C# FAQ: Resources and Updates

This document lists some useful resources for programmers following my course, **Learn C# Programming (In Ten Easy Steps)**. It contains information on the course and on developments and news relating to the C# language and development tools.

Course Updates

The original version of this course was published in 2012. In the years since then it has been updated several times. However, the course has now been completely and thoroughly revised. This means that the current version (#2) is a substantially new course: every single lesson was re-recorded and numerous completely new lessons were added.

Editors and IDEs

There are several code editors and IDEs (Integrated Development Environments) that can be used to create and build C# projects. **Visual Studio** (the commercial or community edition) is **strongly recommended**:

Visual Studio Community Edition

Visual Studio Community is a free and full-featured IDE for building apps for Web, Windows Store, Windows Desktop, and even Android and iOS using programming languages including C#, C++, HTML/JavaScript, and Visual Basic. At the time of writing, it is free for students, open source development, individual developers (creating *free* or *paid-for* applications) and small teams. These terms may change so if you plan to use Visual Studio for commercial development, you should refer to the Terms & Conditions on the Microsoft site:

https://www.visualstudio.com/license-terms/.

Download VS Community edition here:

https://www.visualstudio.com/products/visual-studio-community-vs

VISUAL STUDIO 2019

Note that **Visual Studio 2019** introduced a new style of *New Project* dialog. If you are using this edition of Visual Studio, be sure to download and read the separate document on Visual Studio 2019 which is supplied in the first section of this course.

VISUAL STUDIO CODE

Visual Studio only runs on Windows. Microsoft also has a cross-platform IDE called **Visual Studio Code**. This supports editing and debugging (but not visual design) of multiple programming languages on Windows, Linux and the Mac. There are numerous supported languages including C, C++, Java, Objective-C, PHP, Python, Ruby, JavaScript and C#. More information and downloads here:

https://code.visualstudio.com/

MONODEVELOP AND XAMARIN STUDIO

MonoDevelop is a cross-platform IDE that supports C# and several other languages. It runs on Mac, Linux and Windows. It includes code editing, a visual designer and debugging. The MonoDevelop project has now been merged into Xamarin Studio, which was formerly a commercial tool. MonoDevelop/Xamarin Studio is freely available on Windows, Linux and OS X. It also supports iOS and Android development. You can **download** Xamarin Studio here:

http://www.monodevelop.com/

VISUAL STUDIO FOR MAC

Microsoft is developing a product, based on Xamarin, called Visual Studio for Mac. At the time of writing (2017) this is still in development. While it runs on a Mac, it is aimed primarily at creating and deploying C# apps on Android and iOS mobile devices. In spite of its name, it is not at all similar to Visual Studio on Windows. While it may (I hope?) improve in time, in its current state I do not recommend using this software with this course.

https://www.visualstudio.com/vs/visual-studio-mac/

OmniSharp

OmniSharp is a set of open source projects that provide .NET development capabilities within a variety of editors and IDEs, including Atom, Emacs, Vim, Adobe Brackets and Sublime Text. For the latest information on OmniSharp, see the web site here:

http://www.omnisharp.net/

Frameworks, Runtimes and Tools

Mono

Mono is an open source, cross-platform implementation of Microsoft's .NET framework that powers cross-platform programs on Windows, Linux and OS X. You can download Mono and read more about it on the Mono Project web site: http://www.mono-project.com/

The C# Interactive Console

Editions of Visual Studio starting with **VS 2015 update 1** include an interactive console in which you can try out bits of C# code without having to write and compile complete programs. You can start the Interactive Console via the **View** menu | **Other Windows**. A short guide to the C# Interactive Console is provided in Step 10 of this course. For more information, also see Microsoft's video tutorial: Introducing the Visual Studio 'C# REPL' and the article 'Interactive Coding with C# and F# REPLs (ScriptCS or the Visual Studio Interactive Window)'.

C# Programmer's Reference

The official online reference to the C# language is found here:

https://msdn.microsoft.com/en-us/library/618ayhy6(v=vs.140).aspx

Microsoft C# Tutorials

Microsoft has a number of free C# tutorials online. You can browse them here:
https://msdn.microsoft.com/en-us/library/67ef8sbd(v=vs.140).aspx

THE LITTLE BOOK OF C#

If you want a paperback (or Kindle) guide to C# which perfectly complements this course, did you know that a new edition of **The Little Book Of C#** is available from Amazon (US), Amazon (UK) and worldwide (ISBN: 978-1-913132-06-4)? This is a substantially revised, expanded and reformatted 152-page book based on the 92-page eBook provided with this course.
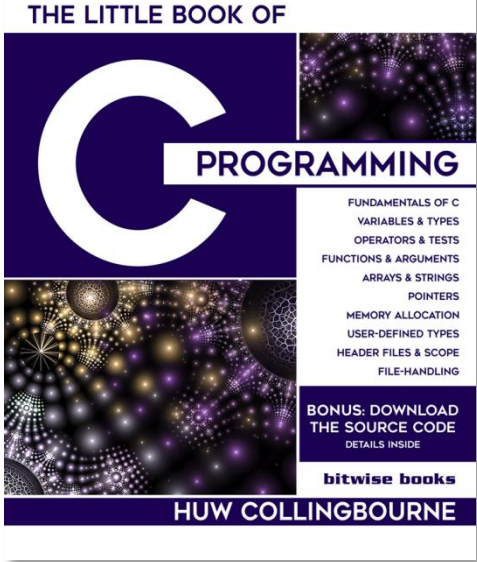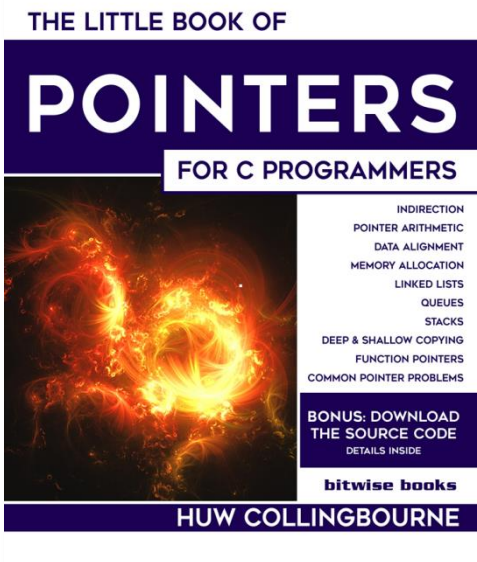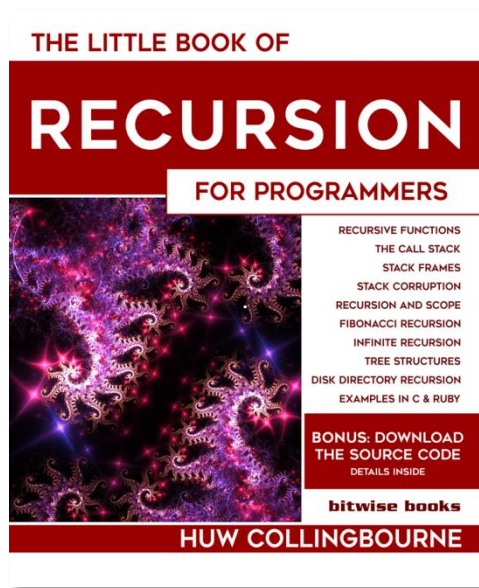
The Little Book Of C#

- Fundamentals of C#
- Object Orientation
- Static Classes and Methods
- Variables, Types, Constants
- Operators & Tests
- Methods & Arguments
- Arrays & Strings
- Loops & Conditions
- Files & Directories
- structs & enums
- Overloaded and overridden methods
- Exception-handling
- Lists & Generics

Bonus: Download the source code

MORE LITTLE PROGRAMMING BOOKS

More programming books written by Huw Collingbourne (the author of this course) are available from Bitwise Books. To keep up to date with available titles, go to the Bitwise Books web site: http://www.bitwisebooks.com

	The Little Book Of C • Fundamentals of C • Variables, Types, Constants • Operators and Tests • Loops and breaks • Functions and Arguments • Arrays and Strings • Pointers • Memory Allocation • User-defined Types • Header Files • Scope • File-handling **Bonus**: Download the source code
	The Little Book Of Pointers • Multiple Indirection • Pointer arithmetic • Pointers to structs • Data Alignment • Arrays, Strings & Addresses • Memory Allocation • Linked Lists (single/double) • List insertion/deletion • Stacks • Queues • Function Pointers • Deep & Shallow Copies • Common Pointer Problems **Bonus**: Download the source code

The Little Book Of Recursion

- Recursive Functions
- The Call Stack
- Stack Frames
- Stack Corruption
- Recursion and Scope
- Fibonacci Recursion
- Infinite Recursion
- Navigating Tree Structures
- Recursing class hierarchies
- Disk Directory Recursion
- Examples in C, Ruby, C#
- Applies to all mainstream languages

Bonus: Download the source code

FREE RESOURCES

In addition to my books, I also publish an 'online magazine' called *Bitwise Mag*, which contains lots of articles and software reviews:
http://www.bitwisemag.com/

The *Bitwise Books* blog contains articles and videos on various programming topics:
http://bitwisebooks.com/blog/

And you can also sign up for free programming resources (PDF articles) delivered to your inbox:
http://bitwisebooks.com/

Best wishes
Huw
(*Bitwise Courses instructor*)

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