle—although we didn't always agree, their comments were always appreciated—and to Erica Yee, the production editor, who kept the project moving. I would like to thank the proofreaders, Emily Hsuan, Laurie O'Connell, Nancy Riddiough, Sarah Tannehill, and Monique van den Berg for their work in catching errors that may have slipped past all the editors' and my eyes. It always amazes me how they can be so hard to find. My thanks goes out to Rozi Harris at Interactive Composition Corporation who worked as the compositor. Moving a book from idea to production is a difficult task and these are the people whose efforts made this a much better book.

I would also like to thank Elliott for going without Daddy for the many evenings and week-ends used in writing this book. I will be able to play trains now, whenever you want.

I am very thankful for my wife Jenn who supported me in this endeavor. I know it was not easy being with a "part-time" husband for many months, especially with a two-year-old. We can now move forward with the house projects that need to be done.

I would also like to thank my parents, Mitch and Darla Ruebush, for their support through the years and for putting up with my crazy computer hobby.

Finally, I would like to express thanks to Brian for getting me involved in this project. While it was hard work and at times I probably cursed your name for getting me involved, it is truly exciting to have this opportunity to be published.

—Mitch Ruebush

# Introduction

Microsoft's Microsoft Certified Application Developer (MCAD) and Microsoft Certified Solution Developer (MCSD) tracks for Visual Studio .NET are the premier certification for programming professionals. Covering the core technologies around which Microsoft's future will be built, these programs are powerful credentials for career advancement.

This book has been developed to give you the critical skills and knowledge you need to prepare for both of the core Developing Windows and Web Applications with Visual Basic .NET exams:

- Developing and Implementing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET (70-305)
- Developing and Implementing Windows-based Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET (70-306)

## The Microsoft Certified Professional Program

Since the inception of its certification program, Microsoft has certified almost 1.5 million people. As the computer network industry grows in both size and complexity, this number is sure to grow—and the need for *proven* ability will also increase. Companies rely on certifications to verify the skills of prospective employees and contractors.

Microsoft has developed its Microsoft Certified Professional (MCP) program to give you credentials that verify your ability to work with Microsoft products effectively and professionally. Obtaining your MCP certification requires that you pass any one Microsoft certification exam. Several levels of certification are available based on specific suites of exams. Depending on your areas of interest or experience, you can obtain any of the following MCP credentials:

**Microsoft Certified Application Developer (MCAD)** This track is designed for application developers and technical consultants who primarily use Microsoft development tools. Currently, you can take exams on Visual Basic .NET or Visual C# .NET. **Microsoft Certified Solution Developer (MCSD)** This track is designed for software engineers and developers and technical consultants who primarily use Microsoft development tools. Currently, you can take exams on Visual Basic .NET and Visual C# .NET. You must take and pass five exams to obtain your MCSD.

**Microsoft Certified Database Administrator (MCDBA)** This track is designed for database administrators, developers, and analysts who work with Microsoft SQL Server. As of this printing, you can take exams on either SQL Server 7 or SQL Server 2000. You must take and pass four exams to achieve MCDBA status.

Note Both the Developing Web Applications and Developing Windows Applications exams can count as an elective for your MCDBA.

**Microsoft Certified System Administrator (MCSA)** The MCSA certification is the latest certification track from Microsoft. This certification targets system and network administrators with roughly 6 to 12 months of desktop and network administration experience. The MCSA can be considered the entry-level certification. You must take and pass a total of four exams to obtain your MCSA.

**Microsoft Certified System Engineer (MCSE) on Windows 2000** This certification track is designed for network and systems administrators, network and systems analysts, and technical consultants who work with Microsoft Windows 2000 Professional and Server and/or Windows XP Professional. You must take and pass seven exams to obtain your MCSE.

Note Microsoft will soon be releasing new exams on Windows Server 2003.

**Microsoft Certified Trainer (MCT)** The MCT track is designed for any IT professional who develops and teaches Microsoft-approved courses. To become an MCT, you must first obtain your MCSE, MCSA, or MCDBA, then you must take a class at one of the Certified Technical Training Centers. You will also be required to prove your instructional ability. You can do this in various ways: by taking a skills-building or train-the-trainer class, by achieving certification as a trainer from any of several vendors, or by becoming a Certified Technical Trainer through CompTIA. Last of all, you will need to complete an MCT application.

## How Do You Become an MCAD or MCSA?

Attaining any MCP certification has always been a challenge. In the past, students have been able to acquire detailed exam information—even most of the exam questions—from online "brain dumps" and third-party "cram" books or software products. For the new Microsoft exams, this is simply not the case.

Microsoft has taken strong steps to protect the security and integrity of their certification tracks. Now, prospective students must complete a course of study that develops detailed knowledge about a wide range of topics. It supplies them with the true skills needed, derived from working with Visual Studio .NET and related software products.

The Visual Studio .NET MCAD and MCSA programs are heavily weighted toward hands-on skills and experience. Fortunately, if you are willing to dedicate the time and effort to learn Visual Studio and Visual Basic .NET, you can prepare yourself well for the exams by using the proper tools. By working through this book, you can successfully meet the exam requirements to pass the Developing and Implementing Web and Windows Applications exams.

### MCAD Exam Requirements

Candidates for MCAD certification must pass three exams, including one Developing Web or Windows Applications exam, one Developing XML Web Services and Server Components exam, and one elective. You can get your certification in either Visual Basic .NET or Visual C# .NET, or both (you can mix and match languages). For details on the exam requirements, visit <http://www.microsoft.com/traincert/mcp/mcad/requirements.asp>.

### MCSA Exam Requirements

Candidates for MCSA certification must pass a total of five exams, including one Developing Web Applications exam, one Developing Windows Applications exam, one Developing XML Web Services and Server Components exam, one Solution Architecture exam, and one elective. As with the MCAD program, you can get your certification in either Visual Basic .NET or Visual C# .NET, or both (you can mix and match languages). For details on the exam requirements, visit <http://www.microsoft.com/traincert/mcp/mcsa/requirementsdotnet.asp>.

### The Developing and Implementing Microsoft Windows and Web Applications with Visual Basic .NET Exams

The Web and Windows Application development exams cover concepts and skills related to developing and implementing Web and Windows applications with Visual Basic .NET. It emphasizes the following:

- Creating User Services
- Creating and Managing Components and .NET Assemblies
- Consuming and Manipulating Data
- Testing and Debugging
- Deploying a Web Application
- Maintaining and Supporting a Web Application

- Configuring and Securing a Web Application
- Deploying a Windows-based Application
- Maintaining and Supporting a Windows-based Application
- Configuring and Securing a Windows-based Application

Note Microsoft provides exam objectives to give you a general overview of possible areas of coverage on the Microsoft exams. Keep in mind, however, that exam objectives are subject to change at any time without prior notice and at Microsoft's sole discretion. Please visit Microsoft's Training and Certification website ([www.microsoft.com/traincert](http://www.microsoft.com/traincert)) for the most current listing of exam objectives.

### Types of Exam Questions

In an effort to both refine the testing process and protect the quality of its certifications, Microsoft has focused its exams on real experience and hands-on proficiency. There is a greater emphasis on your past working environments and responsibilities, and less emphasis on how well you can memorize.

Note Microsoft will accomplish its goal of protecting the exams' integrity by regularly adding and removing exam questions, limiting the number of questions that any individual sees in a beta exam, limiting the number of questions delivered to an individual by using adaptive testing, and adding new exam elements.

Exam questions may be in a variety of formats: Depending on which exam you take, or which certification you are looking to achieve—whether it be MCSE or MCDBA—you may see multiple-choice questions as well as select-and-place and prioritize-a-list questions. Simulations and case study-based formats are included as well. Let's take a look at the types of exam questions you might see so you'll be prepared for all of the possibilities.

Tip With the release of Windows 2000, Microsoft has stopped providing a detailed score breakdown. This is mostly because of the various and complex question formats. Previously, each question focused on one objective. The exams, however, contain questions that may be tied to one or more objectives from one or more objective sets. Therefore, grading by objective is almost impossible. Additionally, Microsoft no longer offers a score. Now you will be told only whether you pass or fail.

Note For more information on the various exam question types, go to [www.microsoft.com/traincert/mcpexams/policies/innovations.asp](http://www.microsoft.com/traincert/mcpexams/policies/innovations.asp).

### Multiple-Choice Questions

Multiple-choice questions come in two main forms. One is a straightforward question followed by several possible answers, of which one or more is correct. The other type of multiple-choice question is more complex and based on a specific scenario. The scenario may focus on several areas or objectives. These are the majority of questions you will find on exams 305 and 306.

### Select-and-Place Questions

Select-and-place exam questions involve graphical elements that you must manipulate to successfully answer the question. For example, you might see a diagram of a computer network, as shown in the following graphic taken from the select-and-place demo downloaded from Microsoft's website.

Note You are not likely to see this question type for either Visual Basic .NET exam.

A typical diagram will show computers and other components next to boxes that contain the text "Place here." The labels for the boxes represent various computer roles on a network, such as a print server and a file server. Based on information given for each computer, you are asked to select each label and place it in the correct box. You need to place *all* of the labels correctly. No credit is given for the question if you correctly label only some of the boxes.

In another select-and-place problem, you might be asked to put a series of steps in order by dragging items from boxes on the left to boxes on the right and placing them in the correct order. One other type requires that

you drag an item from the left and place it under an item in a column on the right.

### Simulations

Simulations are the kinds of questions that most closely represent actual situations and test the skills you use while working with Microsoft software interfaces. These exam questions include a mock interface on which you are asked to perform certain actions according to a given scenario. The simulated interfaces look nearly identical to what you see in the actual product, as shown in this example:

Note You are not likely to see this question type for either Visual Basic .NET exam.

Because of the number of possible errors that can be made on simulations, be sure to consider the following recommendations from Microsoft:

- Do not change any simulation settings that don't pertain to the solution directly.
- When specific information has not been provided, assume that the defaults are used.
- Make sure that your entries are spelled correctly.
- Close all of the simulation application windows after completing the set of tasks in the simulation.

The best way to prepare for simulation questions is to spend time working with the graphical interface of the product on which you will be tested.

Note Microsoft will regularly add and remove questions from the exams. This is called *item seeding*. It is part of the effort to make it more difficult for individuals to merely memorize exam questions that were passed along by previous test-takers.

### Tips for Taking the Web and Windows Application Development Exams

Here are some general tips for achieving success on your certification exam:

- Arrive early at the exam center so that you can relax and review your study materials. During this final review, you can look over tables and lists of exam-related information.
- Read the questions carefully. Don't be tempted to jump to an early conclusion. Make sure you know *exactly* what the question is asking.
- Answer all questions. Remember that the adaptive format does *not* allow you to return to a question. Be very careful before entering your answer.
- For questions you're not sure about, use a process of elimination to get rid of the obviously incorrect answers first. This improves your odds of selecting the correct answer when you need to make an educated guess.

### Exam Registration

You may take the Microsoft exams at any of more than 1000 Authorized Prometric Testing Centers (APTCs) and VUE Testing Centers around the world. For the location of a testing center near you, call Prometric at 800-755-EXAM (755-3926), or call VUE at 888-837-8616. Outside the United States and Canada, contact your local Prometric or VUE registration center.

Find out the number of the exam you want to take, and then register with the Prometric or VUE registration center nearest to you. At this point, you will be asked for advance payment for the exam. The exams are \$125 each and you must take them within one year of payment. You can schedule exams up to six weeks in advance or as late as one working day prior to the date of the exam. You can cancel or reschedule your exam if you contact the center at least two working days prior to the exam. Same-day registration is available in some locations, subject to space availability. Where same-day registration is available, you must register a minimum of two hours before test time.

Tip You may also register for your exams online at [www.prometric.com](http://www.prometric.com) or [www.vue.com](http://www.vue.com).

When you schedule the exam, you will be provided with instructions regarding appointment and cancellation procedures, ID requirements, and information about the testing center location. In addition, you will receive a registration and payment confirmation letter from Prometric or VUE.

Microsoft requires certification candidates to accept the terms of a Non-Disclosure Agreement before taking certification exams.

## Is This Book for You?

If you want to acquire a solid foundation in developing and implementing Web and Windows applications with Visual Basic .NET, and your goal is to prepare for the exam by learning how to use and manage the new software language, this book is for you. You'll find clear explanations of the fundamental concepts you need to grasp, and plenty of help to achieve the high level of professional competency you need to succeed in your chosen field.

If you want to become certified as an MCAD or MCSA, this book is definitely for you. However, if you just want to attempt to pass the exam without really understanding how to achieve the skills necessary to use them in the real world, this Study Guide is *not* for you. It is written for people who want to acquire hands-on skills and in-depth knowledge of this topic.

## How to Use This Book

We took into account not only what you need to know to pass the exam, but what you need to know to take what you've learned and apply it in the real world. Each book contains the following:

**Objective-by-objective coverage of the topics you need to know** Each chapter lists the objectives covered in that chapter, followed by detailed discussion of each objective.

**Assessment Test** Directly following this introduction is an Assessment Test that you should take. It is designed to help you determine how much you already know about Visual Basic .NET. Each question is tied to a topic discussed in the book. Using the results of the Assessment Test, you can figure out the areas where you need to focus your study. Of course, we do recommend that you read the entire book.

**Exam Essentials** To highlight what you learn, you'll find a list of Exam Essentials at the end of each chapter. The Exam Essentials section briefly highlights the topics that need your particular attention as you prepare for the exam.

**Key Terms and Glossary** Throughout each chapter, you will be introduced to important terms and concepts that you will need to know for the exam. These terms appear in *italic* within the chapters, and a list of the Key Terms appears just after the Exam Essentials. On the CD-ROM, a detailed Glossary gives definitions for these terms, as well as other general terms you should know.

**Review questions, complete with detailed explanations** Each chapter is followed by a set of Review Questions that test what you learned in the chapter. The questions are written with the exam in mind, meaning that they are designed to have the same look and feel as what you'll see on the exam. Question types are just like the ones you'll find on the exam.

**Hands-on exercises** In each chapter, you'll find exercises designed to give you the important hands-on experience that is critical for your exam preparation. The exercises support the topics of the chapter, and they

walk you through the steps necessary to perform a particular function.

**Real World Scenarios** Because reading a book isn't enough for you to learn how to apply these topics in your everyday duties, we have provided Real World Scenarios in special sidebars. These explain when and why a particular solution would make sense, in a working environment you'd actually encounter.

Because this book covers two exams, and some of the topics and details are exactly the same whether you are working with Web or Windows applications, this book is broken into three sections:

**Part 1** This section contains information that is essential to passing both exam 70-306 and exam 70-305. It covers some general material about the .NET Framework, a refresher on object-oriented programming, and some general topics that might span both exams.

**Part 2** This section focuses on topics specific to the Developing and Implementing Windows Applications exam.

**Part 3** This section focuses on topics specific to the Developing and Implementing Web Applications exam.

To help you prepare for certification exams, Microsoft provides a list of exam objectives for each test. Most chapters begin with a small section listing the objectives covered within it.

Note As noted above, some chapters are overviews and do not directly discuss exam objectives. However, this information is vital for your understanding of this complex topic. The specific exam objectives can be found at <http://www.microsoft.com/traincert/exams/70-305.asp> and <http://www.microsoft.com/traincert/exams/70-306.asp>.

Although we have tried to be as comprehensive as possible, writing a book that covers every aspect of distributed application development is almost impossible. Since this is a study guide, we focus on certification. Every effort has been made to cover the exam objectives in plenty of detail. In addition, we provide a little extra information that will make you a more productive developer but we don't burden you with unnecessary detail.

As you work through this book, you may want to follow these general procedures:

1. Review the exam objectives as you work through each chapter. (You may want to check the Microsoft Training and Certification website at <http://www.microsoft.com/traincert> to make sure the objectives haven't changed.)
2. Study each chapter carefully, making sure you fully understand the information.
3. Complete all hands-on exercises in each chapter, referring to the appropriate text so that you understand every step you take.
4. Answer the practice questions at the end of the chapter.
5. Note which questions you did not understand, and study those sections of the book again.

To learn all of the material covered in this book, you will need to study regularly and with discipline. Try to set aside the same time every day to study, and select a comfortable and quiet place in which to do it. Good luck!

## Hardware and Software Requirements

In order to complete all of the exercises in this book, you will need to have certain software and hardware requirements.

**Required Software**

You will need the following software to complete the exercises in this book:

- Microsoft Visual Basic .NET or Microsoft Visual Studio .NET.
- Internet Information Services (IIS), which is required for all ASP.NET applications. IIS is included with Windows 2000, Windows XP Professional, and Windows Server 2003. Of course, you can use the ASP.NET Web Matrix (available for free at <http://www.asp.net/webmatrix>).

Note You can use the Web Matrix to program ASP.NET applications using Windows XP Home. It includes its own local only web server.

- Microsoft Data Engine (MSDE), Microsoft SQL Server 2000, or Microsoft SQL Server 7.0, which is required for all Microsoft SQL Server ADO.NET applications.

**Requirements for Microsoft Visual Studio .NET**

The minimum and recommended requirements for Visual Studio .NET are listed here:

**Processor**

<b>Minimum</b>	<b>Recommended</b>
450 MHz Pentium II-class processor	Pentium 41.6 GHz Processor

**Operating System**

<b>Minimum</b>	<b>Recommended</b>
Microsoft Windows XP, Home Edition*	Microsoft Windows 2000 Professional or Microsoft Windows XP Professional
Microsoft Windows NT 4.0 Workstation	Microsoft Windows 2000 Server
Microsoft Windows NT 4.0 Server	

Note Limited functionality. Visual Studio .NET does not support creating ASP.NET Web applications or ASP.NET XML Web services when using Windows XP, Home Edition. You can alleviate this requirement by using the free Web Matrix, available for download at <http://www.asp.net/webmatrix>.

**Memory**

<b>Operating System</b>	<b>Minimum RAM</b>
Windows XP Home	160 MB
Windows XP Professional	160 MB
Windows 2000 Professional	96 MB
Windows 2000 Server	192 MB
Windows NT 4.0 Workstation	64 MB
Windows NT 4.0 Server	160 MB

**Hard Disk Space**

<b>.NET Development Environment</b>	<b>Minimum Disk Requirements</b>
Visual Studio .NET Standard Edition	2.5 gigabytes (GB) on installation drive, which includes 500 MB on system drive
Visual Studio .NET Professional and Enterprise Editions	3.5 GB on installation drive, which includes

Visual Basic .NET 500 MB on system drive  
2.0 GB on installation drive, which includes 500 MB on system drive

**Display****Minimum Monitor                      Minimum Video Card**

Super VGA (800 × 600) monitor 256 Color

**Other**

You must also have a CD-ROM or DVD-ROM drive to install Visual Studio .NET.

**Requirements for Microsoft SQL Server or MSDE**

In order to complete the exercises that include Microsoft SQL Server access, you must have installed at minimum the Microsoft Desktop Engine, a scaled down version of Microsoft SQL Server 2000. It is included with some editions of Visual Studio .NET and Microsoft Office. The code in the book will work on all editions of Microsoft SQL Server 7.0 and 2000.

Listed below are the minimum requirements for Microsoft SQL Server 2000:

<b>Edition</b>	<b>Operating System</b>
SQL Server 2000 Standard and Enterprise	Windows NT 4 Server SP5
	Windows 2000
	Windows 2003
SQL Server 2000 Trial and Developer	All of the above
	Windows XP Professional
	Windows XP Home
	Windows 2000 Professional
	Windows NT Workstation SP5
SQL Server 2000 Personal and Desktop Engine (MSDE)	All of the above
	Windows 98
	Windows ME
SQL Server 7.0 Enterprise Edition	Windows NT Server 4.0 Enterprise Edition
	Windows 2000 Advanced Server
	Windows 2000 Datacenter Server
SQL Server 7.0 Standard Edition	All of the above
	Windows NT Server
	Windows 2000 Server

SQL Server 7.0 Desktop Edition

All of the above

Windows XP

Windows 2000 Professional

Windows NT Workstation

Windows ME

Windows 95/98

In addition to the specifications listed above you will need at least 250 MB of free hard disk space for the typical installation.

Note In addition, we include all the exercises' code on the book's CD, so you don't have to rekey everything in. All of the exercises in the book assume that products have been installed according to the defaults. No consideration is given for additional customizations that you have made on the installation.

## What's on the CD?

With this new member of our best-selling Study Guide series, we are including quite an array of training resources. The CD offers numerous simulations, bonus exams, and flashcards to help you study for the exam. We have also included the complete contents of the Study Guide in electronic form. The CD's resources are described here:

**The Sybex Ebook for Web and Windows Application Development** Many people like the convenience of being able to carry their whole Study Guide on a CD. They also like being able to search the text via computer to find specific information quickly and easily. For these reasons, the entire contents of this Study Guide are supplied on the CD, in PDF. We've also included Adobe Acrobat Reader, which provides the interface for the PDF contents as well as the search capabilities.

In addition, we have included files for all the code used in each exercise. Plus, we have included an extensive Glossary with definitions of all the Key Terms and definitions of additional terms any MCAD or MCSDB should know. Finally, we included [Appendix A](#), a comprehensive list of steps showing you how to install the MSDE Engine, which you'll need to perform some of the exercises in the chapters.

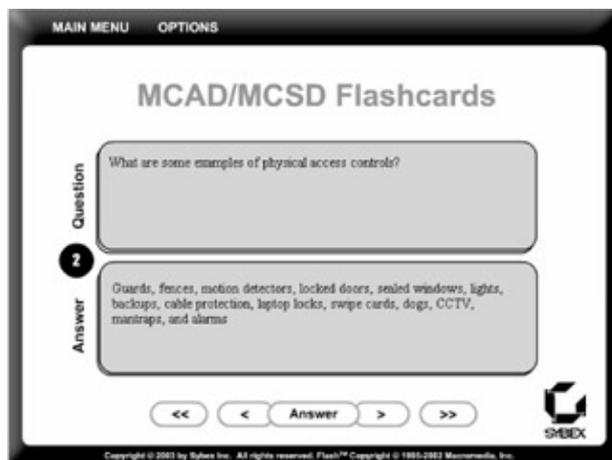
**The Sybex Test Engine** These are a collection of multiple-choice questions that will help you prepare for your exam. There are four sets of questions:

- Four bonus exams—two each for both 70-305 and 70-306—designed to simulate the actual live exam
- All the questions from the Study Guide, presented in a test engine for your review
- The Assessment Test

Here is a sample screen from the Sybex MCAD/MCSDB test engine:



**Sybox MCAD/MCSD Flashcards for PCs and Handheld Devices** The "flashcard" style of question offers an effective way to quickly and efficiently test your understanding of the fundamental concepts covered in the exam. The Sybox MCAD/MCSD Flashcards set consists of more than 100 questions presented in a special engine developed specifically for this Study Guide series. Here's what the Sybox MCAD/MCSD Flashcards interface looks like:



Because of the high demand for a product that will run on handheld devices, we have also developed, in conjunction with Land-J Technologies, a version of the flashcard questions that you can take with you on your Palm OS PDA (including the PalmPilot and Handspring's Visor).

## Contacts and Resources

To find out more about Microsoft Education and Certification materials and programs, to register with Prometric or VUE, or to obtain other useful certification information and additional study resources, check the following resources:

### Microsoft Training and Certification Home Page

[www.microsoft.com/traincert](http://www.microsoft.com/traincert)

This website provides information about the MCP program and exams.

### Microsoft TechNet Technical Information Network

[www.microsoft.com/technet](http://www.microsoft.com/technet)

800-344-2121

Use this website or phone number to contact support professionals and system administrators. Outside the United States and Canada, contact your local Microsoft subsidiary for information.

### **Prometric**

[www.prometric.com](http://www.prometric.com)

800-755-3936

Contact Prometric to register to take an MCP exam at one of the Prometric Testing Centers.

### **Virtual University Enterprises (VUE)**

[www.vue.com](http://www.vue.com)

888-837-8616

Contact the VUE registration center to register to take an MCP exam at one of the VUE Testing Centers.

### **MCP Magazine Online**

[www.mcpmag.com](http://www.mcpmag.com)

Microsoft Certified Professional Magazine is a well-respected publication that focuses on Microsoft certification. This site hosts chats and discussion forums, and tracks news related to the MCAD and MCS D programs. Some of the services cost a fee, but they are well worth it.

### **MSDN Online**

<http://msdn.microsoft.com/>

Here, you can get information on the latest developer trends and tools.

### **Cramsession on Brainbuzz.com**

[cramsession.brainbuzz.com](http://cramsession.brainbuzz.com)

Cramsession is an online community focusing on all IT certification programs. In addition to discussion boards and job locators, you can download one of several free cram sessions, which are nice supplements to any study approach you take.

## **About the Authors and Contact Information**

Brian Reisman, MCAD, MCDBA, MCS D, MCSE NT/2K, MCT, OCA, CNA, NET+, has more than two years experience with the .NET Framework and over five years experience developing data-driven, client/server, and web-based applications. He was among the few Microsoft instructors nationally approved to present the Microsoft .NET Developer Training Tour. Brian was a contributing author for the book *Data-Centric .NET Programming with C#* ([www.onlc.com](http://www.onlc.com)), a Microsoft Certified Technical Education Center and Partner with offices in Wilmington, Delaware and Philadelphia, Pennsylvania. Brian is currently building a .NET developer community site at <http://www.joltcoder.com>.

Mitchell Ruebush, MCAD, MCSDB, MCDBA, MCSE+I, MCSE for Windows 2000, MCT, began programming in 1982 with Apple BASIC on an Apple II+ that he happened upon and decided was cool and something he must learn. Since then, he has expanded his abilities and still thinks programming is fantastic. Mitch holds certifications in MCAD, MCSDB, MCDBA, MCSE+I, MCSE for Windows 2000, MCDBA, and MCT; he has over 10 years experience building client/server, data marts/warehousing, and web-based applications on Microsoft Windows and Unix with C/C++, Java, C#, PERL, VB Script, VB.NET, VB around Oracle, Microsoft SQL Server, Microsoft Exchange Server and mainframes. He currently works for Online Consulting, Inc., a Microsoft Certified Technical Education Center and Partner headquartered in Wilmington, Delaware. He can be contacted at: <[Mitch4161@joltcoder.com](mailto:Mitch4161@joltcoder.com)>.

Sybex's e-mail and website are as follows:

- Technical Support: <[support@sybex.com](mailto:support@sybex.com)>
- Website: [www.sybex.com](http://www.sybex.com)

## Assessment Test and Answers

1. A .NET component needs to have a strong name to be used by a COM component. ?
  - A. True
  - B. False
2. Which of the following statements are required in a Try block? (Choose all that apply.) ?
  - A. Try
  - B. Catch
  - C. Finally
  - D. End Try
3. You can enable or disable debugging in a Web application by adding the following XML to the web.config file: ?

```
<compilation defaultLanguage="VB" debug="true" />
```

  - A. True
  - B. False
4. You have protected code that opens a file from a network server. You want to make sure that even if an error occurs, the file handle will be closed. From which block would you close the file handle to guarantee that it won't be open whether an error occurs or not? ?
  - A. Try
  - B. Catch
  - C. Finally
  - D. You would put the file close code on the next executable line of code after the End Try statement.
5. In order for a standard HTML control to run code in ASP.NET, as opposed to in the browser, you should add what attribute and value to its HTML? ?
  - A. runat=" ASP"
  - B. runat=" client"
  - C. runat=" server"
  - D. runat=" both"

6. \_\_\_\_\_ is a technique used for testing, where you isolate the smallest piece of testable code from the rest of the code to verify its behavior. ?
- A. Test casing
  - B. Unit testing
  - C. Integration testing
  - D. Logical testing
7. For XML to be valid it must meet the following criteria: case sensitive, tags cannot overlap, and must have a root element. ?
- A. True
  - B. False
8. The Form class is organized into which of the following namespaces? ?
- A. System.Windows
  - B. System.Windows.UI
  - C. System.Windows.Forms
  - D. System.WinForms
9. In order to print from a .NET Windows application, you would typically use an instance of the \_\_\_\_\_ class, located in the \_\_\_\_\_ namespace. ?
- A. Print, System.Windows.Forms
  - B. PrintDocument, System.Windows.Forms
  - C. Print, System.Drawing.Printing
  - D. PrintDocument, System.Drawing.Printing
10. The \_\_\_\_\_ member of an XmlTextReader class will return a Boolean indicating whether or not there are more nodes to be read. ?
- A. EOF
  - B. BOF
  - C. ReadNext
  - D. Read
11. You use \_\_\_\_\_ and \_\_\_\_\_ to ready an application for use by other languages or cultures. ?
- A. globalization, translation
  - B. language, localization
  - C. globalization, localization
  - D. language, globalization
12. When you are debugging your project using Visual Studio .NET, the Trace object by default writes to the Output window of the debugger. ?
- A. True
  - B. False
13. By default, where is session state maintained for an ASP.NET Web application? ?
- A. In process
  - B. In the session state service
  - C. In SQL Server
  - D. In Web.config
14. In order to handle a control's events, you simply name the procedure: *controlName\_eventName*—for example, Button1\_Click. ?