

Part 3

Advanced Topics

In Part 3, we will look at many other advanced but handy C# language features. It is not unreasonable to treat all of Part 3 as a Side Quest. There is little that can't be built with the things we learned in Parts 1 and 2. However, most experienced C# programmers are familiar with these features and often use them, so ignore them at your own peril. I recommend at least skimming through this part so that you have some familiarity with them and know where to come back to when the time is right. Most of these levels are independent of each other. In most cases, you will be able to jump around and dig into the levels that pique your interest without necessarily reading everything that comes before it.

Here is a high-level view of what is to come:

- More about working with more extensive programs (Level 33).
- More about methods (Level 34).
- Handling errors using exceptions (Level 35).
- Delegates (Level 36).
- Events (Level 37).
- Lambda expressions (Level 38).
- Reading from and writing to files (Level 39).
- Pattern matching (Level 40).
- Overloading operators and creating indexers (Level 41).
- Query expressions (Level 42).
- Multi-threading your application (Levels 43 and 44).
- Dynamic objects (Level 45).
- Unsafe (unmanaged) code (Level 46).

- A quick look at a few other features in C# that are worth knowing a bit about (Level 47).
 - Building programs that build upon other projects (your own or others) (Level 48).
 - An in-depth look at what the compiler does (Level 49).
 - A more detailed look at .NET (Level 50).
 - How to package your code for publishing (Level 51).
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**Narrative****Gathering Medallions**

You stand on the east coast of the vast island of Object-Oriented Programming. A strong breeze blows salty air across your face as the sun rises above the watery horizon. You study your maps. Ahead of you lies the scattered Islands of Advanced Features, and beyond that, the Domain of the Uncoded One—your final destination.

Scattered across the islands are the ancient Medallions of Code, made of nearly indestructible binarium, each of which grants True Programmers additional powers. Each medallion is guarded by the islands' inhabitants, who serve as protectors and stewards. Without being Programmers, they are unable to use them themselves. By visiting these islands, you can acquire these medallions, gain the powers they provide, and maybe even enlist these guardians to help in the final assault at the Uncoded One's domain. Yet time is short; every clock cycle you delay gives the Uncoded One more time to reign destruction and may even give it the time needed to uncode and unravel the world itself.

You grab a pencil and begin making tentative plans on your map about the final leg of your journey through the Islands of Advanced Features.
