
Software Optimization Cookbook Second Edition

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PostgreSQL 9 Administration Cookbook - Second Edition Morgan Kaufmann

The field of Chemical Engineering and its link to computer science is in constant evolution and new engineers have a variety of tools at their disposal to tackle their everyday problems. Introduction to Software for Chemical Engineers, Second Edition provides a quick guide to the use of various computer packages

for chemical engineering applications. It covers a range of software applications from Excel and general mathematical packages such as MATLAB and MathCAD to process simulators, CHEMCAD and ASPEN, equation-based modeling languages, gProms, optimization software such as GAMS and AIMS, and specialized software like CFD or DEM codes. The different packages are introduced and applied to solve typical problems in fluid mechanics, heat and mass transfer, mass and energy balances, unit operations, reactor engineering, process and equipment design and control. This new edition offers a wider view of packages including open source software such as R, Python and Julia. It also includes complete examples in ASPEN Plus, adds ANSYS Fluent to CFD codes, Lingo to the optimization packages, and discusses Engineering Equation Solver. It offers a global idea of the capabilities of the software used in the chemical engineering field and provides examples for solving real-world problems. Written by leading experts, this book is a must-have reference for chemical engineers looking to grow in their careers through the use of new and improving computer software. Its user-friendly approach to simulation and optimization as well as its example-based presentation of the software, makes it a perfect teaching tool for both undergraduate and master levels.

Proceedings of the ... ACM SIGPLAN Symposium on Principles & Practice of Parallel Programming Packt Publishing Ltd

If you are a Big Data enthusiast and wish to use Hadoop v2 to solve your problems, then this book is for you. This book is for Java programmers with little to moderate knowledge of Hadoop MapReduce. This is also a one-stop reference for developers and system admins who want to quickly get up to speed with using Hadoop v2. It would be helpful to have a basic knowledge of software development using Java and a basic working knowledge of Linux.

Clojure Data Analysis

Cookbook - Second Edition

Cambridge University Press

Optimize code for multi-core

processors with Intel's

Parallel Studio Parallel

programming is rapidly

becoming a "must-know" skill

for developers. Yet, where to

start? This teach-yourself

tutorial is an ideal starting

point for developers who

already know Windows C and

C++ and are eager to add

parallelism to their code.

With a focus on applying

tools, techniques, and

language extensions to implement parallelism, this essential resource teaches you how to write programs for multicore and leverage the power of multicore in your programs. Sharing hands-on case studies and real-world examples, the authors examine the challenges of each project and show you how to overcome them. Explores conversion of serial code to parallel Focuses on implementing Intel Parallel Studio Highlights the benefits of using parallel code Addresses error and performance optimization of code Includes real-world scenarios that illustrate the techniques of advanced parallel programming situations Parallel Programming with Intel Parallel Studio dispels any concerns of difficulty and gets you started creating

faster code with Intel Parallel Studio.

scikit-learn Cookbook John Wiley & Sons A completely revised edition, offering new design recipes for interactive programs and support for images as plain values, testing, event-driven programming, and even distributed programming. This introduction to programming places computer science at the core of a liberal arts education. Unlike other introductory books, it focuses on the program design process, presenting program design guidelines that show the reader how to analyze a problem statement, how to formulate concise goals, how to make up examples, how to develop an outline of the solution, how to finish the program, and how to test it. Because learning to design programs is about the study of principles and the acquisition of transferable skills, the text does not use an off-the-shelf industrial language but presents a tailor-made teaching language. For the same reason, it offers DrRacket, a programming environment for novices that supports playful, feedback-oriented learning. The environment grows with readers as they master the material in the

book until it supports a full-fledged language for the whole spectrum of programming tasks. This second edition has been completely revised. While the book continues to teach a systematic approach to program design, the second edition introduces different design recipes for interactive programs with graphical interfaces and batch programs. It also enriches its design recipes for functions with numerous new hints. Finally, the teaching languages and their IDE now come with support for images as plain values, testing, event-driven programming, and even distributed programming.

Working Effectively with Legacy Code

Packt Publishing Ltd

Learn to use IPython and Jupyter Notebook for your data analysis and visualization work. Key Features Leverage the Jupyter Notebook for interactive data science and visualization Become an expert in high-performance computing and visualization for data analysis and scientific modeling A comprehensive coverage of scientific computing through many hands-on, example-driven recipes with detailed, step-by-step explanations Book Description Python is one of the

leading open source platforms for data science and numerical computing. IPython and the associated Jupyter Notebook offer efficient interfaces to Python for data analysis and interactive visualization, and they constitute an ideal gateway to the platform. IPython Interactive Computing and Visualization Cookbook, Second Edition contains many ready-to-use, focused recipes for high-performance scientific computing and data analysis, from the latest IPython/Jupyter features to the most advanced tricks, to help you write better and faster code. You will apply these state-of-the-art methods to various real-world examples, illustrating topics in applied mathematics, scientific modeling, and machine learning. The first part of the book covers programming techniques: code quality and reproducibility, code optimization, high-performance computing through just-in-time compilation, parallel computing, and graphics card programming. The second part tackles data science, statistics, machine learning, signal and image processing, dynamical systems, and pure and applied mathematics. What you will learn Master all features of the Jupyter Notebook Code better: write high-quality, readable, and

well-tested programs; profile and optimize your code; and conduct reproducible interactive computing experiments Visualize data and create interactive plots in the Jupyter Notebook Write blazingly fast Python programs with NumPy, ctypes, Numba, Cython, OpenMP, GPU programming (CUDA), parallel IPython, Dask, and more Analyze data with Bayesian or frequentist statistics (Pandas, PyMC, and R), and learn from actual data through machine learning (scikit-learn) Gain valuable insights into signals, images, and sounds with SciPy, scikit-image, and OpenCV Simulate deterministic and stochastic dynamical systems in Python Familiarize yourself with math in Python using SymPy and Sage: algebra, analysis, logic, graphs, geometry, and probability theory Who this book is for This book is intended for anyone interested in numerical computing and data science: students, researchers, teachers, engineers, analysts, and hobbyists. A basic knowledge of Python/NumPy is recommended. Some skills in mathematics will help you understand the theory behind the computational methods. [The Whole Foods Allergy Cookbook, 2nd Edition](#) CRC Press

Over 79 hands-on recipes for professional embedded Linux developers to optimize and boost their Yocto Project know-how

About This Book Optimize your Yocto setup to speed up development and debug build issues Use what is quickly becoming the standard embedded Linux product builder framework--the Yocto Project Recipe-based implementation of best practices to optimize your Linux system

Who This Book Is For If you are an embedded Linux developer with the basic knowledge of Yocto Project, this book is an ideal way to broaden your knowledge with recipes for embedded development. What You Will Learn Optimize your Yocto Project setup to speed up development and debug build issues Use Docker containers to build Yocto Project-based systems Take advantage of the user-friendly Toaster web interface to the Yocto Project build system Build and debug the Linux kernel and its device trees Customize your root filesystem with already-supported and new Yocto packages Optimize your production systems by reducing the size of both the Linux kernel and root filesystems Explore the mechanisms to increase the root filesystem security Understand the open source licensing requirements and how to

comply with them when cohabiting with proprietary programs Create recipes, and build and run applications in C, C++, Python, Node.js, and Java In Detail The Yocto Project has become the de facto distribution build framework for reliable and robust embedded systems with a reduced time to market. You'll get started by working on a build system where you set up Yocto, create a build directory, and learn how to debug it. Then, you'll explore everything about the BSP layer, from creating a custom layer to debugging device tree issues. In addition to this, you'll learn how to add a new software layer, packages, data, scripts, and configuration files to your system. You will then cover topics based on application development, such as using the Software Development Kit and how to use the Yocto project in various development environments. Toward the end, you will learn how to debug, trace, and profile a running system. This second edition has been updated to include new content based on the latest Yocto release. Style and approach This recipe-based book will guide you through all the development stages of an embedded Linux product design using the Yocto Project. Downloading the example

code for this book You can download the example code files for all Packt books you have purchased from y ...

Docker Cookbook Packt Publishing Ltd

Use Qt 5 to design and build functional, appealing, and user-friendly graphical user interfaces (GUIs) for your applications. Key Features Learn to use Qt 5 to design and customize the look and feel of your application Improve the visual quality of an application by using graphics rendering and animation Understand the balance of presentation and web content that will make an application appealing yet functional Book Description With the growing need to develop GUIs for multiple targets and multiple screens, improving the visual quality of your application becomes important so that it stands out from your competitors. With its cross-platform ability and the latest UI paradigms, Qt makes it possible to build intuitive, interactive, and user-friendly user interfaces for your applications. Qt5 C++ GUI Programming Cookbook, Second

Edition teaches you how to develop functional and appealing user interfaces using the latest version of QT5 and C++. This book will help you learn a variety of topics such as GUI customization and animation, graphics rendering, implementing Google Maps, and more. You will also be taken through advanced concepts like asynchronous programming, event handling using signals and slots, network programming, various aspects of optimizing your application. By the end of the book, you will be confident to design and customize GUI applications that meet your clients' expectations and have an understanding of best practice solutions for common problems. What you will learn

Animate GUI elements using Qt5's built-in animation system
Draw shapes and 2D images using Qt5's powerful rendering system
Implement an industry-standard OpenGL library in your project
Build a mobile app that supports touch events and exports it onto devices
Parse and extract data from an XML file and present it on your GUI
Interact with web

content by calling JavaScript functions from C++
Access MySQL and SQLite databases to retrieve data and display it on your GUI
Who this book is for
This intermediate-level book is designed for those who want to develop software using Qt 5. If you want to improve the visual quality and content presentation of your software application, this book is for you. Prior experience of C++ programming is required.

Optimization of Industrial Unit Processes, Second Edition John Wiley & Sons
Get more out of your legacy systems: more performance, functionality, reliability, and manageability
Is your code easy to change? Can you get nearly instantaneous feedback when you do change it? Do you understand it? If the answer to any of these questions is no, you have legacy code, and it is draining time and money away from your development efforts. In this book, Michael Feathers offers start-to-finish strategies for working more effectively with large, untested legacy code bases. This book draws on material Michael created for his renowned Object Mentor seminars: techniques Michael has used in mentoring

to help hundreds of developers, technical managers, and testers bring their legacy systems under control. The topics covered include Understanding the mechanics of software change: adding features, fixing bugs, improving design, optimizing performance
Getting legacy code into a test harness
Writing tests that protect you against introducing new problems
Techniques that can be used with any language or platform—with examples in Java, C++, C, and C#
Accurately identifying where code changes need to be made
Coping with legacy systems that aren't object-oriented
Handling applications that don't seem to have any structure
This book also includes a catalog of twenty-four dependency-breaking techniques that help you work with program elements in isolation and make safer changes.
Scientific Computing Packt Publishing Ltd

In *Optimization of Industrial Unit Processes*, the term "optimization" means the maximizing of productivity and safety while minimizing operating costs. In a fully optimized plant, efficiency and productivity are continuously maximized while levels,

temperatures, pressures, or flows float within their allowable limits. This control philosophy differs from earlier approaches - where levels and temperatures were controlled at constant values, and plant productivity was only an accidental, uncontrolled consequence of those controlled variables. With this approach, the sides of a multivariable control envelope are the various constraints while inside the envelope the process is continuously moved to maximize efficiency and productivity. Because one must understand a process before one can control it (let alone optimize it), *Optimization of Industrial Unit Processes* discusses the "personality" and characteristics of each process in term of its time constants, gains, and other unique features. This book provides information for engineers who design or operate industrial plants and who seek to increase the profitability of their plants. It recognizes that all industrial processes involve operations such as material transportation, heat transfer, and reactions. Therefore each

plant consists of a combination of basic unit operations and can be optimized by maximizing the efficiency, and minimizing the operating cost, of the individual unit operations from which it is composed. *Optimization of Industrial Unit Processes* discusses real world processes - where pipes leak, sensors plug, and pumps cavitate - offering practical solutions to real problems. Each control system described in the book works, illustrating the state of the art in controlling a particular unit operation. This second edition reflects the continual improvement and evolution of control systems as well as anticipates future advances. Béla G. Lipták speaks on Post-Oil Energy Technology on the AT&T Tech Channel.

The Software Optimization Cookbook

Packt Publishing Ltd

The Whole Foods Allergy Cookbook is the first cookbook to eliminate all eight allergens responsible for ninety percent of food allergies. Each and every dish offered is free of dairy, eggs, wheat, soy, peanuts, tree nuts, fish, and shellfish. You'll find tempting recipes for breakfast pancakes, breads, and cereals;

lunch soups, salads, spreads, and sandwiches; dinner entrées and side dishes; dessert puddings, cupcakes, cookies, cakes, and pies; and even after-school snacks ranging from trail mix to pizza and pretzels. Included is a resource guide to organizations, as well as a shopping guide for hard-to-find items. If you thought that allergies meant missing out on nutrition, variety, and flavor, think again. With *The Whole Foods Allergy Cookbook*, you'll have both the wonderful taste you want and the radiant health you deserve.

HBase High Performance Cookbook

Cambridge University Press

By using computer simulations in research and development, computational science and engineering (CSE) allows empirical inquiry where traditional experimentation and methods of inquiry are difficult, inefficient, or prohibitively expensive. *The Handbook of Research on Computational Science and Engineering: Theory and Practice* is a reference for interested researchers and decision-makers who want a timely introduction to the possibilities in CSE to advance their ongoing research and applications or to discover new resources and cutting edge developments. Rather than reporting results obtained using CSE models, this comprehensive survey captures the architecture of the cross-disciplinary field, explores the long term implications of technology choices, alerts readers to the

hurdles facing CSE, and identifies trends in future development.

Handbook of Research on Computational Science and Engineering: Theory and Practice Packt Publishing Ltd

Power and Performance: Software Analysis and Optimization is a guide to solving performance problems in modern Linux systems. Power-efficient chips are no help if the software those chips run on is inefficient. Starting with the necessary architectural background as a foundation, the book demonstrates the proper usage of performance analysis tools in order to pinpoint the cause of performance problems, and includes best practices for handling common performance issues those tools identify. Provides expert perspective from a key member of Intel's optimization team on how processors and memory systems influence performance Presents ideas to improve architectures running mobile, desktop, or enterprise platforms Demonstrates best practices for designing experiments and benchmarking throughout the software lifecycle Explains the importance of profiling and measurement to determine the source of performance issues

Power and Performance Prentice Hall

Professional

Optimization models play an increasingly important role in financial decisions. This is the first textbook devoted to explaining how recent advances in optimization models, methods and software can be applied to solve problems in computational finance more efficiently and accurately. Chapters discussing the theory and efficient solution methods for all major classes of optimization problems alternate with chapters illustrating their use in modeling problems of mathematical finance. The reader is guided through topics such as volatility estimation, portfolio optimization problems and constructing an index fund, using techniques such as nonlinear optimization models, quadratic programming formulations and integer programming models respectively. The book is based on Master's courses in financial engineering and comes with worked examples, exercises and case studies. It will be welcomed by applied mathematicians, operational researchers and others who work in mathematical and computational finance and who are seeking a text for self-learning or for use with courses.

Programming Multicore and Many-core

Computing Systems CRC Press

OpenCV 3 Computer Vision Application Programming Cookbook is appropriate for novice C++ programmers who want to learn how to use the OpenCV library to build computer vision applications. It is also suitable for professional software developers wishing to be introduced to the concepts of computer vision programming. It can also be used as a companion book in a university-level computer vision courses. It constitutes an excellent reference for graduate students and researchers in image processing and computer vision.

Practical Optimization Packt Publishing Ltd

Through example-driven recipes, with plenty of code, focused on the most vital features of the latest PostgreSQL version (9.4), both administrators and developers will follow short, specific guides to understand and leverage useful Postgre functionalities to create better and more efficient databases.

High Performance Computing for Computational Science -- VECPAR 2010 SIAM

Learn to use scikit-learn operations and functions for Machine Learning and deep

learning applications. About This Book Handle a variety of machine learning tasks effortlessly by leveraging the power of scikit-learn Perform supervised and unsupervised learning with ease, and evaluate the performance of your model Practical, easy to understand recipes aimed at helping you choose the right machine learning algorithm Who This Book Is For Data Analysts already familiar with Python but not so much with scikit-learn, who want quick solutions to the common machine learning problems will find this book to be very useful. If you are a Python programmer who wants to take a dive into the world of machine learning in a practical manner, this book will help you too. What You Will Learn Build predictive models in minutes by using scikit-learn Understand the differences and relationships between Classification and Regression, two types of Supervised Learning. Use distance metrics to predict in Clustering, a type of Unsupervised Learning Find points with similar characteristics with Nearest Neighbors. Use automation and cross-validation to find a best model and focus on it for a data product Choose among the best algorithm of many or use them together in an ensemble. Create your own estimator with the simple syntax of sklearn Explore the feed-forward neural networks available in scikit-learn In Detail Python is quickly becoming the go-to language for analysts and data scientists due to its simplicity and flexibility, and within the Python

data space, scikit-learn is the unequivocal choice for machine learning. This book includes walk throughs and solutions to the common as well as the not-so-common problems in machine learning, and how scikit-learn can be leveraged to perform various machine learning tasks effectively. The second edition begins with taking you through recipes on evaluating the statistical properties of data and generates synthetic data for machine learning modelling. As you progress through the chapters, you will comes across recipes that will teach you to implement techniques like data pre-processing, linear regression, logistic regression, K-NN, Naive Bayes, classification, decision trees, Ensembles and much more. Furthermore, you'll learn to optimize your models with multi-class classification, cross validation, model evaluation and dive deeper in to implementing deep learning with scikit-learn. Along with covering the enhanced features on model section, API and new features like classifiers, regressors and estimators the book also contains recipes on evaluating and fine-tuning the performance of your model. By the end of this book, you will have explored plethora of features offered by scikit-learn for Python to solve any machine learning problem you come across. Style and Approach This book consists of practical recipes on scikit-learn that target novices as well as intermediate users. It goes deep into the technical issues, covers

additional protocols, and many more real-live examples so that you are able to implement it in your daily life scenarios.

Michael Abrash's Graphics Programming Black Book Springer Science & Business Media

This book constitutes the thoroughly refereed post-conference proceedings of the 9th International Conference on High Performance Computing for Computational Science, VECPAR 2010, held in Berkeley, CA, USA, in June 2010. The 34 revised full papers presented together with five invited contributions were carefully selected during two rounds of reviewing and revision. The papers are organized in topical sections on linear algebra and solvers on emerging architectures, large-scale simulations, parallel and distributed computing, numerical algorithms.

C++ High Performance Packt Publishing Ltd

No one has done more to conquer the performance limitations of the PC than Michael Abrash, a software engineer for Microsoft. His complete works are contained in this massive volume, including everything he has written about performance coding and real-time graphics. The CD-ROM contains the entire text in Adobe Acrobat 3.0

format, allowing fast searches for specific facts.

OpenCV Computer Vision Application Programming Cookbook

Second Edition Packt Publishing Ltd
Create and manage spatial data with PostGIS Key Features Import and export geographic data from the PostGIS database using the available tools Maintain, optimize, and fine-tune spatial data for long-term viability Utilize the parallel support functionality that was introduced in PostgreSQL 9.6 Book Description PostGIS is a spatial database that integrates the advanced storage and analysis of vector and raster data, and is remarkably flexible and powerful. PostGIS provides support for geographic objects to the PostgreSQL object-relational database and is currently the most popular open source spatial databases. If you want to explore the complete range of PostGIS techniques and expose related extensions, then this book is for you. This book is a comprehensive guide to PostGIS tools and concepts which are required to manage, manipulate, and

analyze spatial data in PostGIS. It covers key spatial data manipulation tasks, explaining not only how each task is performed, but also why. It provides practical guidance allowing you to safely take advantage of the advanced technology in PostGIS in order to simplify your spatial database administration tasks. Furthermore, you will learn to take advantage of basic and advanced vector, raster, and routing approaches along with the concepts of data maintenance, optimization, and performance, and will help you to integrate these into a large ecosystem of desktop and web tools. By the end, you will be armed with all the tools and instructions you need to both manage the spatial database system and make better decisions as your project's requirements evolve. What you will learn Import and export geographic data from the PostGIS database using the available tools Structure spatial data using the functionality provided by a combination of PostgreSQL and PostGIS Work with a set of PostGIS functions to perform basic and

advanced vector analyses Connect PostGIS with Python Learn to use programming frameworks around PostGIS Maintain, optimize, and fine-tune spatial data for long-term viability Explore the 3D capabilities of PostGIS, including LiDAR point clouds and point clouds derived from Structure from Motion (SfM) techniques Distribute 3D models through the Web using the X3D standard Use PostGIS to develop powerful GIS web applications using Open Geospatial Consortium web standards Master PostGIS Raster Who this book is for This book is for developers who need some quick solutions for PostGIS. Prior knowledge of PostgreSQL and spatial concepts would be an added advantage. [Qt5 C++ GUI Programming Cookbook](#) Packt Publishing Ltd 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.