Instructor's Summary for
Murach's C# (8th Edition)

The instructor's materials for *Murach's C# (8th Edition)* will help any college instructor or corporate trainer run an effective course based on the book. This summary introduces you to these materials 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 instructor resources but also our underlying instructional philosophy. Then, the section entitled *How to get started* guides you in getting the materials on your system and gives you charts that summarize the components at a glance.

But first, some thoughts about the modular structure of this book that you should be aware of. This structure is important because it makes it possible for you to teach the subjects presented in this book in a sequence that's right for your course.

About the modular structure of the book

To present the C# skills that your students need in a manageable progression, *Murach's C#* is divided into five sections. Most of the later chapters of this book are written as independent modules that require only the first 12 chapters as a prerequisite. This modular structure gives you flexibility in choosing the subjects you want to teach, as well as the sequence in which you teach them.

Section 1: An introduction to Visual Studio

The three chapters of section 1 teach your students how to use Visual Studio to develop Windows Forms apps. In particular, these chapters focus on the skills for designing forms and entering code.

Section 2: The 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 apps. 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 it.

Section 3: Object-oriented programming

The five chapters of section 3 present a professional set of skills for object-oriented programming. Since chapter 12 presents the basic skills for creating and using classes, it's a prerequisite for most of the chapters that follow. However, the next four chapters present advanced skills that your students might not need. As a result, you may or may not want to teach these chapters. The modularity of these chapters makes that easy to do.

Section 4: Basic skills for working with data

The two chapters of section 4 present some basic skills for developing apps that use file I/O or LINQ to work with data. 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.

Section 5: Database programming

The four chapters of section 5 present the essential skills for developing apps that work with databases. This includes how to use EF Core, ADO.NET, and the DataGridView control. These chapters can be assigned any time after completing chapters 1 through 12 plus chapter 18 (LINQ). These chapters are designed to be assigned in sequence, but you can skip chapter 19 if your students are already familiar with databases, and you can skip chapter 21 if you don't need to teach how to use ADO.NET to write your own data access code.

What's included in the student download

To help your students get the most from our book, our retail website (www.murach.com) lets them download (1) the code for the apps presented in the book, (2) the starting points for the exercises presented at the end of each chapter, and (3) the solutions to those exercises. Appendix A shows your students how to download these files onto their computers.

Book apps

Once your students have downloaded the book apps, they can run them to see how they work, experiment with the code to learn how it works, and copy code from the book apps into their own apps.

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 apps.

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. That way, 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.

Although providing the solutions makes the exercises ideal for self-study, it makes them unsuitable for testing. That's why the instructor's materials include a second set of exercises as well as a set of projects that can be used for testing. For these extra exercises and projects, the solutions are available only to instructors.

What's included in the instructor's materials

The instructor's materials for this book are designed to save you time in preparing and running an effective course based on the text so that your students gain the C# skills they'll need on the job. So besides the materials in the student download, we provide instructional objectives, test banks, PowerPoint slides, a second set of chapter exercises, and projects that your students must develop on their own from scratch.

Book apps, exercises, and solutions

These are the same materials that your students can download from our retail website. We've included them in the instructor's materials so you can demonstrate and review the book apps and exercise solutions in class, without having to download them separately. If you follow the instructions in the *How to use the zip file* section, the apps and exercise solutions should run correctly on your system.

Objectives

We believe that instructional objectives should be the start of any educational methodology, so we provide a set of objectives for each chapter in the book. These objectives describe the skills that your students should have when they complete a chapter, and you should be able to test whether they can apply those skills.

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# apps. These of course are the critical objectives of a programming course, and they are best tested by having the students do exercises and 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 learn the skills that are described by the objectives, their study becomes more focused and efficient.

Test banks

To test comprehension, you can use the test banks that we've created. There's one for each chapter in the book. We provide them in multiple formats, including those that can be used in various LMSs including Canvas and Blackboard.

Each test bank provides questions that are designed to test the skills described by the objectives for that chapter. This keeps the promise to the students that they only need to learn the skills that are described by the objectives.

In our test banks, we use only multiple-choice test questions because they have the highest validity when it comes to assessing a student's knowledge and skills. By contrast, matching and true/false questions have low validity, so we don't use them.

Extra exercises and solutions

Because we provide the solutions for the book exercises in the student download, the instructor's materials include a second set of chapter exercises that you can use to test whether students can develop C# apps.

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 might not want to give your students all the extra exercise starts at once. Instead, you can give them the starts as you assign the exercises.

Projects and project solutions

To test how well your students can develop C# apps from scratch, the instructor's materials include a set of projects that you can assign as your students progress through the book.

The projects are numbered by section. In addition, the description for each project indicates what chapters are prerequisites for the project. For example, the description for project 2-1 (the first project for section 2) indicates that chapters 1 through 9 are prerequisites for that exercise.

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's the only sure way to see whether your students can do the applied objectives for this book. And the primary goal of our book is to help your students meet those objectives at a professional level.

PowerPoint slides

The PowerPoint slides present all of the critical information from the figures in 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. In addition, the slides for each chapter start with the instructional objectives so you can review them in class.

How to get started

You can request the instructor's materials for our book from our instructor website (www.murachforinstructors.com) and download them from your account page there. The download is available as a zip file. Then, you can install the materials on your computer as detailed below.

Once the installation is done, you can do a thorough review of all of the materials. In particular, you can run some of the book apps and solutions to the various sets of exercises to see the level of competence that our book develops. You can also 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 on the next page.

How to use the zip file

1. Download the zip file of instructor's materials from your Murach account page.

2. Create a directory named Murach directly on your hard drive.

3. Unzip the zip file into the Murach directory to create a file structure that starts with

    `C:\Murach\C#`

4. Use the File Explorer to find the file named copy_exercises.bat in the C:\Murach\C#\Student Download\ directory.

5. Double-click the copy_exercises.bat file. This will copy the ExStarts directory to a C:\C# directory. Then, the file paths will match up with the exercise instructions in the book, and the exercise solutions will work properly when you run them.

The student directories and files

C:\Murach\C#\ Student Download\...	Contents
BookApps	The apps presented in this book.
ExStarts	The starting points for the exercises that are at the end of each chapter in the book.
ExSolutions	The solutions to the book exercises.
Database	The files for the MMABooks database that's used in section 5.
copy_exercises.bat	A batch file that copies the ExStarts directory to a path starting with C:\C# so it matches the instructions in the book.

The instructor directories and files

C:\Murach\C#\ Instructors\...	Contents
Objectives.docx Objectives.pdf	A document that contains the instructional objectives for all chapters. Available in Word and PDF formats.
Extra Exercises\Extra exercises.docx Extra Exercises\Extra exercises.pdf	The specifications for a second set of exercises that are similar to the exercises in the book. Available in Word and PDF formats.
Extra Exercises\ExtraStarts	The starting points for the extra exercises.
Extra Exercises\ExtraSolutions	The solutions for the extra exercises.
Projects\Projects.docx Projects\Projects.pdf	The specifications for a set of projects that require your students to create apps from scratch. Available in Word and PDF formats.
Projects\ProjectSolutions	The solutions for the projects.
Projects\Database	The files for the TechSupport database that's used by the projects for section 5.
Projects\Files	The text and binary data files used by the projects for section 4.
Slides	One PowerPoint presentation for each chapter.
Test Banks	One test bank per chapter in various formats that can be imported into most LMSs.

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 apps or exercise 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 email us at the addresses below. But whether or not we hear from you, we want to thank you for your interest in our C# book.

Anne Boehm, Author   Shawn Allen, Educational Liaison
anne@murach.com   shawn@murach.com