Async In C

Concurrent Programming on Windows

“When you begin using multi-threading throughout an application, the importance of clean architecture and design is critical. . . . This places an emphasis on understanding not only the platform’s capabilities but also emerging best practices. Joe does a great job interspersing best practices alongside theory throughout his book.” – From the Foreword by Craig Mundie, Chief Research and Strategy Officer, Microsoft Corporation Author Joe Duffy has risen to the challenge of explaining how to write software that takes full advantage of concurrency and hardware parallelism. In Concurrent Programming on Windows, he explains how to design, implement, and maintain large-scale concurrent programs, primarily using C# and C++ for Windows. Duffy aims to give application, system, and library developers the tools and techniques needed to write efficient, safe code for multicore processors. This is important not only for the kinds of problems where concurrency is inherent and easily exploitable—such as server applications, compute-intensive image manipulation, financial analysis, simulations, and AI algorithms—but also for problems that can be speeded up using parallelism but require more effort—such as math libraries, sort routines, report generation, XML manipulation, and stream processing algorithms. Concurrent Programming on Windows has four major sections: The first introduces concurrency at a high level, followed by a section that focuses on the fundamental platform features, inner workings, and API details. Next, there is a section that describes common patterns, best practices, algorithms, and data structures that emerge while writing concurrent software. The final section covers many of the common system-wide architectural and process concerns of concurrent programming. This is the only book you’ll need in order to learn the best practices and common patterns for programming with concurrency on Windows and .NET.

Asynchronous Programming with C++

Design and develop high-performance software solutions by using concurrent and asynchronous techniques provided by the most modern features in C++20 and C++23 Key Features Learn how to use modern C++ features, including futures, promises, async, and coroutines to build asynchronous solutions Develop cross-platform network and low-level I/O projects with Boost.Asio Master optimization techniques by understanding how software adapts to machine hardware Purchase of the print or Kindle book includes a free PDF eBook Book Description As hardware advancements continue to accelerate, bringing greater memory capacity and more CPU cores, software must evolve to adapt to efficiently use all available resources and reduce idle CPU cycles. In this book, two seasoned software engineers with about five decades of combined experience will teach you how to implement concurrent and asynchronous solutions in C++.You'll gain a comprehensive understanding of parallel programming paradigms--covering concurrent, asynchronous, parallel, multithreading, reactive, and event-driven programming, as well as dataflows--and see how threads, processes, and services are related. Moving into the heart of concurrency, the authors will guide you in creating and managing threads and exploring C++'s thread-safety mechanisms, including mutual exclusion, atomic operations, semaphores, condition variables, latches, and barriers. With this solid foundation, you'll focus on pure asynchronous programming, discovering futures, promises, the async function, and coroutines. The book takes you step by step through using Boost.Asio and Boost.Cobalt to develop network and low-level I/O solutions, proven performance and optimization techniques, and testing and debugging asynchronous software.By the end of this C++ book, you'll be able to implement high-performance software using modern asynchronous C++ techniques. What you will learn Explore the different parallel paradigms and know when to apply them Acquire deep knowledge of thread management and safety mechanisms Understand asynchronous programming in C++, including coroutines Leverage network asynchronous programming by using Boost.Asio and Boost.Cobalt Add proven performance and optimization techniques to your toolbox Find out how to test and debug asynchronous software Who this book is for This book is for developers who have some experience using C++, regardless of their professional field. If you want to improve your C++ skills and learn how to develop high-performance software using the latest modern C++ features, this book is for you.

Pro Asynchronous Programming with .NET

Pro Asynchronous Programming with .NET teaches the essential skill of asynchronous programming in .NET. It answers critical questions in .NET application development, such as: how do I keep my program responding at all times to keep my users happy? how do I make the most of the available hardware? how can I improve performance? In the modern world, users expect more and more from their applications and devices, and multi-core hardware has the potential to provide it. But it takes carefully crafted code to turn that potential into responsive, scalable applications. With Pro Asynchronous Programming with .NET you will: Meet the underlying model for asynchrony on Windows—threads. Learn how to perform long blocking operations away from your UI thread to keep your UI responsive, then weave the results back in as seamlessly as possible. Master the async/await model of asynchrony in .NET, which makes asynchronous programming simpler and more achievable than ever before. Solve common problems in parallel programming with modern async techniques. Get under the hood of your asynchronous code with debugging techniques and insights from Visual Studio and beyond. In the past asynchronous programming was seen as an advanced skill. It’s now a must for all modern developers. Pro Asynchronous Programming with .NET is your practical guide to using this important programming skill anywhere on the .NET platform.

C++ High Performance

A comprehensive guide to help aspiring and professional C++ developers elevate the performance of their apps by allowing them to run faster and consume fewer resources. Purchase of the print or Kindle book includes a free eBook in PDF format. Key Features Updated to C++20 with completely revised code and more content on error handling, benchmarking, memory allocators, and concurrent programming Explore the latest C++20 features including concepts, ranges, and coroutines Utilize C++ constructs and techniques to carry out effective data structure optimization and memory management Book Description C++ High Performance, Second Edition guides you through optimizing the performance of your C++ apps. This allows them to run faster and consume fewer resources on the device they're running on without compromising the readability of your codebase. The book begins by introducing the C++ language and some of its modern concepts in brief. Once you are familiar with the fundamentals, you will be ready to measure, identify, and eradicate bottlenecks in your C++ codebase. By following this process, you will gradually improve your style of writing code. The book then explores data structure optimization, memory management, and how it can be used efficiently concerning CPU caches. After laying the foundation, the book trains you to leverage algorithms, ranges, and containers from the standard library to achieve faster execution, write readable code, and use customized iterators. It provides hands-on examples of C++ metaprogramming, coroutines, reflection to reduce boilerplate code, proxy objects to perform optimizations under the hood, concurrent programming, and lock-free data structures. The book concludes with an overview of parallel algorithms. By the end of this book, you will have the ability to use every tool as needed to boost the efficiency of your C++ projects. What you will learn Write specialized data structures for performance-critical code Use modern metaprogramming techniques to reduce runtime calculations Achieve efficient memory management using custom memory allocators Reduce boilerplate code using reflection techniques Reap the benefits of lock-free concurrent programming Gain insights into subtle optimizations used by standard library algorithms Compose algorithms using ranges library Develop the ability to apply metaprogramming aspects such as constexpr, constraints, and concepts Implement lazy generators and asynchronous tasks using C++20 coroutines Who this book is for If you're a C++ developer looking to improve the efficiency of your code or just keen to upgrade your skills to the next level, this book is for you.

Windows System Programming

This is a comprehensive account of the semantics and the implementation of the whole Lisp family of languages, namely Lisp, Scheme and related dialects. It describes 11 interpreters and 2 compilers, including very recent techniques of interpretation and compilation. The book is in two parts. The first starts from a simple evaluation function and enriches it with multiple name spaces, continuations and side-effects with commented variants, while at the same time the language used to define these features is reduced to a simple lambda-calculus. Denotational semantics is then naturally introduced. The second part focuses more on implementation techniques and discusses precompilation for fast interpretation: threaded code or bytecode; compilation towards C. Some extensions are also described such as dynamic evaluation, reflection, macros and objects. This will become the new standard reference for people wanting to know more about the Lisp family of languages: how they work, how they are implemented, what their variants are and why such variants exist. The full code is supplied (and also available over the Net). A large bibliography is given as well as a considerable number of exercises. Thus it may also be used by students to accompany second courses on Lisp or Scheme.

Lisp in Small Pieces

C# Smorgasbord covers a vast variety of different technologies, patterns and best practices that any C# developer should master. Looking at everything from testing strategies to compilation as a service and how to do really advance things in runtime; you get a great sense of what you as a developer can do. By taking his personal views and his personal experience, Filip digs into each subject with a personal touch and by having real world problems at hand; we can look at how these problems could be tackled. No matter if you are an experienced .NET developer, or a beginner, you will most certainly find a lot of interesting things in this book. The book covers important patterns and technologies that any developer would benefit from mastering. Explore your possibilities Improve your skills Be Inspired to challenge yourself Is there a digital version(ebook)? Yes there is! Everyone that purchases the printed copy will get the ebook for free. Instructions for how to receive the ebook is inside the printed book. Table of Contents Introduction to Parallel Extensions Productivity and Quality with Unit Testing Is upgrading your code a productive step? Creating a challenge out of the trivial tasks Asynchronous programming with async and await Dynamic programming Increase readability with anonymous types and methods Exploring Reflection Creating things at runtime Introducing Roslyn Adapting to Inversion of Control Are you Mocking me? Who this book is for This book is for those developers that find themselves wanting to explore C# but do not know how or where to start looking. Each chapter contains hands on code examples that can be compiled and tested on your machine. Although each chapter has code samples, you do not need to use a computer to appreciate the content of this book. The code samples are divided into smaller portions of code, so that you can follow each example and the thoughts around it in an easy way. No matter if you are an experienced .NET developer or a beginner, you will most certainly find a lot of interesting things in this book. The book covers important patterns and technologies that any developer would benefit from mastering. It is not required that you have worked with C# before but being familiar to the fundamentals in any of the .NET programming languages will help you on the way. If you are just now starting to learn C#, this can be a great way for you to learn about different techniques, best practices, patterns and how to think in certain scenarios. But if you have worked with C# development for many years, this book can give you a refreshing view on how to always improve and challenge yourself into becoming a better software engineer.

C# Smorgasbord

If you’re among the Python developers put off by asyncio’s complexity, it’s time to take another look. Asyncio is complicated because it aims to solve problems in concurrent network programming for both framework and end-user developers. The features you need to consider are a small subset of the whole asyncio API, but picking out the right features is the tricky part. That’s where this practical book comes in. Veteran Python developer Caleb Hattingh helps you gain a basic understanding of asyncio’s building blocks—enough to get started writing simple event-based programs. You’ll learn why asyncio offers a safer alternative to preemptive multitasking (threading) and how this API provides a simpleway to support thousands of simultaneous socket connections. Get a critical comparison of asyncio and threading for concurrent network programming Take an asyncio walk-through, including a quickstart guidefor hitting the ground looping with event-based programming Learn the difference between asyncio features for end-user developers and those for framework developers Understand asyncio's new async/await language syntax, including coroutines and task and future APIs Get detailed case studies (with code) of some popular asyncio-compatible third-party libraries

Using Asyncio in Python

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

Programming Language Pragmatics

A comprehensive guide to navigating the ever-evolving world of C# programming awaits seasoned developers and newcomers alike in \"Understanding C#12 Coding Standards, Best Practices, and Standards in the Industry.\" This book is more than just a technical manual; it's a roadmap to excellence, ensuring that your code works flawlessly as well as stands the test of time. The journey begins with an insightful introduction, exploring the significance of coding standards, best practices, and the dynamic landscape of the C# language and industry standards. In addition to selecting the right IDE, configuring tools, and integrating version control systems, readers are also guided through the process of setting up the development environment. A foundational chapter covers everything from naming conventions and formatting guidelines to best practices for coding organization and documentation. Then readers move on to advanced techniques and patterns, including object-oriented design principles, error handling, asynchronous programming, and unit testing. Besides technical proficiency, the book also discusses how to integrate with industry standards, ensure compliance with regulations like GDPR and HIPAA, and embrace accessibility guidelines. We examine tools and automation in detail, including code analysis, continuous integration/continuous delivery pipelines, code reviews, and automated testing frameworks. A focus is placed on collaborative development practices, such as version control, code review, pair programming, and agile development. Case studies and examples provide valuable insights into both exemplary and problematic coding practices while refactoring exercises and performance optimization case studies provide hands-on learning opportunities. With an eye toward the future, the book examines emerging technologies in the C# ecosystem, possible changes in coding standards, and strategies for adapting to emerging trends. Finally, a comprehensive conclusion recaps key takeaways and offers resources for further learning, ensuring that readers leave with the knowledge and tools to achieve unparalleled code quality. \"Understanding C#12 Coding Standards, Best Practices, and Standards in the Industry\" is the essential guide to crafting code that's not just functional, but exceptional, whether you're a beginner or a seasoned pro. Take this course, and improve your coding skills.

Understanding C#12 Coding Standards, Best Practices, and Standards in the Industry: DEVELOPING ROBUST AND MAINTAINABLE CODE IN TODAY'S

DEVELOPMENT ENVIRONMENT

Expand your C++ knowledge quickly and efficiently with this advanced resource In the newly revised sixth edition of Professional C++, veteran software engineer and developer Marc Gregoire delivers yet another volume that raises the bar for advanced programming manuals. Covering almost all features of the new C++ standard codenamed C++23, the book offers case studies with working code that's been tested on Windows and Linux. As the leading resource for dedicated and knowledgeable professionals seeking to advance their C++ skills, this book provides resources that help readers: Master new features of the latest standard, C++23 Maximize C++ capabilities with effective design solutions Discover little-known elements and learn about pitfalls and what practices to avoid Grasp testing and debugging best practices Learn about tips and tricks for efficiency and performance C++ is a complex language. Professional C++, 6th Edition, allows dedicated practitioners to remain current and abreast of the latest developments and advances.

Professional C++

Learn Modern Swift Concurrency! For years, writing powerful and safe concurrent apps with Swift could easily turn into a daunting task, full of race conditions and unexplained crashes hidden in a massive nesting of callback closures. In Swift 5.5, Apple introduced a new concurrency model featuring the async/await syntax, which lets you write asynchronous code that reads like synchronous code. But like any new feature, here be dragons! So how will you achieve the much-desired mastery of modern Swift concurrency? Modern Concurrency in Swift comes to the rescue, showcasing what you need to know about async/await, tasks, actors and everything in between! Who This Book Is For This book is for intermediate Swift developers who are familiar with writing asynchronous applications and who want to leverage the concurrency features Apple introduced in Swift 5.5 and its evolution throughout the years, to write safer and more predictable asynchronous apps. Topics Covered in Modern Concurrency in Swift Using async/await: Learn how to use the new async/await keywords to define and run asynchronous work. Actors: Find out how to use the actor model to easily protect shared mutable state in a synchronized container. Tasks: You'll dive deeper into the Task type, which powers all asynchronous tasks in Swift's modern concurrency model. Task Groups: Use a Task Group to group multiple tasks together and run them concurrently, while using a familiar Array-like syntax to iterate over the results. Custom Asynchronous Sequences: Leverage the power of async/await in your own asynchronous work, by learning how to create custom AsyncStreams. Testing Asynchronous Code: Asynchronous code can be a challenging beast to test. You'll learn everything you need to tackle this challenge. One thing you can count on: After reading this book, you'll be prepared to leverage Swift's new concurrency features in your app to write safe, performant and predictable asynchronous code.

Modern Concurrency in Swift (Second Edition)

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.

C++20 for Programmers

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

Effective Modern C++

Inthe?eldofformalmethodsincomputerscience,concurrencytheoryisreceivinga constantlyincreasinginterest.Thisisespeciallytrueforprocessalgebra.Althoughit had been originally conceived as a means for reasoning about the semantics of c- current programs, process algebraic formalisms like CCS, CSP, ACP, ?-calculus, and their extensions (see, e.g., [154,119,112,22,155,181,30]) were soon used also for comprehendingfunctionaland nonfunctionalaspects of the behaviorof com- nicating concurrent systems. The scienti?c impact of process calculi and behavioral equivalences at the base of process algebra is witnessed not only by a very rich literature. It is in fact worth mentioningthe standardizationprocedurethat led to the developmentof the process algebraic language LOTOS [49], as well as the implementation of several modeling and analysis tools based on process algebra, like CWB [70] and CADP [93], some of which have been used in industrial case studies. Furthermore, process calculi and behavioral equivalencesare by now adopted in university-levelcourses to teach the foundations of concurrent programming as well as the model-driven design of concurrent, distributed, and mobile systems. Nevertheless, after 30 years since its introduction, process algebra is rarely adopted in the practice of software development. On the one hand, its technica- ties often obfuscate the way in which systems are modeled. As an example, if a process term comprises numerous occurrences of the parallel composition operator, it is hard to understand the communicationscheme among the varioussubterms. On the other hand, process algebra is perceived as being dif?cult to learn and use by practitioners, as it is not close enough to the way they think of software systems.

A Process Algebraic Approach to Software Architecture Design

Acquire necessary skills in preparing for Microsoft certification and enhance your software development career by learning the concepts of C# programming Key FeaturesPrepare for the certification using step-by-step examples, and mock tests with standard solutionsUnderstand the concepts of data security for secure programming with C#Learn to scale and optimize your application codebase using best practices and patternsBook Description Programming in C# is a certification from Microsoft that measures the ability of developers to use the power of C# in decision making and creating business logic. This book is a certification guide that equips you with the skills that you need to crack this exam and promote your problem-solving acumen with C#. The book has been designed as preparation material for the Microsoft specialization exam in C#. It contains examples spanning the main focus areas of the certification exam, such as debugging and securing applications, and managing an application's code base, among others. This book will be full of scenarios that demand decision-making skills and require a thorough knowledge of C# concepts. You will learn how to develop business logic for your application types in C#. This book is exam-oriented, considering all the patterns for Microsoft certifications and practical solutions to challenges from Microsoft-certified authors. By the time you've finished this book, you will have had sufficient practice solving real-world application development problems with C# and will be able to carry your newly-learned skills to crack the Microsoft certification exam to level up your career. What you will learnExplore multi-threading and asynchronous programming in C#Create event handlers for effective exception handlingUse LINQ queries for data serialization and deserializationManage filesystems and understand I/O operationsTest, troubleshoot, and debug your C# programsUnderstand the objectives of Exam 70-483 and apply common solutionsWho this book is for The book is intended to the aspirants of Microsoft certifications and C# developers wanting to become a Microsoft specialist. The book does not require the knowledge of C#, basic knowledge of software development concepts will be beneficial

Programming in C#: Exam 70-483 (MCSD) Guide

Learn functional programming and build robust applications using the latest functional features in C++ Key FeaturesLearn programming concepts such as loops, expressive code, and simple parallelizationUnderstand the working of Lambdas and Currying and write Pure functionsExplore event sourcing and other functional patterns to improve the efficiency of your applicationsBook Description Functional programming enables you to divide your software into smaller, reusable components that are easy to write, debug, and maintain. Combined with the power of C++, you can develop scalable and functional applications for modern software requirements. This book will help you discover the functional features in C++ 17 and C++ 20 to build enterprise-level applications. Starting with the fundamental building blocks of functional programming and how to use them in C++, you’ll explore functions, currying, and lambdas. As you advance, you’ll learn how to improve cohesion and delve into test-driven development, which will enable you in designing better software. In addition to this, the book covers architectural patterns such as event sourcing to help you get to grips with the importance of immutability for data storage. You’ll even understand how to “think in functions” and implement design patterns in a functional way. By the end of this book, you’ll be able to write faster and cleaner production code in C++ with the help of functional programming. What you will learnUnderstand the fundamentals of functional programmingStructure your code by understanding the building blocks of functional programmingCompare design styles in functional programming and object-oriented programming (OOP)Use the concept of currying to create new functions in C++Become skilled at implementing design patterns in a functional wayGet to grips with multithreading by means of functional programmingLearn how to improve memory consumption when using functional constructsWho this book is for This book is for C++ developers who want to learn functional programming but have little to no knowledge of the paradigm. Although no prior knowledge of functional programming is necessary, basic C++ programming experience will help you understand key concepts covered in the book.

Hands-On Functional Programming with C++

Break into the powerful world of parallel GPU programming with this down-to-earth, practical guide Designed for professionals across multiple industrial sectors, Professional CUDA C Programming presents CUDA -- a parallel computing platform and programming model designed to ease the development of GPU programming -- fundamentals in an easy-to-follow format, and teaches readers how to think in parallel and implement parallel algorithms on GPUs. Each chapter covers a specific topic, and includes workable examples that demonstrate the development process, allowing readers to explore both the \"hard\" and \"soft\" aspects of GPU programming. Computing architectures are experiencing a fundamental shift toward scalable parallel computing motivated by application requirements in industry and science. This book demonstrates the challenges of efficiently utilizing compute resources at peak performance, presents modern techniques for tackling these challenges, while increasing accessibility for professionals who are not necessarily parallel programming experts. The CUDA programming model and tools empower developers to write high-performance applications on a scalable, parallel computing platform: the GPU. However, CUDA itself can be difficult to learn without extensive programming experience. Recognized CUDA authorities John Cheng, Max Grossman, and Ty McKercher guide readers through essential GPU programming skills and best practices in Professional CUDA C Programming, including: CUDA Programming Model GPU Execution Model GPU Memory model Streams, Event and Concurrency Multi-GPU Programming CUDA Domain-Specific Libraries Profiling and Performance Tuning The book makes complex CUDA concepts easy to understand for anyone with knowledge of basic software development with exercises designed to be both readable and high-performance. For the professional seeking entrance to parallel computing and the high-performance computing community, Professional CUDA C Programming is an invaluable resource, with the most current information available on the market.

Professional CUDA C Programming

This title is one of the \"Essentials\" IT Books published by TechNet Publications Limited. This Book is a very helpful practical guide for beginners in the topic , which can be used as a learning material for students pursuing their studies in undergraduate and graduate levels in universities and colleges and those who want to learn the topic via a short and complete resource. We hope you find this book useful in shaping your future career. This book will be available soon...

Getting Started with C Sharp

This textbook focuses on practical parallel C++ programming at the graduate student level. In particular, it shows the APIs and related language features in the C++ 17 and C++ 20 standards, covering both single node and distributed systems. It shows that with the parallel features in the C++ 17 and C++ 20 standards, learning meta-languages like OpenMP is no longer necessary. Using the C++ standard library for parallelism and concurrency (HPX), the same language features can be extended to distributed codes, providing a higher-level C++ interface to distributed programming than the Message Passing Interface (MPI). The book starts with the single-threaded implementation of the fractal sets, e.g. Julia set, and Mandelbrot set, using the C++ Standard Library (SL)’s container and algorithms. This code base is used for parallel implementation using low-level threads, asynchronous programming, parallel algorithms, and coroutines. The asynchronous programming examples are then extended to distributed programming using the C++ standard library for parallelism and concurrency (HPX). Octo-Tiger, an astrophysics code for stellar merger, is used as a showcase for a portable, efficient, and scalable high-performance application using HPX. The book’s core audience is advanced undergraduate and graduate students who want to learn the basics of parallel and distributed C++ programming but are not computer science majors. Basic C++ knowledge, like functions, classes, loops, and conditional statements, is assumed as a requirement, while C++ advanced topics, like generic programming, lambda functions, smart pointers, and move semantics, are briefly summarized in the appendix.

Parallel C++

This book breaks down the C++ STL, teaching you how to extract its gems and apply them to your programming. About This Book Boost your productivity as a C++ developer with the latest features of C++17 Develop high-quality, fast, and portable applications with the varied features of the STL Migrate from older versions (C++11, C++14) to C++17 Who This Book Is For This book is for developers who would like to master the C++ STL and make full use of its components. Prior C++ knowledge is assumed. What You Will Learn Make your own iterator types, allocators, and thread pools. Master every standard container and every standard algorithm. Improve your code by replacing new/delete with smart pointers. Understand the difference between monomorphic algorithms, polymorphic algorithms, and generic algorithms. Learn the meaning and applications of vocabulary type, product type and sum type. In Detail Modern C++ has come a long way since 2011. The latest update, C++17, has just been ratified and several implementations are on the way. This book is your guide to the C++ standard library, including the very latest C++17 features. The book starts by exploring the C++ Standard Template Library in depth. You will learn the key differences between classical polymorphism and generic programming, the foundation of the STL. You will also learn how to use the various algorithms and containers in the STL to suit your programming needs. The next module delves into the tools of modern C++. Here you will learn about algebraic types such as std::optional, vocabulary types such as std::function, smart pointers, and synchronization primitives such as std::atomic and std::mutex. In the final module, you will learn about C++'s support for regular expressions and file I/O. By the end of the book you will be proficient in using the C++17 standard library to implement real programs, and you'll have gained a solid understanding of the library's own internals. Style and approach This book takes a concise but comprehensive approach to explaining and applying the C++ STL, one feature at a time.

Mastering the C++17 STL

Unlock the full potential of your C++ programming skills with \"Mastering Concurrency and Multithreading in C++: Unlock the Secrets of Expert-Level Skills.\" This indispensable guide delves deep into the world of concurrency, offering seasoned developers advanced techniques to handle complex computing tasks. With a focus on modern C++ standards, you'll explore the intricacies of memory management, synchronization, and performance optimization, all crafted to elevate your proficiency in crafting efficient multithreaded applications. Each chapter provides a comprehensive exploration of essential topics such as thread lifecycle management, parallel algorithms, debugging techniques, and the utilization of the C++ Standard Library for concurrency. Through detailed explanations and practical examples, you'll gain a profound understanding of advanced thread management and sophisticated parallel patterns, ensuring your applications are prepared to meet the demands of modern computing environments. Embark on a journey through real-world applications and insightful case studies, where theory transitions seamlessly into practice. Whether you're designing high-performance web servers or optimizing financial systems, this book imparts invaluable strategies and lessons learned from industry successes. Elevate your C++ expertise to unmatched heights with insights from leading software professionals, and confidently tackle the challenges of concurrency in today's dynamic technological landscape.

Mastering Concurrency and Multithreading in C++: Unlock the Secrets of Expert-Level Skills

This book constitutes the thoroughly refereed proceedings of the 19th International Symposium on Static Analysis, SAS 2012, held in Deauville, France, in September 2012. The 25 revised full papers presented together with 4 invited talks were selected from 62 submissions. The papers address all aspects of static analysis, including abstract domains, abstract interpretation, abstract testing, bug detection, data flow analysis, model checking, new applications, program transformation, program verification, security analysis, theoretical frameworks, and type checking.

Static Analysis

This quick reference is a condensed guide to the essential data structures, algorithms, and functions provided by the C++17 Standard Library. It does not explain the C++ language or syntax, but is accessible to anyone with basic C++ knowledge or programming experience. Even the most experienced C++ programmer will learn a thing or two from it and find it a useful memory-aid. It is hard to remember all the possibilities, details, and intricacies of the vast and growing Standard Library. This handy reference guide is therefore indispensable to any C++ programmer. It offers a condensed, well-structured summary of all essential aspects of the C++ Standard Library. No page-long, repetitive examples or obscure, rarely used features. Instead, everything you need to know and watch out for in practice is outlined in a compact, to-the-point style, interspersed with practical tips and well-chosen, clarifying examples. This new edition is updated to include all Standard Library changes in C++17, including the new vocabulary types std::string_view, any, optional, and variant; parallel algorithms; the file system library; specialized mathematical functions; and more. What You Will Learn Gain the essentials that the C++ Standard Library has to offer Use containers to efficiently store and retrieve your data Inspect and manipulate your data with algorithms See how lambda expressions allow for elegant use of algorithms Discover what the standard string class provides and how to use it Write localized applications Work with file and stream-based I/O Prevent memory leaks with smart pointers Write safe and efficient multi-threaded code using the threading libraries Who This Book Is For All C++ programmers, irrespective of their proficiency with the language or the Standard Library. A secondary audience is developers who are new to C++, but not new to programming, and who want to learn more about the C++ Standard Library in a quick, condensed manner.

C++17 Standard Library Quick Reference

No matter how much experience you have with JavaScript, odds are you don’t fully understand the language. As part of the \"You Don’t Know JS\" series, this concise yet in-depth guide focuses on new asynchronous features and performance techniques—including Promises, generators, and Web Workers—that let you create sophisticated single-page web applications and escape callback hell in the process. Like other books in this series, You Don’t Know JS: Async & Performance dives into trickier parts of the language that many JavaScript programmers simply avoid. Armed with this knowledge, you can become a true JavaScript master. With this book you will: Explore old and new JavaScript methods for handling asynchronous programming Understand how callbacks let third parties control your program’s execution Address the \"inversion of control\" issue with JavaScript Promises Use generators to express async flow in a sequential, synchronous-looking fashion Tackle program-level performance with Web Workers, SIMD, and asm.js Learn valuable resources and techniques for benchmarking and tuning your expressions and statements

You Don't Know JS: Async & Performance

Learn how to write scalable and concurrent programs in Scala, a language that grows with you. Key Features Get a grip on the functional features of the Scala programming language Understand and develop optimal applications using object-oriented and functional Scala constructs Learn reactive principles with Scala and work with the Akka framework Book Description Scala is a general-purpose programming language that supports both functional and object-oriented programming paradigms. Due to its concise design and versatility, Scala's applications have been extended to a wide variety of fields such as data science and cluster computing. You will learn to write highly scalable, concurrent, and testable programs to meet everyday software requirements. We will begin by understanding the language basics, syntax, core data types, literals, variables, and more. From here you will be introduced to data structures with Scala and you will learn to work with higher-order functions. Scala's powerful collections framework will help you get the best out of immutable data structures and utilize them effectively. You will then be introduced to concepts such as pattern matching, case classes, and functional programming features. From here, you will learn to work with Scala's object-oriented features. Going forward, you will learn about asynchronous and reactive programming with Scala, where you will be introduced to the Akka framework. Finally, you will learn the interoperability of Scala and Java. After reading this book, you'll be well versed with this language and its features, and you will be able to write scalable, concurrent, and reactive programs in Scala. What you will learn Get to know the reasons for choosing Scala: its use and the advantages it provides over other languages Bring together functional and object-oriented programming constructs to make a manageable application Master basic to advanced Scala constructs Test your applications using advanced testing methodologies such as TDD Select preferred language constructs from the wide variety of constructs provided by Scala Make the transition from the object-oriented paradigm to the functional programming paradigm Write clean, concise, and powerful code with a functional mindset Create concurrent, scalable, and reactive applications utilizing the advantages of Scala Who this book is for This book is for programmers who choose to get a grip over Scala to write concurrent, scalable, and reactive programs. No prior experience with any programming language is required to learn the concepts explained in this book. Knowledge of any programming language would help the reader understanding concepts faster though.

Learning Scala Programming

To thoroughly understand what makes Linux tick and why it's so efficient, you need to delve deep into the heart of the operating system--into the Linux kernel itself. The kernel is Linux--in the case of the Linux operating system, it's the only bit of software to which the term \"Linux\" applies. The kernel handles all the requests or completed I/O operations and determines which programs will share its processing time, and in what order. Responsible for the sophisticated memory management of the whole system, the Linux kernel is the force behind the legendary Linux efficiency. The new edition of Understanding the Linux Kernel takes you on a guided tour through the most significant data structures, many algorithms, and programming tricks used in the kernel. Probing beyond the superficial features, the authors offer valuable insights to people who want to know how things really work inside their machine. Relevant segments of code are dissected and discussed line by line. The book covers more than just the functioning of the code, it explains the theoretical underpinnings for why Linux does things the way it does. The new edition of the book has been updated to cover version 2.4 of the kernel, which is quite different from version 2.2: the virtual memory system is entirely new, support for multiprocessor systems is improved, and whole new classes of hardware devices have been added. The authors explore each new feature in detail. Other topics in the book include: Memory management including file buffering, process swapping, and Direct memory Access (DMA) The Virtual Filesystem and the Second Extended Filesystem Process creation and scheduling Signals, interrupts, and the essential interfaces to device drivers Timing Synchronization in the kernel Interprocess Communication (IPC) Program execution Understanding the Linux Kernel, Second Edition will acquaint you with all the inner workings of Linux, but is more than just an academic exercise. You'll learn what conditions bring out Linux's best performance, and you'll see how it meets the challenge of providing good system response during process scheduling, file access, and memory management in a wide variety of environments. If knowledge is power, then this book will help you make the most of your Linux system.

Understanding the Linux Kernel

Become an expert at C++ by learning all the key C++ concepts and working through interesting exercises Key FeaturesExplore C++ concepts through descriptive graphics and interactive exercisesLearn how to keep your development bug-free with testing and debuggingDiscover various techniques to optimize your codeBook Description C++ is one of the most widely used programming languages and is applied in a variety of domains, right from gaming to graphical user interface (GUI) programming and even operating systems. If you're looking to expand your career opportunities, mastering the advanced features of C++ is key. The book begins with advanced C++ concepts by helping you decipher the sophisticated C++ type system and understand how various stages of compilation convert source code to object code. You'll then learn how to recognize the tools that need to be used in order to control the flow of execution, capture data, and pass data around. By creating small models, you'll even discover how to use advanced lambdas and captures and express common API design patterns in C++. As you cover later chapters, you'll explore ways to optimize your code by learning about memory alignment, cache access, and the time a program takes to run. The concluding chapter will help you to maximize performance by understanding modern CPU branch prediction and how to make your code cache-friendly. By the end of this book, you'll have developed programming skills that will set you apart from other C++ programmers. What you will learnDelve into the anatomy and workflow of C++Study the pros and cons of different approaches to coding in C++Test, run, and debug your programsLink object files as a dynamic libraryUse templates, SFINAE, constexpr if expressions and variadic templatesApply best practice to resource managementWho this book is for If you have worked in C++ but want to learn how to make the most of this language, especially for large projects, this book is for you. A general understanding of programming and knowledge of using an editor to produce code files in project directories is a must. Some experience with strongly typed languages, such as C and C++, is also recommended.

Advanced C++

Get a fundamental understanding of asynchronous programming and Rust's futures by working through examples that show you how everything really works Key Features Master asynchronous Rust through examples focusing on key concepts Build a solid understanding of concepts such as coroutines, fibers, futures, and callbacks Explore Rust's futures, craft your own runtime, and excel in handling stacks, ABIs, syscalls, and inline assembly Purchase of the print or Kindle book includes a free PDF eBook Book DescriptionStep into the world of asynchronous programming with confidence by conquering the challenges of unclear concepts with this hands-on guide. Using functional examples, this book simplifies the trickiest concepts, exploring goroutines, fibers, futures, and callbacks to help you navigate the vast Rust async ecosystem with ease. You’ll start by building a solid foundation in asynchronous programming and explore diverse strategies for modeling program flow. The book then guides you through concepts like epoll, coroutines, green threads, and callbacks using practical examples. The final section focuses on Rust, examining futures, generators, and the reactor-executor pattern. You’ll apply your knowledge to create your own runtime, solidifying expertise in this dynamic domain. Throughout the book, you’ll not only gain proficiency in Rust's async features but also see how Rust models asynchronous program flow. By the end of the book, you'll possess the knowledge and practical skills needed to actively contribute to the Rust async ecosystem.What you will learn Explore the essence of asynchronous program flow and its significance Understand the difference between concurrency and parallelism Gain insights into how computers and operating systems handle concurrent tasks Uncover the mechanics of async/await Understand Rust's futures by implementing them yourself Implement green threads from scratch to thoroughly understand them Who this book is for This book is for programmers who want to enhance their understanding of asynchronous programming, especially those experienced in VM’ed or interpreted languages like C#, Java, Python, JavaScript, and Go. If you work with C or C++ but have had limited exposure to asynchronous programming, this book serves as a resource to broaden your knowledge in this area. Although the examples are predominantly in Rust, the intricacies of Rust’s futures are covered in detail. So, anyone with a keen interest in learning Rust or with working knowledge of Rust will be able to get the most out of this book.

Asynchronous Programming in Rust

API Design for C++, Second Edition 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.The Second Edition includes all new material fully updated for the latest versions of C++, including a new chapter on concurrency and multithreading, as well as a new chapter discussing how Objective C++ and C++ code can co-exist and how a C++ API can be accessed from Swift programs. In addition, it explores often overlooked issues, both technical and non-technical, contributing to successful design decisions that produce 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. - Teaches the strategies of C++ API development, including design, versioning, documentation, testing, scripting, and extensibility - Includes extensive code examples that 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 - Includes updated URLs and ensures all code examples continue to work with modern compilers and supporting tools

API Design for C++

This volume contains the technical papers presented in the workshops, which took place at the 7th European Conference on Service-Oriented and Cloud Computing, ESOCC 2018, held in Como, Italy, in September 2018:Joint Cloudways and OptiMoCS Workshop; 14th International Workshop on Engineering Service-Oriented Applications and Cloud Services. Additionally the papers from ESOCC 2018 PhD Symposium and ESOCC 2018 EU Projects Track were included in the volume. The 22 full papers were carefully reviewed and selected from 34 submissions. The papers focus on specific topics in service-oriented and cloud computing domains such as limits and/or advantages of existing cloud solutions, future internet technologies, efficient and adaptive deployment and management of service-based applications across multiple clouds, novel cloud service migration practices and solutions, digitization of enterprises in the cloud computing era, federated cloud networking services.

Advances in Service-Oriented and Cloud Computing

Unleash the power of modern web development and master both frontend and backend development by building a real-world application Key Features Integrate AI capabilities in an application using the OpenAI API and learn AI-based features Build robust web applications with advanced TypeScript features like typing, generics, classes, and interfaces Implement user authentication and authorization mechanisms to protect your apps and user data Purchase of the print or Kindle book includes a free PDF eBook Book DescriptionThis book takes you on a journey with TypeScript 5, introducing its nuances and advantages over traditional JavaScript, explaining TypeScript basics, and highlighting the syntax, typing, generics, classes, and interfaces. Expert advice will help you build your understanding of TypeScript's role in modern web applications. You'll gain hands-on experience with the tools required to write full-stack web applications end to end, beginning with setting up the Bun environment for backend development. This book also explores server-side functionality such as authentication, routing, and database integration with PostgreSQL. The second part of the book focuses on the integration of the OpenAI API, demonstrating the use of the GPT API for different use cases. The final part covers frontend development using Svelte, guiding you through UI design, state management, and performance optimization. Each chapter has real-world examples and comparisons to other technologies, providing you with a comprehensive understanding of full-stack development. By the end of this book, you'll have learned how to build modern web applications using TypeScript 5 and confidently tackle full-stack development challenges.What you will learn Develop a chat application by implementing frontend and backend features effectively Build powerful backends using

PostgreSQL Write unit tests efficiently for cleaner and more reliable apps Understand full-stack application architecture for better scalability and maintainability Create dynamic and responsive UIs with Svelte Use debugging, testing, and logging tools in web applications to quickly detect and minimize errors Who this book is for This book is for junior to mid-level software engineers with foundational knowledge of JavaScript and web development, who are enthusiastic about the most cutting-edge technologies and want to expand their understanding of building full-stack applications end to end. Familiarity with the fundamentals of frontend and backend development will help you get the most out of this book.

Full-Stack Web Development with TypeScript 5

This essential classic title provides a comprehensive foundation in the C# programming language and the frameworks it lives in. Now in its 8th edition, you'll find all the very latest C# 7.1 and .NET 4.7 features here, along with four brand new chapters on Microsoft's lightweight, cross-platform framework, .NET Core, up to and including .NET Core 2.0. Coverage of ASP.NET Core, Entity Framework (EF) Core, and more, sits alongside the latest updates to .NET, including Windows Presentation Foundation (WPF), Windows Communication Foundation (WCF), and ASP.NET MVC. Dive in and discover why Pro C# has been a favorite of C# developers worldwide for over 15 years. Gain a solid foundation in object-oriented development techniques, attributes and reflection, generics and collections as well as numerous advanced topics not found in other texts (such as CIL opcodes and emitting dynamic assemblies). With the help of this book you'll have the confidence to put C# into practice and explore the .NET universe on your own terms. What You Will Learn Discover the latest C# 7.1 features, from tuples to pattern matching Hit the ground running with Microsoft's lightweight, open source .NET Core platform, including ASP.NET Core MVC, ASP.NET Core web services, and Entity Framework Core Find complete coverage of XAML, .NET 4.7, and Visual Studio 2017 Understand the philosophy behind .NET and the new, cross-platform alternative, .NET Core

Pro C# 7

Asynchronous JavaScript is everywhere, whether you're using Ajax, AngularJS, Node.js, or WebRTC. This practical guide shows intermediate to advanced JavaScript developers how Promises can help you manage asynchronous code effectively—including the inevitable flood of callbacks as your codebase grows. You'll learn the inner workings of Promises and ways to avoid difficulties and missteps when using them. The ability to asynchronously fetch data and load scripts in the browser broadens the capabilities of JavaScript applications. But if you don't understand how the async part works, you'll wind up with unpredictable code that's difficult to maintain. This book is ideal whether you're new to Promises or want to expand your knowledge of this technology. Understand how async JavaScript works by delving into callbacks, the event loop, and threading Learn how Promises organize callbacks into discrete steps that are easier to read and maintain Examine scenarios you'll encounter and techniques you can use when writing real-world applications Use features in the Bluebird library and jQuery to work with Promises Learn how the Promise API handles asynchronous errors Explore ECMAScript 6 language features that simplify Promise-related code

JavaScript with Promises

This book constitutes the refereed proceedings of the 16th International Conference on Concurreny Theory, CONCUR 2005, held in San Francisco, CA, USA in August 2005. The 38 revised full papers presented together with 4 invited papers were carefully reviewed and selected from 100 submissions. Among the topics covered are concurrency related aspects of models of computation, Petri nets, model checking, game semantics, process algebras, real-time systems, verification techniques, secrecy and authenticity, refinement, distributed programming, constraint logic programming, typing systems and algorithms, case studies, tools, and environment for programming and verification.

C# for Artists

This workshop brought together top researchers in logic and software engineering in the unique occasion of celebrating the 70th birthday of Professor C S Tang who has devoted much of his long research career to establishing a solid logic foundation for software engineering.

CONCUR 2005 - Concurrency Theory

C++ Concurrency in Action, Second Edition is the definitive guide to writing elegant multithreaded applications in C++. Updated for C++ 17, it carefully addresses every aspect of concurrent development, from starting new threads to designing fully functional multithreaded algorithms and data structures. Concurrency master Anthony Williams presents examples and practical tasks in every chapter, including insights that will delight even the most experienced developer. -- Provided by publisher.

Logic And Software Engineering - Proceedings Of The International Workshop In Honor Of Chih-sung Tang

When you have questions about C# 8.0 or .NET Core, this best-selling guide has the answers you need. C# is a language of unusual flexibility and breadth, but with its continual growth there’s so much more to learn. In the tradition of the O’Reilly Nutshell guides, this thoroughly updated edition is simply the best one-volume reference to the C# language available today. Organized around concepts and use cases, C# 8.0 in a Nutshell provides intermediate and advanced programmers with a concise map of C# and .NET knowledge that also plumbs significant depths. Get up to speed on C#, from syntax and variables to advanced topics such as pointers, closures, and patterns Dig deep into LINQ with three chapters dedicated to the topic Explore concurrency and asynchrony, advanced threading, and parallel programming Work with .NET features, including regular expressions, networking, serialization, spans, reflection, and cryptography Delve into Roslyn, the modular C# compiler as a service

C++ Concurrency in Action

\"Networking Programming with C++: Build Efficient Communication Systems\" is a comprehensive guide designed to demystify the intricacies of network programming using the highly efficient C++ language. With an emphasis on foundational knowledge and progressive mastery, this book is crafted for both beginners and seasoned programmers. It meticulously unpacks complex concepts such as socket programming, TCP/IP protocol suite, and asynchronous versus synchronous communication, presenting them in an accessible and engaging manner. Readers will gain an in-depth understanding of crucial networking protocols and the role of multithreading in enhancing application performance. The book also delves into advanced topics like data stream handling, serialization, and network security, equipping readers with the practical skills to develop secure and efficient network applications. Additionally, by integrating performance optimization techniques and real-world application development strategies, this book provides a robust framework for creating cutting-edge networked systems ready to meet contemporary demands.

C# 8.0 in a Nutshell

Networking Programming with C++
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