

Instructor's Summary for *Murach's C# 2015*

This summary introduces you to the instructor's materials we've designed for this book and helps you get started using them. At the least, we recommend that you read the topics under "What's included in the instructor's materials," because they not only describe the components but also our underlying instructional philosophy.

But first, some thoughts about the modular structure of this book that you should be aware of. That's important because it gives you instructional options that you don't have with other books.

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About the modular structure of the book

After your students complete the first twelve chapters of the book, you can continue with any of the other sections in the book. In other words, the rest of section 3 as well as sections 4, 5, and 6 are written as independent modules that require only the first twelve chapters as prerequisites. That's what we mean by *modularity*, and that lets you choose the subjects that you want to teach as well as the sequence in which you teach them.

Beyond that, you have some options as to which chapters you assign for each section of the book. Those options are described in the topics that follow. Once you understand your options, you should have no problem selecting the chapters and teaching sequence that's best for your course.

Section 1: Introduction to Visual Studio

The three chapters of section 1 teach your students how to use the Visual Studio IDE to develop Windows Forms applications. In particular, these chapters focus on the skills for designing forms and entering code. These are essential skills your students need to get the most out of Visual Studio.

Section 2: C# language essentials

The eight chapters of section 2 present a professional subset of the C# language that includes all the skills for developing substantial applications. That includes working with numeric, string, and date data; coding control structures, methods, and event handlers; and working with arrays and collections. It also includes the best techniques for handling exceptions, validating data, and debugging applications. Although the chapters in this section are best taught in sequence, you can assign the chapter on debugging any time you feel that your students can benefit from these skills.

Section 3: Object-oriented programming

The five chapters of section 3 present a professional set of skills for creating and using classes. Chapter 12 presents the basic skills every student should know. Because many of the other chapters present advanced skills that your students will rarely need, you may want to be selective about which of these chapters you assign. The modularity of these chapters makes that easy to do.

Section 4: Database programming

The four chapters of section 4 present the essential skills for developing applications that work with databases. That includes using Visual Studio's data sources feature to develop database applications quickly and easily. It also includes the basic skills for using ADO.NET code for working with databases. These chapters can be assigned any time after completing chapters 1 through 12 but should be assigned in sequence.

Section 5: More skills for working with data

The four chapters of section 5 present some additional skills for developing applications that work with data. That includes skills for working with text, binary, and XML files, the basic skills for using LINQ to query any data structure, and the basic skills for using the Entity Framework to work with a database. You can decide which of these chapters you want to include in your course, and you can assign them in the sequence that works best for you. The exception is that you must teach the chapter on LINQ before you teach the chapter on the Entity Framework, since you use an implementation of LINQ called LINQ to Entities when you work with the Entity Framework.

Section 6: Enhancement and deployment

The two chapters in the last section of the book present skills for enhancing the user interface and deploying applications. Like many of the other chapters in the book, you can decide which of the chapters in this section you want to assign, and you can assign either of them first.

What's included in the student download

To help your students get the most from our book, our retail website lets your students download (1) the files for the book applications, (2) the files that are required to do the chapter exercises in the book, and (3) *the solutions to the exercises*. Appendix A in the book shows them how to download and set up these files on their own systems.

Please note, however, that you don't have to download these items separately because they'll be installed on your system along with the other instructor's materials. However, if you want to be able to run the exercise solutions that use a text, binary, or XML file, you will need to copy the Files subdirectory in the Exercise Starts directory to your C:\C# 2015 directory, since that's where the applications expect these files to be.

Book applications

All of the applications in this book are stored in a folder named *Book Applications* when they're downloaded. Once these applications are downloaded, the students can run them to see how they work. They can review all of the code in any application when the book doesn't present it all. And they can copy and paste code from the book applications into their own applications.

If an application requires the MMABooks database, the database files are included in the application so your students don't have to do any setup. Then, when they run the application, it will use SQL Server 2014 Express LocalDB, which comes with all of the editions of Visual Studio 2015.

Exercise starts

The exercises at the end of each chapter in the book are designed to help your students apply what they've just learned. To give your students a maximum of practice in a minimum of time, many of the exercises start from partial applications. These "exercise starts" are provided in the download so the students can easily get them.

A batch file in this download copies all of the starts to the C:\C# 2015 directory, which corresponds to the exercise descriptions in the book. That includes the files for the MMABooks database, which can be found in the C:\C# 2015\Database directory.

Exercise solutions

To help students get over any learning obstacles when they're working on their own, the download also provides the solutions to the exercises in a top-level folder named *Exercise Solutions*. That way, the students can check the solutions to see how something is done whenever they're wasting time on what is likely to be a trivial coding mistake. We think that providing the solutions is the right approach didactically because it helps students learn faster and better.

We realize, however, that this makes it more difficult for an instructor to use the book exercises to test their students. That's why the instructor's materials include a second set of exercises as well as projects that can be used for testing the competency of students. The instructor's materials also include solutions for those exercises and projects.

What's included in the instructor's materials

The instructor's materials for *Murach's C# 2015* will help any corporate trainer or college instructor run a highly effective course. Besides the materials in the student download, these resources include instructional objectives, test banks, PowerPoint slides, a second set of exercises that are analogous to the book exercises, and projects that your students must develop on their own from scratch. A summary of these materials follows.

Book applications, exercises, and solutions

These are the same materials that your students can download from our website. But you don't have to download them because we've included them with the other instructor's materials. This makes it easy for you to demonstrate and review the book applications and exercise solutions.

Although we recommend that your students use SQL Server 2014 Express LocalDB as they do the exercises for section 4 and chapter 24, you may already have another edition of SQL Server 2014 installed on a server at your company or school or on the computers in a lab. In that case, you can use the batch and sql files we provide to create the MMABooks database. For more information, please see figure A-3 in appendix A.

Objectives

Since we believe that instructional objectives should be the start of any educational methodology, we provide a set of objectives for each chapter in the book. We prepared these objectives based on the principles presented by Robert F. Mager in his classic book, *Preparing Instructional Objectives*. As a result, our objectives describe the skills that your trainees or students should have when they complete a chapter, and you should be able to test whether they can apply those skills.

Beyond that, we've tried to make sure that each objective describes a skill that a professional programmer should have. This gives our objectives a real-world context that you usually won't find in the objectives for other books. So, if your trainees or students can do what the objectives state when the course is over, you can be sure that they have learned the skills that they will actually need on the job.

If you review the objectives for one of the chapters, you'll see that the first objectives for each chapter are what we refer to as *applied objectives*. These ask the students to apply what they've learned as they develop C# applications. These of course are the critical objectives of a programming course, and they are best tested by having the trainees or students do projects like the ones that we provide.

After the applied objectives for each chapter, you'll find what we refer to as *knowledge objectives*. These objectives define skills like identifying, describing, and explaining the required concepts, terms, and procedures. These objectives determine whether your students are able to talk intelligently about the topics that are presented. And these objectives can be tested by the questions in our test banks.

To help you get the most from the instructional objectives, we have included them at the start of the PowerPoint slides for each chapter. As we see it, if you can convince your students that they only need to be able to do the skills that are described by the objectives, their study becomes more focused and efficient.

Test banks

To test comprehension, the instructor's materials include one test bank for each chapter in the book. We developed these test banks in ExamView, and we provide them in several formats: ExamView, Rich Text (RTF), the current Blackboard formats, and Respondus.

Each test bank provides questions that are designed to test the skills that are described by the objectives for that chapter, and each test question is designed to test the skill described by one objective. This keeps the promise to the students that they will only be expected to do the skills that are described by the objectives.

In our test banks, we use only multiple-choice and completion questions because they have the highest validity. To us, that means that the trainees or students who get the best scores are also the ones with the best knowledge and skills. In contrast, matching and true/false questions have low validity, so we don't use them.

Besides matching our questions to the objectives, we use this guideline to check the validity of each question: *A professional C# developer should be able to get the right answer*. This guideline eliminates questions that test the knowledge of trivial details that no one should be expected to remember. This guideline also forces us to focus on questions that test the concepts and skills that are required on the job.

Extra exercises and solutions

Because we provide the solutions for the book exercises in the student download for this book, the instructor's materials include a second set of exercises. These exercises are provided in a Word document so you can modify them if you want to, as well as a PDF document that you can distribute to your students if you don't want to make any modifications. The starting directories and database files are also included so you can distribute them to your students. And the directories for the solutions are provided so you can demonstrate and review them in class.

Since both the book exercises and the extra exercises force the students to use all of the critical skills for developing C# applications, you can assign either set of exercises to your students. The only significant difference is that the students will have the solutions for the book exercises. Of course, the advantages of using the book exercises are (1) they are included in the book, and (2) the directories and files for the exercises are part of the student download; you don't have to distribute anything.

If you assign the extra exercises, keep in mind that some of the starts for these exercises are the solutions to previous exercises. For example, the start for extra exercise 6-2 is our solution to extra exercise 5-3. Because of that, you probably won't want to give your students all the extra exercise starts at once. Instead, you can give them the starts as you assign the exercises.

If you assign any of the extra exercises for chapters 18, 19, 20, or 24, you should know that they use the same MMABooks database that's used by the book applications and the exercises in the book. Because of that, your students should already have the files for this database. If you want to install this database on a server at your company or school or on the computers in a lab, however, you can refer to figure A-3 in appendix A for information on how to do that.

Projects and project solutions

To test your students' abilities to develop C# applications from scratch, the instructor's materials include projects that you can assign as your students progress through the book. These projects are provided in both Word and PDF documents, and they are numbered by section. In addition, the description for each project indicates what chapters your students must complete before they can do that project. For example, the description for project 2-1 indicates that your students will have the skills they need to complete that project after they've read chapters 1 through 9.

Keep in mind, however, that the sections don't have to be read in sequence. After reading the first twelve chapters, for example, you may choose to go on to the chapters in section 4, 5, or 6 instead of the remaining chapters in section 3. Because of that, the projects for sections 4, 5, and 6 require only the skills presented in chapters 1 through 12.

Because most of the projects take only an hour or two to develop, you can use selected projects as tests that are done in computer lab. That of course is the only sure way to see whether your students can do the applied objectives for this book. And the major goal of our book is to help your students meet those objectives at a professional level.

All of the solutions to the projects are also included in the instructor's materials. That way, you can present them in class or compare them with your students' solutions.

Projects database

The projects for section 4 as well as one of the projects for section 5 require a TechSupport database, and we provide the files for that database so your students can include them in their applications. If you assign any of these projects, then, you'll want to make these files available to your students. You'll find them in the C:\Murach\C# 2015\Instructors\Project solutions\Database directory.

As an alternative, you can have your students use a database that's been installed on a server at your company or school or on the computers in a lab. If you have SQL Server Management Studio Express, you can create the database by running the create_database.sql script that's in the Database directory. Otherwise, you can create the database and attach it to an instance of SQL Server Express that's running on the local computer by running the create_database.bat file in the same directory. For more information on these files, please see figure A-3 in appendix A of the book. Although this figure describes the files that are available with the download for the book for creating the MMABooks database, the files for creating the TechSupport database work the same way.

PowerPoint slides

The PowerPoint slides present all of the critical information that's presented in the figures of the book. That includes all of the screen shots, diagrams, tables, and code that you may want to review in class. As a result, these slides make it easy for you to review any of the skills that your students have difficulty with.

Beyond the book information, the slides for each chapter start with the instructional objectives so you can review them in class. And they end with the screen shots for the book exercises, the extra exercises, and the projects. That makes it easy for you to answer questions and provide additional information about these exercises.

If you want to modify any of the PowerPoint slides, you should know that we prepared them by abridging and editing the Word text for each figure and copying it into PowerPoint slides. As a result, you can't use PowerPoint to modify the text in the normal way. Instead, you need to double-click on the text for a slide to open it in Word, make modifications to the text in Word, and click outside the text to return to PowerPoint. You can also use PowerPoint in the normal way to add slides, delete slides, or add your own presentation notes to our slides.

How to get started

You can get the instructor's materials for our book as a download from our website or on an Instructor's CD. If you download the materials, you'll need to install them on your computer as described below. If you get the CD, you can do a preliminary review of our materials by opening and reviewing the files on it. But if you decide to adopt the book, you'll want to install the folders and files on your computer as described below. Once the installation is done, you can do a thorough review of all of the materials that are provided.

In particular, you'll want to run some of the book applications and solutions to the various sets of exercises to see the level of competence that our book develops. You'll also want to click through some of the PowerPoint slides to see how they can help you review and reinforce the information that's presented in the book.

To help you find what you're looking for, the entire file structure for the instructor's materials is shown starting on the next page.

How to install the directories and files

1. Find the .exe file that you downloaded from our website *or* the file named Install.exe that's in the root of the Instructor's CD.
2. Double-click on the .exe file and respond to the dialog boxes that follow. This will install the directories and files onto your C drive in a directory structure that starts with

C:\Murach\C# 2015

The student directories and files that get installed

C:\Murach\C# 2015\ Student download\...	Contents
Book applications	One directory for each chapter that presents applications, containing those applications.
Database	The files for the LocalDB version of the MMABooks database, along with batch and sql files for creating the database.
Exercise starts	One directory for each chapter in the book with exercises, containing the starting applications for those exercises.
Exercise starts\Database	The files for the LocalDB version of the MMABooks database.
Exercise starts\Files	The text, binary, and XML files used by the exercises.
Exercise solutions	One directory for each chapter in the book with exercises, containing our model solutions.

The instructor directories and files that get installed

C:\Murach\C# 2015\ Instructors\...	Contents
Instructor's summary.pdf	This document in PDF format.
Objectives.docx Objectives.pdf	A document in both Word and PDF formats that contains the instructional objectives for all chapters. These objectives are also presented at the start of the PowerPoint slides for each chapter.
Extra exercises\Extra exercises.docx Extra exercises\Extra exercises.pdf	A document in both Word and PDF formats that describes the extra exercises for the book.
Extra exercises\Exercise starts	One directory for each chapter with extra exercises, containing the starting applications for those exercises.
Extra exercises\Exercise solutions	One directory for each chapter with extra exercises, containing our model solutions.
Extra exercises\Database	The files for the MMABooks database.
Projects\Projects.docx Projects\Projects.pdf	A document in both Word and PDF formats that describes all of the projects for the book, with information about the required database.
Projects\Project solutions	One directory for each project, containing our solution for that project.
Projects\Database	The files for the LocalDB version of the TechSupport database used by the projects for section 4 and project 5-3, along with batch and SQL files for creating this database.
Projects\Files	Two subdirectories that contain the text files used by project 5-2 and the text and XML files used by project 6-1.

C:\Murach\C# 2015\ Instructors\...	Contents
Slides	One PowerPoint file for each chapter that starts with the instructional objectives and ends with the screen shots for the book exercises, extra exercises, and projects.
Test banks	ExamView, Blackboard, RTF, and Respondus subdirectories that contain one test bank for each chapter.

Any comments?

If you have any comments about our book or its instructional materials, we would be delighted to hear from you. If you discover any errors in our applications or solutions, we would appreciate hearing about them. And if you want to let us know that you're going to adopt our book for your course, that would make our day.

Just e-mail us at the addresses below. But whether or not we hear from you, we want to thank you for your interest in our C# 2015 book.

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