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Beautiful C++

Imperfect C++

More Effective C++

Discovering Modern C++

Lecture Slides for the C++ Programming Language (Version: 2016-01-18)

C++20 for Programmers

An Introduction to the C++ Programming Language (Version: 2015-02-03)

C++ Gotchas

C++17 STL Cookbook

Effective Modern C++

Professional C++

Exceptional C++

Effective C++ Digital Collection: 140 Ways to Improve Your Programming

Professional C++

Professional C++

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Lecture Slides for Programming in C++ (Version 2017-02-24)

Functional Programming in C++

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C++ Core Guidelines Explained

Mastering the C++17 STL

Compiler Construction

Beginning C++17

API Design for C++

Advanced C++

Clean C++

Programming with C++20

Hands-On Design Patterns with C++

Design Patterns in Modern C++

C++ Fundamentals

Applied C++

Embracing Modern C++ Safely

Efficient C++
Effective Modern C++

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LACI ROBERTS

Beautiful C++ Addison-Wesley Professional Maximize Reward and Minimize Risk with Modern C++ Embracing Modern C++ Safely shows you how to make effective use of the new and enhanced language features of modern C++ without falling victim to their potential pitfalls. Based

on their years of experience with large, mission-critical projects, four leading C++ authorities divide C++11/14 language features into three categories: Safe, Conditionally Safe, and Unsafe. Safe features offer compelling value, are easy to use productively, and are relatively difficult to misuse. Conditionally safe features offer significant value but come with risks

that require significant expertise and familiarity before use. Unsafe features have an especially poor risk/reward ratio, are easy to misuse, and are beneficial in only the most specialized circumstances. This book distills the C++ community's years of experience applying C++11 and C++14 features and will help you make effective and safe design decisions that

reflect real-world, economic engineering tradeoffs in large-scale, diverse software development environments. The authors use examples derived from real code bases to illustrate every finding objectively and to illuminate key issues. Each feature identifies the sound use cases, hidden pitfalls, and shortcomings of that language feature. After reading this book, you will Understand what each C++11/14 feature does and where it works best Recognize how to

work around show-stopping pitfalls and annoying corner cases Know which features demand additional training, experience, and peer review Gain insights for preparing coding standards and style guides that suit your organization's needs Be equipped to introduce modern C++ incrementally and judiciously into established code bases Seasoned C++ developers, team leads, and technical managers who want to improve

productivity, code quality, and maintainability will find the insights in this modular, meticulously organized reference indispensable. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details. [Imperfect C++](#) Addison-Wesley Professional API Design for C++ provides a comprehensive discussion of Application Programming Interface (API) development, from initial design through

implementation, testing, documentation, release, versioning, maintenance, and deprecation. It is the only book that teaches the strategies of C++ API development, including interface design, versioning, scripting, and plug-in extensibility. Drawing from the author's experience on large scale, collaborative software projects, the text offers practical techniques of API design that produce robust code for the long term. It presents patterns and practices that provide real value to individual

developers as well as organizations. API Design for C++ explores often overlooked issues, both technical and non-technical, contributing to successful design decisions that product high quality, robust, and long-lived APIs. It focuses on various API styles and patterns that will allow you to produce elegant and durable libraries. A discussion on testing strategies concentrates on automated API testing techniques rather than attempting to include end-user application

testing techniques such as GUI testing, system testing, or manual testing. Each concept is illustrated with extensive C++ code examples, and fully functional examples and working source code for experimentation are available online. This book will be helpful to new programmers who understand the fundamentals of C++ and who want to advance their design skills, as well as to senior engineers and software architects seeking to gain new expertise to complement

their existing talents. Three specific groups of readers are targeted: practicing software engineers and architects, technical managers, and students and educators. The only book that teaches the strategies of C++ API development, including design, versioning, documentation, testing, scripting, and extensibility. Extensive code examples illustrate each concept, with fully functional examples and working source code for experimentation available

online. Covers various API styles and patterns with a focus on practical and efficient designs for large-scale long-term projects. More Effective C++ "O'Reilly Media, Inc." The historic journey of Barack and Michelle Obama to the White House is memorialized in this fun yet fashionable paper doll book featuring the Obamas. For the millions who can't get enough of this remarkable first family, here's a book containing perforated press-out dolls of Barack and Michelle and over

30mix-and-match coordinated outfits and accessories featuring the Obamas: &mdashon vacation in Hawaii &mdashgolfing at Camp David &mdashon election night &mdashat the extraordinary inauguration and Inaugural Ball &mdashtraveling the world on foreign affairs trip &mdashrolling up their sleeves for a day of service plus much more! Highlighting Barack's uniquely professional, yet down-to-earth wardrobe that reflects his popular

persona and Michelle's outstanding taste in fashion, this book is a must for anyone wanting that special "yes we can" kind of day, every day.

Discovering Modern C++
Elsevier

Write More Elegant C++ Programs The official C++ Core Guidelines provide consistent best practices for writing outstanding modern C++ code and improving legacy code, but they're organized as a reference for looking up one specific point at a time, not as a tutorial for working developers. In

C++ Core Guidelines Explained, expert C++ instructor Rainer Grimm has distilled them to their essence, removing esoterica, sharing new insights and context, and presenting well-tested examples from his own training courses. Grimm helps experienced C++ programmers use the Core Guidelines with any recent version of the language, from C++11 onward. Most of his code examples are written for C++17, with added coverage of newer versions and C++20

wherever appropriate, and references to the official C++ Core Guidelines online. Whether you're creating new software or improving legacy code, Grimm will help you get more value from the Core Guidelines' most useful rules, as you write code that's safer, clearer, more efficient, and easier to maintain. Apply the guidelines and underlying programming philosophy Correctly use interfaces, functions, classes, enum, resources, expressions, and statements Optimize

performance, implement concurrency and parallelism, and handle errors Work effectively with constants, immutability, templates, generics, and metaprogramming Improve your C++ style, manage source files, and use the Standard Library "We are very pleased to see Rainer Grimm applying his teaching skills and industrial background to tackling the hard and necessary task of making the C++ Core Guidelines accessible to more

people." --Bjarne Stroustrup and Herb Sutter, co-editors, C++ Core Guidelines Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details. **Lecture Slides for the C++ Programming Language (Version: 2016-01-18)** Michael Adams Write maintainable, extensible, and durable software with modern C++. This book is a must for every developer,

software architect, or team leader who is interested in good C++ code, and thus also wants to save development costs. If you want to teach yourself about writing clean C++, Clean C++ is exactly what you need. It is written to help C++ developers of all skill levels and shows by example how to write understandable, flexible, maintainable, and efficient C++ code. Even if you are a seasoned C++ developer, there are nuggets and data points in this book that you will

find useful in your work. If you don't take care with your code, you can produce a large, messy, and unmaintainable beast in any programming language. However, C++ projects in particular are prone to be messy and tend to slip into bad habits. Lots of C++ code that is written today looks as if it was written in the 1980s. It seems that C++ developers have been forgotten by those who preach Software Craftsmanship and Clean Code principles. The Web is full of bad, but

apparently very fast and highly optimized C++ code examples, with cruel syntax that completely ignores elementary principles of good design and well-written code. This book will explain how to avoid this scenario and how to get the most out of your C++ code. You'll find your coding becomes more efficient and, importantly, more fun. What You'll Learn Gain sound principles and rules for clean coding in C++ Carry out test driven development (TDD) Discover C++ design

patterns and idioms Apply these design patterns Who This Book Is For Any C++ developer and software engineer with an interest in producing better code.

C++20 for Programmers
Apress

This document constitutes a detailed set of lecture slides on programming using the C++ programming language. The topics covered are quite broad, including the history of C++, the C++ language itself, the C++ standard library and various other libraries,

and software tools, as well as numerous other programming-related topics. Coverage of C++ is current with the C++14 standard. Many aspects of the C++ language are covered from introductory to more advanced. This material includes: language basics (objects, types, values, operators, expressions, control-flow constructs, functions, and namespaces), classes, templates (function, class, alias, and variable templates; template specialization; and variadic templates),

lambda expressions, inheritance and run-time polymorphism, exceptions (exception safety, RAII, and smart pointers), rvalue references (move semantics and perfect forwarding), concurrency (sequential consistency, atomic memory operations, data races; threads, mutexes, condition variables, promises and futures, atomics, and fences; happens-before and synchronizes-with relationships; and sequentially-consistent and other memory

models). A number of best practices, tips, and idioms regarding the use of the language are also presented. Some aspects of the C++ standard library are covered, including: containers, iterators, and algorithms; the `std::vector` and `std::basic_string` classes; I/O streams; time measurement; and smart pointers. Various general programming-related topics are also presented, such as material on: good programming practices, finite-precision arithmetic, software documentation,

software build tools (such as CMake and Make), and version control systems (such as Git).

An Introduction to the C++ Programming Language (Version: 2015-02-03) Michael

Adams

Over 90 recipes that leverage the powerful features of the Standard Library in C++17 About This Book Learn the latest features of C++ and how to write better code by using the Standard Library (STL). Reduce the development time for your applications.

Understand the scope and power of STL features to deal with real-world problems. Compose your own algorithms without forfeiting the simplicity and elegance of the STL way. Who This Book Is For This book is for intermediate-to-advanced C++ programmers who want to get the most out of the Standard Template Library of the newest version of C++: C++ 17. What You Will Learn Learn about the new core language features and the problems they were intended to solve

Understand the inner workings and requirements of iterators by implementing them Explore algorithms, functional programming style, and lambda expressions Leverage the rich, portable, fast, and well-tested set of well-designed algorithms provided in the STL Work with strings the STL way instead of handcrafting C-style code Understand standard support classes for concurrency and synchronization, and how to put them to work Use the filesystem library

addition available with the C++17 STL In Detail C++ has come a long way and is in use in every area of the industry. Fast, efficient, and flexible, it is used to solve many problems. The upcoming version of C++ will see programmers change the way they code. If you want to grasp the practical usefulness of the C++17 STL in order to write smarter, fully portable code, then this book is for you. Beginning with new language features, this book will help you understand the

language's mechanics and library features, and offers insight into how they work. Unlike other books, ours takes an implementation-specific, problem-solution approach that will help you quickly overcome hurdles. You will learn the core STL concepts, such as containers, algorithms, utility classes, lambda expressions, iterators, and more, while working on practical real-world recipes. These recipes will help you get the most from the STL and show you how to program in a

better way. By the end of the book, you will be up to date with the latest C++17 features and save time and effort while solving tasks elegantly using the STL. Style and approach This recipe-based guide will show you how to make the best use of C++ together with the STL to squeeze more out of the standard language C++ *Gotchas* Addison-Wesley Professional 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 effectively—so that your software is correct, efficient, maintainable, and portable. That's where this practical book comes in. It describes how to write truly great software using C++11 and C++14—i.e. using modern C++. Topics include: The pros and cons of braced initialization, noexcept

specifications, perfect forwarding, and smart pointer make functions The relationships among `std::move`, `std::forward`, rvalue references, and universal references Techniques for writing clear, correct, effective lambda expressions How `std::atomic` differs from volatile, how each should be used, and how they relate to C++'s concurrency API How 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

C++17 STL Cookbook

Addison-Wesley

Professional

This book is primarily for students who are taking a course on the C++ language, for those who wish to self-study the C++ language, and for programmers who have experience with C and want to advance to C++. It could also prove useful to instructors of the C++ course who are looking for explanatory programming examples to add in their

lectures. The focus of this book is to provide a solid introduction to the C++ language and programming knowledge through a large number of practical examples and meaningful advice. It includes more than 500 exercises and examples of progressive difficulty to aid the reader in understanding the C++ principles and to see how concepts can materialize in code. The examples are designed to be short, concrete, and substantial, quickly giving the reader the ability to understand

how to apply correctly and efficiently the features of the C++ language and to get a solid programming know-how. Rest assured that if you are able to understand this book's examples and solve the exercises, you can safely go on to edit larger programs, you will be able to develop your own applications, and you will have certainly established a solid fundamental conceptual and practical background to expand your knowledge and skills. Effective Modern C++

Michael Adams
Efficient C++ Addison-
Wesley Professional
Professional C++

Addison-Wesley
Professional

The professional
programmer's Deitel®
guide to C++20 Written
for programmers with a
background in another
high-level language, in
this book, you'll learn
Modern C++
development hands on
using C++20 and its "Big
Four" features--Ranges,
Concepts, Modules and
Coroutines. (For more
details, see the Preface,

and the table of contents
diagram inside the front
cover.) In the context of
200+, hands-on, real-
world code examples,
you'll quickly master
Modern C++ coding
idioms using popular
compilers--Visual C++®,
GNU® g++, Apple®
Xcode® and
LLVM®/Clang. After the
C++ fundamentals quick
start, you'll move on to
C++ standard library
containers array and
vector; functional-style
programming with C++20
Ranges and Views;
strings, files and regular

expressions; object-
oriented programming
with classes, inheritance,
runtime polymorphism
and static polymorphism;
operator overloading,
copy/move semantics,
RAII and smart pointers;
exceptions and a look
forward to C++23
Contracts; standard
library containers,
iterators and algorithms;
templates, C++20
Concepts and
metaprogramming;
C++20 Modules and
large-scale development;
and concurrency,
parallelism, the C++17

and C++20 parallel standard library algorithms and C++20 Coroutines. Features Rich coverage of C++20's "Big Four": Ranges, Concepts, Modules and Coroutines Objects-Natural Approach: Use standard libraries and open-source libraries to build significant applications with minimal code Hundreds of real-world, live-code examples Modern C++: C++20, 17, 14, 11 and a look to C++23 Compilers: Visual C++®, GNU® g++, Apple Xcode® Clang, LLVM®/Clang Docker:

GNU® GCC, LLVM®/Clang Fundamentals: Control statements, functions, strings, references, pointers, files, exceptions Object-oriented programming: Classes, objects, inheritance, runtime and static polymorphism, operator overloading, copy/move semantics, RAII, smart pointers Functional-style programming: C++20 Ranges and Views, lambda expressions Generic programming: Templates, C++20 Concepts and metaprogramming

C++20 Modules: Large-Scale Development Concurrent programming: Concurrency, multithreading, parallel algorithms, C++20 Coroutines, coroutines support libraries, C++23 executors Future: A look forward to Contracts, range-based parallel algorithms, standard library coroutine support and more "C++20 for Programmers builds up an intuition for modern C++ that every programmer should have in the current software engineering ecosystem. The unique

and brilliant ordering in which the Deitels present the material jibes much more naturally with the demands of modern, production-grade programming environments. I strongly recommend this book for anyone who needs to get up to speed on C++, particularly in professional programming environments where the idioms and patterns of modern C++ can be indecipherable without the carefully crafted guidance that this book provides." --Dr. Daisy

Hollman, ISO C++ Standards Committee Member "This is a fine book that covers a surprising amount of the very large language that is C++20. An in-depth treatment of C++ for a reader familiar with how things work in other programming languages." --Arthur O'Dwyer, C++ trainer, Chair of CppCon's Back to Basics track, author of several accepted C++17/20/23 proposals and the book Mastering the C++17 STL "Forget about callback functions, bare pointers

and proprietary multithreading libraries-- C++20 is about standard concurrency features, generic lambda expressions, metaprogramming, tighter type-safety and the long-awaited concepts, which are all demonstrated in this book. Functional programming is explained clearly with plenty of illustrative code listings. The excellent chapter, 'Parallel Algorithms and Concurrency: A High-Level View,' is a highlight of this book." --Danny Kalev,

Ph.D. and Certified System Analyst and Software Engineer, Former ISO C++ Standards Committee Member Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details. Note: eBooks are 4-color and print books are black and white. *Exceptional C++* Addison-Wesley Professional Improve your existing C++ competencies quickly and efficiently

with this advanced volume Professional C++, 5th Edition raises the bar for advanced programming manuals. Complete with a comprehensive overview of the new capabilities of C++20, each feature of the newly updated programming language is explained in detail and with examples. Case studies that include extensive, working code round out the already impressive educational material found within. Without a doubt, the new 5th Edition of Professional

C++ is the leading resource for dedicated and knowledgeable professionals who desire to advance their skills and improve their abilities. This book contains resources to help readers: Maximize the capabilities of C++ with effective design solutions Master little-known elements of the language and learn what to avoid Adopt new workarounds and testing/debugging best practices Utilize real-world program segments in your own applications Notoriously complex and

unforgiving, C++ requires its practitioners to remain abreast of the latest developments and advancements.

Professional C++, 5th Edition ensures that its readers will do just that.

Effective C++ Digital Collection: 140 Ways to Improve Your

Programming Packt Publishing Ltd

Programming Language

Pragmatics, Fourth

Edition, is the most

comprehensive

programming language

textbook available today.

It is distinguished and

acclaimed for its integrated treatment of language design and implementation, with an emphasis on the fundamental tradeoffs that continue to drive software development.

The book provides readers with a solid foundation in the syntax, semantics, and pragmatics of the full range of programming languages, from traditional languages like C to the latest in functional, scripting, and object-oriented programming. This fourth

edition has been heavily revised throughout, with expanded coverage of type systems and functional programming, a unified treatment of polymorphism, highlights of the newest language standards, and examples featuring the ARM and x86 64-bit architectures. Updated coverage of the latest developments in programming language design, including C & C++11, Java 8, C# 5, Scala, Go, Swift, Python 3, and HTML 5 Updated treatment of functional programming, with

extensive coverage of OCaml New chapters devoted to type systems and composite types Unified and updated treatment of polymorphism in all its forms New examples featuring the ARM and x86 64-bit architectures *Professional C++* Cambridge University Press Become a better programmer with performance improvement techniques such as concurrency, lock-free programming, atomic operations, parallelism,

and memory management Key Features Learn proven techniques from a heavyweight and recognized expert in C++ and high-performance computing Understand the limitations of modern CPUs and their performance impact Find out how you can avoid writing inefficient code and get the best optimizations from the compiler Learn the tradeoffs and costs of writing high-performance programs Book Description The great free lunch of

"performance taking care of itself" is over. Until recently, programs got faster by themselves as CPUs were upgraded, but that doesn't happen anymore. The clock frequency of new processors has almost peaked, and while new architectures provide small improvements to existing programs, this only helps slightly. To write efficient software, you now have to know how to program by making good use of the available computing resources, and this book

will teach you how to do that. The Art of Efficient Programming covers all the major aspects of writing efficient programs, such as using CPU resources and memory efficiently, avoiding unnecessary computations, measuring performance, and how to put concurrency and multithreading to good use. You'll also learn about compiler optimizations and how to use the programming language (C++) more efficiently. Finally, you'll understand how design

decisions impact performance. By the end of this book, you'll not only have enough knowledge of processors and compilers to write efficient programs, but you'll also be able to understand which techniques to use and what to measure while improving performance. At its core, this book is about learning how to learn. What you will learnDiscover how to use the hardware computing resources in your programs effectivelyUnderstand the

relationship between memory order and memory barriersFamiliarize yourself with the performance implications of different data structures and organizationsAssess the performance impact of concurrent memory accessed and how to minimize itDiscover when to use and when not to use lock-free programming techniquesExplore different ways to improve the effectiveness of compiler

optimizationsDesign APIs for concurrent data structures and high-performance data structures to avoid inefficienciesWho this book is for This book is for experienced developers and programmers who work on performance-critical projects and want to learn new techniques to improve the performance of their code. Programmers in algorithmic trading, gaming, bioinformatics, computational genomics, or computational fluid dynamics communities

will get the most out of the examples in this book, but the techniques are fairly universal. Although this book uses the C++ language, the concepts demonstrated in the book can be easily transferred or applied to other compiled languages such as C, Java, Rust, Go, and more.

Professional C++ Pearson Discover the Beauty of Modern C++ " Beautiful C++ presents the C++ Core Guidelines from a developer's point of view with an emphasis on what benefits can be obtained

from following the rules and what nightmares can result from ignoring them. For true geeks, it is an easy and entertaining read. For most software developers, it offers something new and useful." --Bjarne Stroustrup, inventor of C++ and co-editor of the C++ Core Guidelines Writing great C++ code needn't be difficult. The C++ Core Guidelines can help every C++ developer design and write C++ programs that are exceptionally reliable, efficient, and well-

performing. But the Guidelines are so jam-packed with excellent advice that it's hard to know where to start. Start here, with Beautiful C++. Expert C++ programmers Guy Davidson and Kate Gregory identify 30 Core Guidelines you'll find especially valuable and offer detailed practical knowledge for improving your C++ style. For easy reference, this book is structured to align closely with the official C++ Core Guidelines website. Throughout, Davidson and Gregory offer useful

conceptual insights and expert sample code, illuminate proven ways to use both new and longstanding language features more successfully, and show how to write programs that are more robust and performant by default. Avoid "bikeshedding": stop wasting valuable time on trivia Don't hurt yourself by writing code that will cause problems later Know which legacy features to avoid and the modern features to use instead Use newer features properly, to get

their benefits without creating new problems Default to higher-quality code that's statically type-safe, leak resistant, and easier to evolve Use the Core Guidelines with any modern C++ version: C++20, C++17, C++14, or C++11 There's something here to improve virtually every program you write, design, or maintain. For ease of experimentation, all sample code is available on Compiler Explorer at <https://godbolt.org/z/cg30-ch0.0>. Register your book

for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

[Introduction to C++](#) Packt Publishing Ltd

Apply modern C++17 to the implementations of classic design patterns. As well as covering traditional design patterns, this book fleshes out new patterns and approaches that will be useful to C++ developers. The author presents concepts as a fun investigation of how problems can be solved in

different ways, along the way using varying degrees of technical sophistication and explaining different sorts of trade-offs. Design Patterns in Modern C++ also provides a technology demo for modern C++, showcasing how some of its latest features (e.g., coroutines) make difficult problems a lot easier to solve. The examples in this book are all suitable for putting into production, with only a few simplifications made in order to aid readability.

What You Will Learn Apply

design patterns to modern C++ programming Use creational patterns of builder, factories, prototype and singleton Implement structural patterns such as adapter, bridge, decorator, facade and more Work with the behavioral patterns such as chain of responsibility, command, iterator, mediator and more Apply functional design patterns such as Monad and more

Who This Book Is For Those with at least some prior programming experience, especially in

C++.
Pearson Education
Explore techniques to design and implement low latency applications and study the impact of latency reduction
Purchase of the print or Kindle book includes a free PDF eBook
Key Features
Understand the impact application performance latencies have on different business use cases
Develop a deep understanding of C++ features for low latency applications through real-world examples and performance data
Learn

how to build all the components of a C++ electronic trading system from scratch
Book Description
C++ is meticulously designed with efficiency, performance, and flexibility as its core objectives. However, real-time low latency applications demand a distinct set of requirements, particularly in terms of performance latencies. With this book, you'll gain insights into the performance requirements for low latency applications and

the C++ features critical to achieving the required performance latencies. You'll also solidify your understanding of the C++ principles and techniques as you build a low latency system in C++ from scratch. You'll understand the similarities between such applications, recognize the impact of performance latencies on business, and grasp the reasons behind the extensive efforts invested in minimizing latencies. Using a step-by-step approach, you'll embark on a low latency app

development journey by building an entire electronic trading system, encompassing a matching engine, market data handlers, order gateways, and trading algorithms, all in C++. Additionally, you'll get to grips with measuring and optimizing the performance of your trading system. By the end of this book, you'll have a comprehensive understanding of how to design and build low latency applications in C++ from the ground up, while effectively minimizing performance

latencies. What you will learn Gain insights into the nature of low latency applications across various industries Understand how to design and implement low latency applications Explore C++ design paradigms and features for low latency development Discover which C++ features are best avoided in low latency development Implement best practices and C++ features for low latency Measure performance and improve latencies in the trading

system Who this book is for This book is for C++ developers who want to gain expertise in low latency applications and effective design and development strategies. C++ software engineers looking to apply their knowledge to low latency trading systems such as HFT will find this book useful to understand which C++ features matter and which ones to avoid. Quantitative researchers in the trading industry eager to delve into the intricacies of low latency implementation

will also benefit from this book. Familiarity with Linux and the C++ programming language is a prerequisite for this book.

Programming Language

Pragmatics Fertig

Publications

Writing reliable and maintainable C++ software is hard.

Designing such software at scale adds a new set of challenges. Creating large-scale systems requires a practical understanding of logical design - beyond the theoretical concepts

addressed in most popular texts. To be successful on an enterprise scale, developers must also address physical design, a dimension of software engineering that may be unfamiliar even to expert developers. Drawing on over 30 years of hands-on experience building massive, mission-critical enterprise systems, John Lakos shows how to create and grow Software Capital. This groundbreaking volume lays the foundation for projects of all sizes and

demonstrates the processes, methods, techniques, and tools needed for successful real-world, large-scale development. Up to date and with a solid engineering focus, Large-Scale C++, Volume I: Process and Architecture, demonstrates fundamental design concepts with concrete examples. Professional developers of all experience levels will gain insights that transform their approach to design and development by understanding how to

Raise productivity by leveraging differences between infrastructure and application development Achieve exponential productivity gains through feedback and hierarchical reuse Embrace the component's role as the fundamental unit of both logical and physical design Analyze how fundamental properties of compiling and linking affect component design Discover effective partitioning of logical content in appropriately sized physical aggregates

Internalize the important differences among sufficient, complete, minimal, and primitive software Deliver solutions that simultaneously optimize encapsulation, stability, and performance Exploit the nine established levelization techniques to avoid cyclic physical dependencies Use lateral designs judiciously to avoid the "heaviness" of conventional layered architectures Employ appropriate architectural insulation techniques for eliminating compile-time

coupling Master the multidimensional process of designing large systems using component-based methods This is the first of John Lakos's three authoritative volumes on developing large-scale systems using C++. This book, written for fellow software practitioners, uses familiar C++ constructs to solve real-world problems while identifying (and motivating) modern C++ alternatives. Together with the forthcoming Volume II: Design and

Implementation and Volume III: Verification and Testing, Large-Scale C++ offers comprehensive guidance for all aspects of large-scale C++ software development. If you are an architect or project leader, this book will empower you to solve critically important problems right now – and serve as your go-to reference for years to come. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See

inside book for details. *C++ Gems BoD - Books on Demand* A comprehensive guide with extensive coverage of concepts such as OOP, functional programming, generic programming, concurrency, and STL along with the latest features of C++ Purchase of the print or Kindle book includes a free PDF eBook Key Features Delve into the core patterns and components of C++ to master application design Learn tricks, techniques, and best practices to solve common design and

architectural challenges Understand the limitation imposed by C++ and how to solve them using design patterns Book Description C++ is a general-purpose programming language designed for efficiency, performance, and flexibility. Design patterns are commonly accepted solutions to well-recognized design problems. In essence, they are a library of reusable components, only for software architecture, and not for a concrete implementation.

This book helps you focus on the design patterns that naturally adapt to your needs, and on the patterns that uniquely benefit from the features of C++. Armed with the knowledge of these patterns, you'll spend less time searching for solutions to common problems and tackle challenges with the solutions developed from experience. You'll also explore that design patterns are a concise and efficient way to communicate, as patterns are a familiar and

recognizable solution to a specific problem and can convey a considerable amount of information with a single line of code. By the end of this book, you'll have a deep understanding of how to use design patterns to write maintainable, robust, and reusable software. What you will learn Recognize the most common design patterns used in C++ Understand how to use C++ generic programming to solve common design problems Explore the most powerful C++ idioms, their

strengths, and their drawbacks Rediscover how to use popular C++ idioms with generic programming Discover new patterns and idioms made possible by language features of C++17 and C++20 Understand the impact of design patterns on the program's performance Who this book is for This book is for experienced C++ developers and programmers who wish to learn about software design patterns and principles and apply them to create robust, reusable,

and easily maintainable programs and software systems.

Optimized C++ Addison-Wesley Professional Summary Functional Programming in C++ teaches developers the practical side of functional programming and the tools that C++ provides to develop software in the functional style. This in-depth guide is full of useful diagrams that help you understand FP concepts and begin to think functionally. Purchase of the print book includes a free eBook in

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