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Writing High-Performance .NET Code, 2nd Edition-Ben Watson 2018-04-16 **Take performance to the next level!**

This book does not just teach you how the CLR works---it teaches you exactly what you need to do now to obtain the best performance today. It will expertly guide you through the nuts and bolts of extreme performance optimization in .NET, complete with in-depth examinations of CLR functionality, free tool recommendations and tutorials, useful anecdotes, and step-by-step guides to measure and improve performance.

This second edition incorporates the advances and improvements in .NET over the last few years, as well as greatly expanded coverage of tools, more topics, more tutorials, more tips, and improvements throughout the entire book.

New in the 2nd Edition:

- 50% increase in content!
- New examples, code samples, and diagrams throughout entire book
- More ways to analyze the heap and find memory problems
- More tool coverage, including expanded usage of Visual Studio
- More benchmarking
- New GC configuration options
- Code warmup techniques
- New .NET features such as ref-returns, value tuples, SIMD, and more
- More detailed analysis of LINQ
- Tips for high-level feature areas such as ASP.NET, ADO.NET, and WPF

Also find expanded coverage and discover new tips and tricks for:

- Profiling with multiple tools to quickly find problem areas
- Detailed description of the garbage collector, how to optimize your code for it, and how to diagnose difficult memory-related issues
- How to analyze JIT and diagnose warmup problems
- Effective use of the Task Parallel Library to maximize throughput
- Which .NET features and APIs to use and which to avoid
- Instrument your program with performance counters and ETW events
- Use the latest and greatest .NET features
- Build a performance-minded team
- ...and so much more

Writing High-Performance .Net Code-Ben Watson 2014-07-23 Do you want your .NET code to have the absolute best performance it can? This book demystifies the CLR, teaching you how and why to write code with optimum performance. Learn critical lessons from a person who helped design and build one of the largest high-performance .NET systems in the world. This book does not just teach you how the CLR works-it teaches you exactly what you need to do now to obtain the best performance today. It will expertly guide you through the nuts and bolts of extreme performance optimization in .NET, complete with in-depth examinations of CLR functionality, free tool recommendations and tutorials, useful anecdotes, and step-by-step guides to measure and improve performance. Among the topics you will learn are how to: Choose what to measure and why Use many amazing tools, freely available, to solve problems quickly Understand the .NET garbage collector and its effect on your application Use effective coding patterns that lead to optimal garbage collection performance Diagnose common GC-related issues Reduce costs of JITting Use multiple threads sanely and effectively, avoiding synchronization problems Know which .NET features and APIs to use and which to avoid Use code generation to avoid performance problems Measure everything and expose hidden performance issues Instrument your program with performance counters and ETW events Use the latest and greatest .NET features Ensure your code can run on mobile devices without problems Build a performance-minded team ...and much more.

Writing High-Performance .NET Code-Ben Watson 2014 Do you want your .NET code to have the absolute best performance it can? This book demystifies the CLR, teaching you how and why to write code with optimum performance. Learn critical lessons from a person who helped design and build one of the largest high-performance .NET systems in the world.This book does not just teach you how the CLR works--it teaches you exactly what you need to do now to obtain the best performance today. It will expertly guide you through the nuts and bolts of extreme performance optimization in .NET, complete with in-depth examinations of CLR functionality, free tool recommendations and tutorials, useful anecdotes, and step-by-step guides to measure and improve performance.Among the topics you will learn are how to:- Choose what to measure and why- Use many amazing tools, freely available, to solve problems quickly- Understand the .NET garbage collector and its effect on your application- Use effective coding patterns that lead to optimal garbage collection performance- Diagnose common GC-related issues- Reduce costs of JITting- Use multiple threads sanely and effectively, avoiding synchronization problems- Know which .NET features and APIs to use and which to avoid- Use code generation to avoid performance problems- Measure everything and expose hidden performance issues- Instrument your program with performance counters and ETW events- Use the latest and greatest .NET features- Ensure your code can run on mobile devices without problems- Build a performance-minded team...and much more.

Pro .NET Performance-Sasha Goldshtein 2012-10-22 Maximizing the performance of your algorithms and applications is extremely important and can give you a competitive advantage, a lower cost of ownership, and happier users. Pro .NET Performance explains the internals of Windows, the CLR, and the physical hardware that affect the performance of your applications, and gives you the knowledge and tools to measure how your code performs in isolation from external factors. The book is full of C# code samples and tips to help you squeeze every bit of juice from your application—lower memory utilization, consistent CPU usage, and fewer I/O operations across the network and disk. Pro .NET Performance will change the way you think about .NET application development. Guides you through performance measurement with a variety of profilers and other tools Explains how OS and CLR internals affect your application’s performance in unexpected ways Provides you with tips and real-life case studies for improving application performance

Pro .NET Memory Management-Konrad Kokosa 2018-11-12 Understand .NET memory management internal workings, pitfalls, and techniques in order to effectively avoid a wide range of performance and scalability problems in your software. Despite automatic memory management in .NET, there are many advantages to be found in understanding how .NET memory works and how you can best write software that interacts with it efficiently and effectively. Pro .NET Memory Management is your comprehensive guide to writing better software by understanding and working with memory management in .NET. Thoroughly vetted by the .NET Team at Microsoft, this book contains 25 valuable troubleshooting scenarios designed to help diagnose challenging memory problems. Readers will also benefit from a multitude of .NET memory management “rules” to live by that introduce methods for writing memory-aware code and the means for avoiding common, destructive pitfalls. What You'll Learn Understand the theoretical underpinnings of automatic memory management Take a deep dive into every aspect of .NET memory management, including detailed coverage of garbage collection (GC) implementation, that would otherwise take years of experience to acquire Get practical advice on how this knowledge can be applied in real-world software development Use practical knowledge of tools related to .NET memory management to diagnose various memory-related issues Explore various aspects of advanced memory management, including use of Span and Memory types Who This Book Is For .NET developers, solution architects, and performance engineers

ASP.NET Core 2 High Performance-James Singleton 2017-10-11 Learn how to develop web applications that deploy cross-platform and are optimized for high performance using ASP.NET Core 2 About This Book Master high-level web app performance improvement techniques using ASP.NET Core 2.0 Find the right balance between premature optimization and inefficient code Design workflows that run asynchronously and are resilient to transient performance issues Who This Book Is For This book is aimed for readers who can build a web application and have some experience with ASP.NET or some other web application framework (such as Ruby on Rails or Django). They can be people who are happy learning details independently but who struggle to discover the topics that they should be researching. The reader should be interested in improving the performance of their web app and in learning about ASP.NET Core and modern C#. What You Will Learn Understand ASP.NET Core 2 and how it differs from its predecessor Address performance issues at the early stages of development Set up development environments on Windows, Mac, and Linux Measure, profile and find the most significant problems Identify the differences between development workstations and production infrastructures, and how these can exacerbate problems Boost the performance of your application but with an eye to how it affects complexity and maintenance Explore a few cutting-edge techniques such as advanced hashing and custom transports In Detail The ASP.NET Core 2 framework is used to develop high-performance and cross-platform web applications. It is built on .NET Core 2 and includes significantly more framework APIs than version 1. This book addresses high-level performance improvement techniques. It starts by showing you how to locate and measure problems and then shows you how to solve some of the most common ones. Next, it shows you how to get started with ASP.NET Core 2 on Windows, Mac, Linux, and with Docker containers. The book illustrates what problems can occur as latency increases when deploying to a cloud infrastructure. It also shows you how to optimize C# code and choose the best data structures for the job. It covers new features in C# 6 and 7, along with parallel programming and distributed architectures. By the end of this book, you will be fixing latency issues and optimizing performance problems, but you will also know how this affects the complexity and maintenance of your application. Finally, we will explore a few highly advanced techniques for further optimization. Style and approach A step-by-step practical guide filled with real-world use cases and examples

C# 7 and .NET Core 2.0 High Performance-Ovais Mehboob Ahmed Khan 2018-04-25 Performance tuning for real-world applications often involves activities geared towards finding bottlenecks, however this alone cannot solve the dreaded problem of slow code. If you want to improve the speed of your code and optimize the performance of your apps, then this book is for you.

Pro .NET Benchmarking-Andrey Akinshin 2019-06-26 Use this in-depth guide to correctly design benchmarks, measure key performance metrics of .NET applications, and analyze results. This book presents dozens of case studies to help you understand complicated benchmarking topics. You will avoid common pitfalls, control the accuracy of your measurements, and improve performance of your software. Author Andrey Akinshin has maintained BenchmarkDotNet (the most popular .NET library for benchmarking) for five years and covers common mistakes that developers usually make in their benchmarks. This book includes not only .NET-specific content but also essential knowledge about performance measurements which can be applied to any language or platform (common benchmarking methodology, statistics, and low-level features of modern hardware). What You'll Learn Be aware of the best practices for writing benchmarks and performance tests Avoid the common benchmarking pitfalls Know the hardware and software factors that affect application performance Analyze performance measurements Who This Book Is For .NET developers concerned with the performance of their applications

Fundamentals of Computer Programming with C#-Svetlin Nakov 2013-09-01 The free book "Fundamentals of Computer Programming with C#" is a comprehensive computer programming tutorial that teaches programming, logical thinking, data structures and algorithms, problem solving and high quality code with lots of examples in C#. It starts with the first steps in programming and software development like variables, data types, conditional statements, loops and arrays and continues with other basic topics like methods, numeral systems, strings and string processing, exceptions, classes and objects. After the basics this fundamental programming book enters into more advanced programming topics like recursion, data structures (lists, trees, hash-tables and graphs), high-quality code, unit testing and refactoring, object-oriented principles (inheritance, abstraction, encapsulation and polymorphism) and their implementation the C# language. It also covers fundamental topics that each good developer should know like algorithm design, complexity of algorithms and problem solving. The book uses C# language and Visual Studio to illustrate the programming concepts and explains some C# / .NET specific technologies like lambda expressions, extension methods and LINQ. The book is written by a team of developers lead by Svetlin Nakov who has 20+ years practical software development experience. It teaches the major programming concepts and way of thinking needed to become a good software engineer and the C# language in the meantime. It is a great start for anyone who wants to become a skillful software engineer. The books does not teach technologies like databases, mobile and web development, but shows the true way to master the basics of programming regardless of the languages, technologies and tools. It is good for beginners and intermediate developers who want to put a solid base for a successful career in the software engineering industry. The book is accompanied by free video lessons, presentation slides and mind maps, as well as hundreds of exercises and live examples. Download the free C# programming book, videos, presentations and other resources from http://introprogramming.info. Title: Fundamentals of Computer Programming with C# (The Bulgarian C# Programming Book) ISBN: 9789544007737 ISBN-13: 978-954-400-773-7 (9789544007737) ISBN-10: 954-400-773-3 (9544007733) Author: Svetlin Nakov & Co. Pages: 1132 Language: English Published: Sofia, 2013 Publisher: Faber Publishing, Bulgaria Web site: http://www.introprogramming.info License: CC-Attribution-Share-Alike Tags: free, programming, book, computer programming, programming fundamentals, ebook, book programming, C#, CSharp, C# book, tutorial, C# tutorial; programming concepts, programming fundamentals, compiler, Visual Studio, .NET, .NET Framework, data types, variables, expressions, statements, console, conditional statements, control-flow logic, loops, arrays, numeral systems, methods, strings, text processing, StringBuilder, exceptions, exception handling, stack trace, streams, files, text files, linear data structures, list, linked list, stack, queue, tree, balanced tree, graph, depth-first search, DFS, breadth-first search, BFS, dictionaries, hash tables, associative arrays, sets, algorithms, sorting algorithm, searching algorithms, recursion, combinatorial algorithms, algorithm complexity, OOP, object-oriented programming, classes, objects, constructors, fields, properties, static members, abstraction, interfaces, encapsulation, inheritance, virtual methods, polymorphism, cohesion, coupling, enumerations, generics, namespaces, UML, design patterns, extension methods, anonymous types, lambda expressions, LINQ, code quality, high-quality code, high-quality classes, high-quality methods, code formatting, self-documenting code, code refactoring, problem solving, problem solving methodology, 9789544007737, 9544007733

High-Performance Windows Store Apps-Brian Rasmussen 2014-05-09 Understand what every developer should know about performance when building Windows Store apps. Not designed as a comprehensive reference, this book instead zeroes in on the essentials of planning for great performance and provides a solid starting point for building fast apps. This concise, performance-focused guide: Provides an introduction to the Windows platform from a performance point of view Describes how to set performance goals, establish tests to track performance, and covers tools to instrument code and analyze performance Explains why common techniques such as micro benchmarks and ad hoc testing often fall short in verifying performance Focuses on managed C#/XAML apps Although tools and techniques also apply to Visual Basic/XAML apps, all code examples use C# HTML5/JavaScript and C++/XAML are not covered

High Performance JavaScript-Nicholas C. Zakas 2010-03-11 If you're like most developers, you rely heavily on JavaScript to build interactive and quick-responding web applications. The problem is that all of those lines of JavaScript code can slow down your apps. This book reveals techniques and strategies to help you eliminate performance bottlenecks during development. You'll learn how to improve execution time, downloading, interaction with the DOM, page life cycle, and more. Yahoo! frontend engineer Nicholas C. Zakas and five other JavaScript experts—Ross Harmes, Julien Lecomte, Steven Levithan, Stoyan Stefanov, and Matt Sweeney—demonstrate optimal ways to load code onto a page, and offer programming tips to help your JavaScript run as efficiently and quickly as possible. You'll learn the best practices to build and deploy your files to a production environment, and tools that can help you find problems once your site goes live. Identify problem code and use faster alternatives to accomplish the same task Improve scripts by learning how JavaScript stores and accesses data Implement JavaScript code so that it doesn't slow down interaction with the DOM Use optimization techniques to improve runtime performance Learn ways to ensure the UI is responsive at all times Achieve faster client-server communication Use a build system to minify files, and HTTP compression to deliver them to the

browser

High Performance Python-Micha Gorelick 2020-04-30 Your Python code may run correctly, but you need it to run faster. Updated for Python 3, this expanded edition shows you how to locate performance bottlenecks and significantly speed up your code in high-data-volume programs. By exploring the fundamental theory behind design choices, High Performance Python helps you gain a deeper understanding of Python's implementation. How do you take advantage of multicore architectures or clusters? Or build a system that scales up and down without losing reliability? Experienced Python programmers will learn concrete solutions to many issues, along with war stories from companies that use high-performance Python for social media analytics, productionized machine learning, and more. Get a better grasp of NumPy, Cython, and profilers Learn how Python abstracts the underlying computer architecture Use profiling to find bottlenecks in CPU time and memory usage Write efficient programs by choosing appropriate data structures Speed up matrix and vector computations Use tools to compile Python down to machine code Manage multiple I/O and computational operations concurrently Convert multiprocessing code to run on local or remote clusters Deploy code faster using tools like Docker

Pro Asynchronous Programming with .NET-Richard Blewett 2014-01-22 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.

Programming C# 8.0-Ian Griffiths 2019-11-26 C# is undeniably one of the most versatile programming languages available to engineers today. With this comprehensive guide, you'll learn just how powerful the combination of C# and .NET can be. Author Ian Griffiths guides you through C# 8.0 fundamentals and techniques for building cloud, web, and desktop applications. Designed for experienced programmers, this book provides many code examples to help you work with the nuts and bolts of C#, such as generics, LINQ, and asynchronous programming features. You'll get up to speed on .NET Core and the latest C# 8.0 additions, including asynchronous streams, nullable references, pattern matching, default interface implementation, ranges and new indexing syntax, and changes in the .NET tool chain. Discover how C# supports fundamental coding features, such as classes, other custom types, collections, and error handling Learn how to write high-performance memory-efficient code with .NET Core's Span and Memory types Query and process diverse data sources, such as in-memory object models, databases, data streams, and XML documents with LINQ Use .NET's multithreading features to exploit your computer's parallel processing capabilities Learn how asynchronous language features can help improve application responsiveness and scalability

Java 9 High Performance-Mayur Ramgir 2017-11-01 Best practices to adapt and bottlenecks to avoid About This Book Tackle all kinds of performance-related issues and streamline your development Master the new features and new APIs of Java 9 to implement highly efficient and reliable codes Gain an in-depth knowledge of Java application performance and obtain best results from performance testing Who This Book Is For This book is for Java developers who would like to build reliable and high-performance applications. Prior Java programming knowledge is assumed. What You Will Learn Work with JIT compilers Understand the usage of profiling tools Generate JSON with code examples Leverage the command-line tools to speed up application development Build microservices in Java 9 Explore the use of APIs to improve application code Speed up your application with reactive programming and concurrency In Detail Finally, a book that focuses on the practicalities rather than theory of Java application performance tuning. This book will be your one-stop guide to optimize the performance of your Java applications. We will begin by understanding the new features and APIs of Java 9. You will then be taught the practicalities of Java application performance tuning, how to make the best use of garbage collector, and find out how to optimize code with microbenchmarking. Moving ahead, you will be introduced to multithreading and learning about concurrent programming with Java 9 to build highly concurrent and efficient applications. You will learn how to fine tune your Java code for best results. You will discover techniques on how to benchmark performance and reduce various bottlenecks in your applications. We'll also cover best practices of Java programming that will help you improve the quality of your codebase. By the end of the book, you will be armed with the knowledge to build and deploy efficient, scalable, and concurrent applications in Java. Style and approach This step-by-step guide provides real-world examples to give you a hands-on experience.

Concurrency in C# Cookbook-Stephen Cleary 2014-05-15 If you're one of the many developers uncertain about concurrent and multithreaded development, this practical cookbook will change your mind. With more than 75 code-rich recipes, author Stephen Cleary demonstrates parallel processing and asynchronous programming techniques, using libraries and language features in .NET 4.5 and C# 5.0. Concurrency is becoming more common in responsive and scalable application development, but it's been extremely difficult to code. The detailed solutions in this cookbook show you how modern tools raise the level of abstraction, making concurrency much easier than before. Complete with ready-to-use code and discussions about how and why the solution works, you get recipes for using: async and await for asynchronous operations Parallel programming with the Task Parallel Library The TPL Dataflow library for creating dataflow pipelines Capabilities that Reactive Extensions build on top of LINQ Unit testing with concurrent code Interop scenarios for combining concurrent approaches Immutable, threadsafe, and producer/consumer collections Cancellation support in your concurrent code Asynchronous-friendly Object-Oriented Programming Thread synchronization for accessing data

C# 4.0 How-To-Ben Watson 2010-03-01 Real Solutions for C# 4.0 Programmers Need fast, robust, efficient code solutions for Microsoft C# 4.0? This book delivers exactly what you're looking for. You'll find more than 200 solutions, best-practice techniques, and tested code samples for everything from classes to exceptions, networking to XML, LINQ to Silverlight. Completely up-to-date, this book fully reflects major language enhancements introduced with the new C# 4.0 and .NET 4.0. When time is of the essence, turn here first: Get answers you can trust and code you can use, right now! Beginning with the language essentials and moving on to solving common problems using the .NET Framework, C# 4.0 How-To addresses a wide range of general programming problems and algorithms. Along the way is clear, concise coverage of a broad spectrum of C# techniques that will help developers of all levels become more proficient with C# and the most popular .NET tools. Fast, Reliable, and Easy to Use! Write more elegant, efficient, and reusable code Take advantage of real-world tips and best-practices advice Create more effective classes, interfaces, and types Master powerful data handling techniques using collections, serialization, databases, and XML Implement more effective user interfaces with both WPF and WinForms Construct Web-based and media-rich applications with ASP.NET and Silverlight Make the most of delegates, events, and anonymous methods Leverage advanced C# features ranging from reflection to asynchronous programming Harness the power of regular expressions Interact effectively with Windows and underlying hardware Master the best reusable patterns for designing complex programs

Learning .NET High-performance Programming-Antonio Esposito 2015-06-30 This book will help you understand what "programming for performance" means, and use effective coding patterns and techniques to optimize your .NET applications. You will begin by understanding what "high performance coding" means, and the different performance concerns. You will see how CLR works and get an understanding of concepts such as memory management, garbage collection, and thread life cycles. You will proceed to learn about the theoretical and practical concepts of PLINQ programming. You will also see what Big Data is, and how to architect a Big Data solution to manipulate large datasets. Finally, you will learn how to launch and analyze a profile session and execute tests against a code block or application for performance analysis. By the end of this book, you will have a complete understanding of efficient programming using high-performance techniques, and will able to write highly optimized applications.

Hands-On High Performance with Go-Bob Strecansky 2020-03-24 Proven methodologies and concurrency techniques that will help you write faster and better code with Go programming Key Features Explore Go's profiling tools to write faster programs by identifying and fixing bottlenecks Address Go-specific performance issues such as memory allocation and garbage collection Delve into the subtleties of concurrency and discover how to successfully implement it in everyday applications Book Description Go is an easy-to-write language that is popular among developers thanks to its features such as concurrency, portability, and ability to reduce complexity. This Golang book will teach you how to construct idiomatic Go code that is reusable and highly performant. Starting with an introduction to performance concepts, you'll understand the ideology behind Go's performance. You'll then learn how to effectively implement Go data structures and algorithms along with exploring data manipulation and organization to write programs for scalable software. This book covers channels and goroutines for parallelism and concurrency to write high-performance code for distributed systems. As you advance, you'll learn how to manage memory effectively. You'll explore the compute unified device architecture (CUDA) application programming interface (API), use containers to build Go code, and work with the Go build cache for quicker compilation. You'll also get to grips with profiling and tracing Go code for detecting bottlenecks in your system. Finally, you'll evaluate clusters and job queues for performance optimization and monitor the application for performance regression. By the end of this Go programming book, you'll be able to improve existing code and fulfill customer requirements by writing efficient programs. What you will learn Organize and manipulate data effectively with clusters and job queues Explore commonly applied Go data structures and algorithms Write anonymous functions in Go to build reusable apps Profile and trace Go apps to reduce bottlenecks and improve efficiency Deploy, monitor, and iterate Go programs with a focus on performance Dive into memory management and CPU and GPU parallelism in Go Who this book is for This Golang book is a must for developers and professionals who have an intermediate-to-advanced understanding of Go programming, and are interested in improving their speed of code execution.

.NET Design Patterns-Praseed Pai 2017-01-31 Explore the world of .NET design patterns and bring the benefits that the right patterns can offer to your toolkit today About This Book Dive into the powerful fundamentals of .NET framework for software development The code is explained piece by piece and the application of the pattern is also showcased. This fast-paced guide shows you how to implement the patterns into your existing applications Who This Book Is For This book is for those with familiarity with .NET development who would like to take their skills to the next level and be in the driver's seat when it comes to modern development techniques. Basic object-oriented C# programming experience and an elementary familiarity with the .NET framework library is required. What You Will Learn Put patterns and pattern catalogs into the right perspective Apply patterns for software development under C#/.NET Use GoF and other patterns in real-life development scenarios Be able to enrich your design vocabulary and well articulate your design thoughts Leverage object/functional programming by mixing OOP and FP Understand the reactive programming model using Rx and RxJs Writing compositional code using C# LINQ constructs Be able to implement concurrent/parallel programming techniques using idioms under .NET Avoiding pitfalls when creating compositional, readable, and maintainable code using imperative, functional, and reactive code. In Detail Knowing about design patterns enables developers to improve their code base, promoting code reuse and making their design more robust. This book focuses on the practical aspects of programming in .NET. You will learn about some of the relevant design patterns (and their application) that are most widely used. We start with classic object-oriented programming (OOP) techniques, evaluate parallel programming and concurrency models, enhance implementations by mixing OOP and functional programming, and finally to the reactive programming model where functional programming and OOP are used in synergy to write better code. Throughout this book, we'll show you how to deal with architecture/design techniques, GoF patterns, relevant patterns from other catalogs, functional programming, and reactive programming techniques. After reading this book, you will be able to convincingly leverage these design patterns (factory pattern, builder pattern, prototype pattern, adapter pattern, facade pattern, decorator pattern, observer pattern and so on) for your programs. You will also be able to write fluid functional code in .NET that would leverage concurrency and parallelism! Style and approach This tutorial-based book takes a step-by-step approach. It covers the major patterns and explains them in a detailed manned along with code examples.

CLR Via C#-Jeffrey Richter 2006 A guide to the workings of the common language runtime, Microsoft .NET, and C#.

Eloquent JavaScript-Marijn Haverbeke 2011-01-15 JavaScript is at the heart of almost every modern Web application, whether it's Google Apps, Twitter, or the newest browser-based game. Though it's simple for beginners to pick up and play with, JavaScript is not a toy—it's a flexible and complex language that can be used to build full-scale applications. Eloquent JavaScript dives into this flourishing language and teaches you to write code that's beautiful and effective. By immersing you in example code and encouraging experimentation right from the start, the author quickly gives you the tools you need to build your own programs. As you follow along with examples like an artificial life simulation and a version of the classic game Sokoban, you'll learn to: –Understand the essential elements of programming: syntax, control, and data –Use object-oriented and functional programming techniques to organize and clarify your programs –Script the browser and make basic Web applications –Work with tools like regular expressions and XMLHttpRequest objects And since programming is an art that's best learned by doing, all example code is available online in an interactive sandbox for you to experiment with. With Eloquent JavaScript as your guide, you can tweak, expand, and modify the author's code, or throw it away and build your own creations from scratch. Before you know it, you'll be fluent in the language of the Web.

Learning PHP 7 High Performance-Altaf Hussain 2016-04-25 Improve the performance of your PHP application to ensure the application users aren't left waiting About This Book Make the optimum use of PHP coding to improve your programming productivity Leverage the potential of PHP for server-side programming, memory management, and object-oriented programming Packed with real-life examples to help the readers implement concepts as they learn Who This Book Is For This book is for those who have basic experience in PHP programming. If you are developing performance-critical applications, then this book is for you. What You Will Learn Setup high performance development and production environment for PHP 7 Discover new OOP features in PHP 7 to achieve high performance Improve your PHP applications' performance Attain improved database performance Benchmark PHP applications to optimize them Write quality code by learning to improve code reusability, simplicity, and expressiveness Get rid of the bottlenecks in your PHP 7 applications by writing PHP code optimally Tackle issues related to web applications, such as high user dependency and large datasets In Detail PHP is a great language for building web applications. It is essentially a server-side scripting language that is also used for general-purpose programming. PHP 7 is the latest version, providing major backward-compatibility breaks and focusing on high performance and speed. This fast-paced introduction to PHP 7 will improve your productivity and coding skills. The concepts covered will allow you, as a PHP programmer, to improve the performance standards of your applications. We will introduce you to the new features in PHP 7 and then will run through the concepts of object-oriented programming (OOP) in PHP 7. Next, we will shed some light on how to improve your PHP 7 applications' performance and database performance. Through this book, you will be able to improve the performance of your programs using the various benchmarking tools discussed. At the end, the book discusses some best practices in PHP programming to help you improve the quality of your code. Style and approach The book is a step-by-step guide to improve the quality of your code in PHP through real-time examples. The book takes a practical approach to improving the quality of your code.

C# Fundamentals-Adam Seebeck 2020-11-10 The third edition of the popular C# Fundamentals book is great for whether you are a first-time programmer or an experienced coder wanting to learn C#. Content updates for C# 9 and .NET 5 have been added!

Learning Visual Basic .NET-Jesse Liberty 2002-10-25 Most Visual Basic .NET books are written for experienced object-oriented programmers, but many programmers jumping on the .NET bandwagon are coming from non-object-oriented languages, such as Visual Basic 6.0 or from script programming, such as JavaScript. These programmers, and those who are adopting VB.NET as their first programming language, have been out of luck when it comes to finding a high-quality introduction to the language that helps them get started.That's why Jesse Liberty, author of the best-selling books Programming C# and Programming ASP.NET, has written an entry-level guide to Visual Basic .NET. Written in a warm and friendly manner, this book assumes no prior programming experience, and provides an easy introduction to Microsoft's most popular .NET language.Learning Visual Basic .NET is a complete introduction to VB.NET and object-oriented programming. This book will help you build a solid foundation in .NET, and show how to apply your skills by using hundreds of examples to help you become productive quickly. Learning Visual Basic .NET introduces fundamentals like Visual Studio .NET, a tool set for building Windows and Web applications. You'll learn about the syntax and structure of the Visual Basic .NET language, including operators, classes and interfaces, structs, arrays, and strings. Liberty then demonstrates how to develop various kinds of applications--including those that work with databases--and web services.By the time you've finished Learning Visual Basic .NET, you'll be ready to move on to a more advanced programming guide that will help you create large-scale web and Windows applications.Whether you have a little object-oriented programming experience or you are new to programming altogether, Visual Basic .NET will set you firmly on your way to mastering the essentials of the VB.NET language.

High Performance Django-Peter Baumgartner 2015-03-31 Getting started with Django is easy. There are tutorials and books that literally walk you through the process of getting your first site up and running. Taking that code from your laptop to the real world is like opening pandora's box. Should I use Apache, Gunicorn, uWSGI

or something else? Where should I use caching to make things faster? How do I know if my database has the right indexes or if it needs more resources? Do I need a NoSQL database like MongoDB? The site runs great on my laptop. Why is it so slow in production? How many servers does my site need? How big should they be? What is the 20% effort that will solve 80% of my performance problems? If you've asked yourself any of these questions, you're like most Django developers. Heck, we were asking some of the same questions when we started working with Django 7 years ago at Lincoln Loop. Since then we've built, deployed, and maintained a lot of Django sites. Everything from realtime applications to large-scale CMSes with tons of traffic. Quite frankly, we made a lot of mistakes, but we learned a lot too. High Performance Django is the book we wish we had when we got started. It will give you a repeatable blueprint for building and deploying fast, scalable Django sites. More information and ebook formats available at https://highperformancedjango.com.

Performance Tuning and Optimizing ASP.NET Applications-Kenneth Tu 2008-01-01 The authors make performance issues the central topic, with very in-depth discussion and examples.

C++17 High Performance-Viktor Sehr 2018-01-31 Write code that scales across CPU registers, multi-core, and machine clusters Key Features Explore concurrent programming in C++ Identify memory management problems Use SIMD and STL containers for performance improvement Book Description C++ is a highly portable language and can be used to write both large-scale applications and performance-critical code. It has evolved over the last few years to become a modern and expressive language. This book will guide you through optimizing the performance of your C++ apps by allowing them to run faster and consume fewer resources on the device they're running on without compromising the readability of your code base. The book begins by helping you measure and identify bottlenecks in a C++ code base. It then moves on by teaching you how to use modern C++ constructs and techniques. You'll see how this affects the way you write code. Next, you'll see the importance of data structure optimization and memory management, and how it can be used efficiently with respect to CPU caches. After that, you'll see how STL algorithm and composable Range V3 should be used to both achieve faster execution and more readable code, followed by how to use STL containers and how to write your own specialized iterators. Moving on, you'll get hands-on experience in making use of modern C++ metaprogramming and reflection to reduce boilerplate code as well as in working with proxy objects to perform optimizations under the hood. After that, you'll learn concurrent programming and understand lock-free data structures. The book ends with an overview of parallel algorithms using STL execution policies, Boost Compute, and OpenCL to utilize both the CPU and the GPU. What you will learn Benefits of modern C++ constructs and techniques Identify hardware bottlenecks, such as CPU cache misses, to boost performance 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 Perform under-the-hood optimizations with preserved readability using proxy objects Gain insights into subtle optimizations used by STL algorithms Utilize the Range V3 library for expressive C++ code Parallelize your code over CPU and GPU, without compromising readability Who this book is for If you're a C++ developer looking to improve the speed of your code or simply wanting to take your skills up to the next level, then this book is perfect for you.

Improving .NET Application Performance and Scalability-J. D. Meier 2004 Integrate proven performance and scalability techniques throughout the .NET application life cycle—and gain an edge in building better-performing products. This guide presents a robust framework organized by task and role, helping developers, architects, testers, and administrators prioritize and implement the best options at the appropriate time. It offers focused, end-to-end guidance—including processes for modeling performance and techniques for measuring, testing, and fine-tuning your applications. You'll also get tips direct from Microsoft development teams for improving the performance and scalability of managed code; Microsoft ASP.NET, ADO.NET, and SQL Server; Web services; .NET Remoting; XML; and more. The book features a "How To" section that details the steps for a number of specific performance-related tasks, such as adding performance counters and using the common language runtime (CLR) profiler. PATTERNS & PRACTICES guides are reviewed and approved by Microsoft engineering teams, consultants, partners, and customers—delivering accurate, real-world information that's been technically validated and tested.

C# 7 and .NET Core Cookbook-Dirk Strauss 2017-04-25 Quick solutions to common programming problems with the latest features of C# 7.0, .NET Core 1.1, and Visual Studio 2017 About This Book Easy-to-follow recipes to get you up-and-running with the new features of C# 7 and .NET Core 1.1 Practical solutions to assist you with microservices and serverless computing in C# Explore the new Visual Studio environment and write more secure code in it Who This Book Is For The book will appeal to C# and .NET developers who have a basic familiarity with C# and the Visual Studio 2015 environment What You Will Learn Writing better and less code to achieve the same result as in previous versions of C# Working with analyzers in Visual Studio Working with files, streams, and serialization Writing high-performant code in C# and understanding multi-threading Demystifying the Rx library using Reactive extensions Exploring .Net Core 1.1 and ASP.NET MVC Securing your applications and learning new debugging techniques Designing and building a microservice architecture Using Azure and AWS for serverless computing with C# In Detail C# has recently been open-sourced and C# 7 comes with a host of new features for building powerful, cross-platform applications. This book will be your solution to some common programming problems that you come across with C# and will also help you get started with .NET Core 1.1. Through a recipe-based approach, this book will help you overcome common programming challenges and get your applications ready to face the modern world. We start by running you through new features in C# 7, such as tuples, pattern matching, and so on, giving you hands-on experience with them. Moving forward, you will work with generics and the OOP features in C#. You will then move on to more advanced topics, such as reactive extensions, Regex, code analyzers, and asynchronous programming. This book will also cover new, cross-platform .NET Core 1.1 features and teach you how to utilize .NET Core on macOS. Then, we will explore microservices as well as serverless computing and how these benefit modern developers. Finally, you will learn what you can do with Visual Studio 2017 to put mobile application development across multiple platforms within the reach of any developer. Style and approach A unique recipe-based guide that will help you gain a solid understanding of the new concepts in C# 7.0 and Visual Studio 2017

Under the Hood of .Net Memory Management-Chris Farrell 2011 This book starts with an introduction to the core concepts of .NET memory management and garbage collection, and then quickly layers on additional details and intricacies. Once you're up to speed, you can dive into the guided troubleshooting tour, and tips for engineering your application to maximise performance. And to finish off, take a look at some more sophisticated considerations, and even a peek inside the Windows memory model.

Hands-On JavaScript High Performance-Justin Scherer 2020-02-28

Windows Developer Power Tools-James Avery 2007-06-26 A wealth of open and free software is available today for Windows developers who want to extend the development environment, reduce development effort, and increase productivity. This encyclopedic guide explores more than 100 free and open source tools available to programmers who build applications for Windows desktops and servers.

Dependency Injection in .NET Core 2.0-Marino Posadas 2017-11-13 Inject dependencies and write highly maintainable and flexible code using the new .NET Core DI Engine About This Book Identify when to use the constructors, parameters, setters, or Interface Injection, for best results Build dependencies not only for MVC within .NET but also for other frontend tools such as Angular Create specific components or services to cover discrete and separate pieces of functionality and call them when needed. Who This Book Is For C# and .NET developers who have no idea what DI is and would like to understand how to implement it in their applications. What You Will Learn Understand the concept of DI and its implications in modern software construction Learn how DI is already implemented in today's frameworks. Analyze how DI can be used with current software to improve maintainability and scalability. Learn the use of DI in .NET Core Get used to the possibilities that DI offers the ASP.NET Core developer in different scenarios. Learn about good practices and refactoring legacy code. In Detail .NET Core provides more control than ever over web application architectures. A key point of this software architecture is that it's based on the use of Dependency Injection as a way to properly implement the Dependency Inversion principle proposed in the SOLID principles established by Robert C. Martin. With the advent of .NET Core, things have become much simpler with Dependency Injection built into the system. This book aims to give you a profound insight into writing loosely-coupled code using the latest features available in .NET Core. It talks about constructors, parameter, setters, and interface injection, explaining in detail, with the help of examples, which type of injection to use in which situation. It will show you how to implement a class that creates other classes with associated dependencies, also called IoC containers, and then create dependencies for each MVC component of ASP.NET Core. You'll learn to distinguish between IoC containers, the use of Inversion of Control, and DI itself, since DI is just a way of implementing IoC via these containers. You'll also learn how to build dependencies for other frontend tool such as Angular. You will get to use the in-built services offered by .NET Core to create your own custom dependencies. Towards the end, we'll talk about some patterns and anti-patterns for Dependency Injection along with some techniques to refactor legacy applications and inject dependencies. Style and Approach Filled with examples, this book will take you through various techniques for injecting dependencies into your applications with or without the use of frameworks.

Dressing for Altitude-Dennis R. Jenkins 2012-08-27 "Since its earliest days, flight has been about pushing the limits of technology and, in many cases, pushing the limits of human endurance. The human body can be the limiting factor in the design of aircraft and spacecraft. Humans cannot survive unaided at high altitudes. There have been a number of books written on the subject of spacesuits, but the literature on the high-altitude pressure suits is lacking. This volume provides a high-level summary of the technological development and operational use of partial- and full-pressure suits, from the earliest models to the current high altitude, full-pressure suits used for modern aviation, as well as those that were used for launch and entry on the Space Shuttle. The goal of this work is to provide a resource on the technology for suits designed to keep humans alive at the edge of space."--NTRS Web site.

Programming C#-Jesse Liberty 2005-02-22 The programming language C# was built with the future of application development in mind. Pursuing that vision, C#'s designers succeeded in creating a safe, simple, component-based, high-performance language that works effectively with Microsoft's .NET Framework. Now the favored language among those programming for the Microsoft platform, C# continues to grow in popularity as more developers discover its strength and flexibility. And, from the start, C# developers have relied on Programming C# both as an introduction to the language and a means of further building their skills. The fourth edition of Programming C#--the top-selling C# book on the market--has been updated to the C# ISO standard as well as changes to Microsoft's implementation of the language. It also provides notes and warnings on C# 1.1 and C# 2.0. Aimed at experienced programmers and web developers, Programming C#, 4th Edition, doesn't waste too much time on the basics. Rather, it focuses on the features and programming patterns unique to the C# language. New C# 2005 features covered in-depth include: Visual Studio 2005 Generics Collection interfaces and iterators Anonymous methods New ADO.NET data controls Fundamentals of Object-Oriented Programming Author Jesse Liberty, an acclaimed web programming expert and entrepreneur, teaches C# in a way that experienced programmers will appreciate by grounding its applications firmly in the context of Microsoft's .NET platform and the development of desktop and Internet applications. Liberty also incorporates reader suggestions from previous editions to help create the most consumer-friendly guide possible.

Delphi High Performance-Primoz Gabrijelčič 2018-02-26 Build fast, scalable, and high performing applications with Delphi Key Features Build efficient and concurrent applications in Delphi with focused examples Identify performance bottlenecks and apply the correct algorithm to increase the performance of applications. Delve into parallel programming and memory management to optimize your code Book Description Delphi is a cross-platform Integrated Development Environment (IDE) that supports rapid application development for Microsoft Windows, Apple Mac OS X, Google Android, iOS, and now Linux with RAD Studio 10.2. This book will be your guide to build efficient high performance applications with Delphi. The book begins by explaining how to find performance bottlenecks and apply the correct algorithm to fix them. It will teach you how to improve your algorithms before taking you through parallel programming. You'll then explore various tools to build highly concurrent applications. After that, you'll delve into improving the performance of your code and master cross-platform RTL improvements. Finally, we'll go through memory management with Delphi and you'll see how to leverage several external libraries to write better performing programs. By the end of the book, you'll have the knowledge to create high performance applications with Delphi. What you will learn Find performance bottlenecks and easily mitigate them Discover different approaches to fix algorithms Understand parallel programming and work with various tools included with Delphi Master the RTL for code optimization Explore memory managers and their implementation Leverage external libraries to write better performing programs Who this book is for This book is for Delphi developers who would like to build high performance applications with Delphi. Prior knowledge of Delphi is assumed.

Hands-On Software Architecture with C# 8 and . NET Core 3-Gabriel Baptista 2019-11-29 Design scalable and high-performance enterprise applications using the latest features of C# 8 and .NET Core 3 Key Features Become a software architect capable of creating modular apps for specific business needs Design high-performance software systems using the latest features of C# 8 and .NET Core 3 Solve scalability problems in web apps using enterprise architectural patterns Book Description Software architecture is the practice of implementing structures and systems that streamline the software development process and improve the quality of an app. With this software architecture book, you'll follow a hands-on approach to learning various architectural methods that will help you develop and deliver high-quality products. You'll begin by understanding how to transform user requirements into architectural needs and exploring the differences between functional and non-functional requirements. Next, you'll explore how to carefully choose a cloud solution for your infrastructure, along with covering dos and don'ts that will help you manage your app in a cloud-based environment. Later chapters will cover techniques and processes such as DevOps, microservices, and continuous integration, along with providing insights into implementing them using Microsoft technologies such as ASP.NET Core, the Entity Framework, Cosmos DB, and Azure DevOps. You will also learn about testing frameworks and automation tools that will help you through the development process. Finally, you'll discover design patterns and various software approaches that will allow you to solve common problems faced during development. By the end of this book, you'll be able to develop and deliver highly scalable enterprise-ready apps that meet customers' business needs. What you will learn Overcome real-world architectural challenges and solve design consideration issues Apply architectural approaches like Layered Architecture, service-oriented architecture (SOA), and microservices Learn to use tools like containers, Docker, and Kubernetes to manage microservices Get up to speed with Azure Cosmos DB for delivering multi-continental solutions Learn how to program and maintain Azure Functions using C# Understand when to use test-driven development (TDD) as an approach for software development Write automated functional test cases for your projects Who this book is for This book is for engineers and senior developers aspiring to become architects or looking to build enterprise applications with the .NET Stack. Experience with C# and .NET is required to understand this book.

. NET Internals Cookbook-Adam Furmanek 2019-11-25 Understand .NET memory structure, multi-threading and garbage collection internals to avoid performance problems and interoperability issues. Even though CLR hides low level complexity under the hood, there are multiple advantages of understanding internals to improve software performance, decrease memory usage and analyze issues faster..NET Internals Cookbook contains almost one hundred questions about various .NET internals, answered with both C# code and its IL counterpart, machine code and WinDBG debugging sessions. It contains references to books, blog posts and articles covering specific scenarios in detail. You will learn* Internals of memory structure, garbage collection algorithms and multi-threading mechanisms* Debugging using WinDBG* Analyzing IL and machine codeThis book is for .NET developers, performance engineers and programmers interested in low level details of the platform.

Functional Concurrency in . Net-Riccardo Terrell 2018 Functional languages help developers support concurrency by encouraging immutable data structures that can be passed between threads without having to worry about a shared state, all while avoiding side effects. Concurrency in .NET teaches readers how to build concurrent and scalable programs in .NET using the functional paradigm. This intermediate-level guide is aimed at developers, architects, and passionate computer programmers. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.