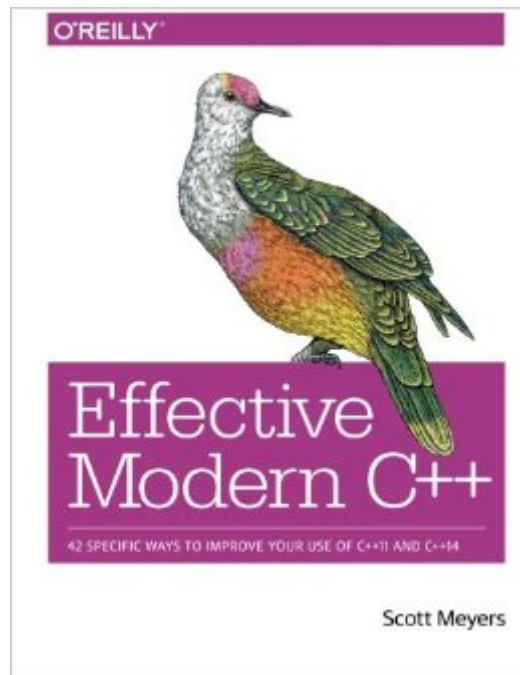# Effective Modern C++: 42 Specific Ways To Improve Your Use Of C++11 And C++14

Synopsis

Coming to grips with C++11 and C++14 is more than a matter of familiarizing yourself with the features they introduce (e.g., auto type declarations, move semantics, lambda expressions, and concurrency support). The challenge is learning to use those features effectivelyâ "so that your software is correct, efficient, maintainable, and portable. Thatâ ™s where this practical book comes in. It describes how to write truly great software using C++11 and C++14â "i.e. using modern C++.Topics include:The pros and cons of braced initialization, noexcept specifications, perfect forwarding, and smart pointer make functionsThe relationships among std::move, std::forward, rvalue references, and universal referencesTechniques for writing clear, correct, effective lambda expressionsHow std::atomic differs from volatile, how each should be used, and how they relate to C++'s concurrency APIHow best practices in "old" C++ programming (i.e., C++98) require revision for software development in modern C++Effective Modern C++ follows the proven guideline-based, example-driven format of Scott Meyers' earlier books, but covers entirely new material."After I learned the C++ basics, I then learned how to use C++ in production code from Meyer's series of Effective C++ books. Effective Modern C++ is the most important how-to book for advice on key guidelines, styles, and idioms to use modern C++ effectively and well. Don't own it yet? Buy this one. Now".-- Herb Sutter, Chair of ISO C++ Standards Committee and C++ Software Architect at Microsoft

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Customer Reviews

View larger   From the Introduction   If you're an experienced C++ programmer and are anything like me, you initially approached C++11 thinking, "Yes, yes, I get it. It's C++, only more so." But as you learned more, you were surprised by the scope of the changes. auto declarations, range-based for loops, lambda expressions, and rvalue references change the face of C++, to say nothing of the new concurrency features. And then there are the idiomatic changes. 0 and typedefs are out, nullptr and alias declarations are in. Enums should now be scoped. Smart pointers are now preferable to built-in ones. Moving objects is normally better than copying them.   There's a lot to learn about C++11, not to mention C++14.   More importantly, there's a lot to learn about making effective use of the new capabilities. If you need basic information about "modern" C++ features, resources abound, but if you're looking for guidance on how to employ the features to create software that's correct, efficient, maintainable, and portable, the search is more challenging. That's where this book comes in. It's devoted not to describing the features of C++11 and C++14, but instead to their effective application.   The information in the book is broken into guidelines called Items. Want to understand the various forms of type deduction? Or know when (and when not) to use auto declarations? Are you interested in why const member functions should be thread safe, how to implement the Pimpl Idiom using std::unique_ptr, why you should avoid default capture modes in lambda expressions, or the differences between std::atomic and volatile? The answers are all here. Furthermore, they're platform-independent, Standards-conformant answers. This is a book about portable C++.   The Items in this book are guidelines, not rules, because guidelines have exceptions. The most important part of each Item is not the advice it offers, but the rationale behind the advice. Once you've read that, you'll be in a position to determine whether the circumstances of your project justify a violation of the Item's guidance. The true goal of this book isn't to tell you what to do or what to avoid doing, but to convey a deeper understanding of how things work in C++11 and C++14.

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