

# Mastering Postgresql In Application Development

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*Mastering Postgresql In Application Development*

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## SANTOS DARIO

**PostgreSQL Query Optimization** "O'Reilly Media, Inc."

Learn how to build dynamic web applications with Express, a key component of the Node/JavaScript development stack. In this hands-on guide, author Ethan Brown teaches you the fundamentals through the development of a fictional application that exposes a public website and a RESTful API. You'll also learn web architecture best practices to help you build single-page, multi-page, and hybrid web apps with Express. Express strikes a balance between a robust framework and no framework at all, allowing you a free hand in your architecture choices. With this book, frontend and backend engineers familiar with JavaScript will discover new ways of looking at web development. Create webpage templating system for rendering dynamic data Dive into request and response objects, middleware, and URL routing Simulate a production environment for testing and development Focus on persistence with document databases, particularly MongoDB Make your resources available to other programs with RESTful APIs Build secure apps with authentication, authorization, and HTTPS Integrate with social media, geolocation, and other third-party services Implement a plan for launching and maintaining your app Learn critical debugging skills This book covers Express 4.0.

*PostgreSQL Server Programming - Second Edition* Apress

Take full creative control of your web applications with Flask, the Python-based microframework. With the second edition of this hands-on book, you'll learn the framework from the ground up by developing, step-by-step, a real-world project created by author Miguel Grinberg. This refreshed edition accounts for important technology changes that have occurred in the past three years. You'll learn the framework's core functionality, as well as how to extend applications with advanced web techniques such as database migration and web service communication. The first part of each chapter provides you with reference and background for the topic in question, while the second part guides you through a hands-on implementation of the topic. If you have Python experience, this book shows you how to take advantage of the creative freedom Flask provides.

**Learn PostgreSQL** PostgreSQL for DBA

Get started with PostgreSQL on the cloud and discover the advantages, disadvantages, and limitations of the cloud services from Amazon, Rackspace, Google, and Azure. Once you have chosen your cloud service, you will focus on securing it and developing a back-up strategy for your PostgreSQL instance as part of your long-term plan. Beginning PostgreSQL on the Cloud covers other essential topics such as setting up replication and high availability; encrypting your saved cloud data; creating a connection pooler for your database; and monitoring PostgreSQL on the cloud. The book concludes by showing you how to install and configure some of the tools that will help you get started with PostgreSQL on the cloud. This book shows you how database as a service enables you to spread your data across multiple data centers, ensuring that it is always accessible. You'll discover that this model does not expect you to install and maintain databases yourself because the database service provider does it for you. You no longer have to worry about the scalability and high availability of your database. What You Will Learn Migrate PostgreSQL to the cloud Choose the best configuration and specifications of cloud instances Set up a backup strategy that enables point-in-time recovery Use connection pooling and load balancing on cloud environments Monitor database environments on the cloud Who This Book Is For Those who are looking to migrate to PostgreSQL on the Cloud. It will also help database administrators in setting up a cloud environment in an optimized way and help them with their day-to-day tasks.

**Expert techniques to build scalable, reliable, and fault-tolerant database applications, 2nd Edition** Packt Publishing Ltd

If you are a database administrator looking for solutions to common PostgreSQL problems, this is the book for you. The book is suitable for people with intermediate and professional expertise.

**Modern PHP** Packt Publishing Ltd

PostgreSQL has become the most advanced open source database on the market. This book adopts a step-by-step approach to meet almost every requirement you can think of while deploying PostgreSQL in production environments. You will not only learn how to design and manage your database but also discover how to administer and secure the database.

*Learn about memory safety, type system, concurrency, and the new features of Rust 2018 edition, 2nd Edition* Addison-Wesley Professional

Explore expert techniques such as advanced indexing and high availability to build scalable, reliable, and fault-tolerant database applications using PostgreSQL 13 Key Features Master advanced PostgreSQL 13 concepts with the help of real-world datasets and examples Leverage PostgreSQL's indexing features to fine-tune the performance of your queries Extend PostgreSQL's functionalities to suit your organization's needs with minimal effort Book Description Thanks to its reliability, robustness, and high performance, PostgreSQL has become one of the most advanced open source databases on the market. This updated fourth edition will help you understand PostgreSQL administration and how to build dynamic database solutions for enterprise apps with the latest release of PostgreSQL, including designing both physical and technical aspects of the system architecture with ease. Starting with an introduction to the new features in PostgreSQL 13, this book will guide you in building efficient and fault-tolerant PostgreSQL apps. You'll explore advanced PostgreSQL features, such as logical replication, database clusters, performance tuning, advanced indexing, monitoring, and user management, to manage and maintain your database. You'll then work with the PostgreSQL optimizer, configure

PostgreSQL for high speed, and move from Oracle to PostgreSQL. The book also covers transactions, locking, and indexes, and shows you how to improve performance with query optimization. You'll also focus on how to manage network security and work with backups and replication while exploring useful PostgreSQL extensions that optimize the performance of large databases. By the end of this PostgreSQL book, you'll be able to get the most out of your database by executing advanced administrative tasks. What You Will Learn Get well versed with advanced SQL functions in PostgreSQL 13 Get to grips with administrative tasks such as log file management and monitoring Work with stored procedures and manage backup and recovery Employ replication and failover techniques to reduce data loss Perform database migration from Oracle to PostgreSQL with ease Replicate PostgreSQL database systems to create backups and scale your database Manage and improve server security to protect your data Troubleshoot your PostgreSQL instance to find solutions to common and not-so-common problems Who this book is for This database administration book is for PostgreSQL developers and database administrators and professionals who want to implement advanced functionalities and master complex administrative tasks with PostgreSQL 13. Prior experience in PostgreSQL and familiarity with the basics of database administration will assist with understanding key concepts covered in the book

**Mastering PostgreSQL in Application Development** Apress

Write efficient GIS applications using PostGIS - from data creation to data consumption About This Book Learn how you can use PostGIS for spatial data analysis and manipulation Optimize your queries and build custom functionalities for your GIS application A comprehensive guide with hands-on examples to help you master PostGIS with ease Who This Book Is For If you are a GIS developer or analyst who wants to master PostGIS to build efficient, scalable GIS applications, this book is for you. If you want to conduct advanced analysis of spatial data, this book will also help you. The book assumes that you have a working installation of PostGIS in place, and have working experience with PostgreSQL. What You Will Learn Refresh your knowledge of the PostGIS concepts and spatial databases Solve spatial problems with the use of SQL in real-world scenarios Practical walkthroughs of application development examples using Postgis, GeoServer and OpenLayers. Extract, transform and load your spatial data Expose data directly or through web services. Consume your data in both desktop and web clients In Detail PostGIS is open source extension on PostgreSQL object-relational database system that allows GIS objects to be stored and allows querying for information and location services. The aim of this book is to help you master the functionalities offered by PostGIS- from data creation, analysis and output, to ETL and live edits. The book begins with an overview of the key concepts related to spatial database systems and how it applies to Spatial RMDS. You will learn to load different formats into your Postgres instance, investigate the spatial nature of your raster data, and finally export it using built-in functionalities or 3th party tools for backup or representational purposes. Through the course of this book, you will be presented with many examples on how to interact with the database using JavaScript and Node.js. Sample web-based applications interacting with backend PostGIS will also be presented throughout the book, so you can get comfortable with the modern ways of consuming and modifying your spatial data. Style and approach This book is a comprehensive guide covering all the concepts you need to master PostGIS. Packed with hands-on examples, tips and tricks, even the most advanced concepts are explained in a very easy-to-follow manner. Every chapter in the book does not only focus on how each task is performed, but also why.

**PostgreSQL 11 Administration Cookbook** "O'Reilly Media, Inc."

Write optimized queries. This book helps you write queries that perform fast and deliver results on time. You will learn that query optimization is not a dark art practiced by a small, secretive cabal of sorcerers. Any motivated professional can learn to write efficient queries from the get-go and capably optimize existing queries. You will learn to look at the process of writing a query from the database engine's point of view, and know how to think like the database optimizer. The book begins with a discussion of what a performant system is and progresses to measuring performance and setting performance goals. It introduces different classes of queries and optimization techniques suitable to each, such as the use of indexes and specific join algorithms. You will learn to read and understand query execution plans along with techniques for influencing those plans for better performance. The book also covers advanced topics such as the use of functions and procedures, dynamic SQL, and generated queries. All of these techniques are then used together to produce performant applications, avoiding the pitfalls of object-relational mappers. What You Will Learn Identify optimization goals in OLTP and OLAP systems Read and understand PostgreSQL execution plans Distinguish between short queries and long queries Choose the right optimization technique for each query type Identify indexes that will improve query performance Optimize full table scans Avoid the pitfalls of object-relational mapping systems Optimize the entire application rather than just database queries Who This Book Is For IT professionals working in PostgreSQL who want to develop performant and scalable applications, anyone whose job title contains the words "database developer" or "database administrator" or who is a backend developer charged with programming database calls, and system architects involved in the overall design of application systems running against a PostgreSQL database

**Patterns and Paradigms for Scalable, Reliable Services** Packt Publishing Ltd

In the race to compete in today's fast-moving markets, large enterprises are busy adopting new technologies for creating new products, processes, and business models. But one obstacle on the road to digital transformation is placing too much emphasis on technology, and not enough on the types of processes technology enables. What if different lines of business could build their own services and applications—and decision-making was distributed rather than centralized? This report explores the concept of a digital business platform as a way of empowering individual business sectors to act on data in real time. Much innovation in a digital enterprise will increasingly happen at the edge, whether it involves business users (from

marketers to data scientists) or IoT devices. To facilitate the process, your core IT team can provide these sectors with the digital tools they need to innovate quickly. This report explores: Key cultural and organizational changes for developing business capabilities through cross-functional product teams A platform for integrating applications, data sources, business partners, clients, mobile apps, social networks, and IoT devices Creating internal API programs for building innovative edge services in low-code or no-code environments Tools including Integration Platform as a Service, Application Platform as a Service, and Integration Software as a Service The challenge of integrating microservices and serverless architectures Event-driven architectures for processing and reacting to events in real time You'll also learn about a complete pervasive integration solution as a core component of a digital business platform to serve every audience in your organization.

**PostgreSQL: Up and Running** Packt Publishing Ltd

Mastering PostgreSQL in Application Development is intended for developers working on applications that use a database server. The book addresses specifically the PostgreSQL RDBMS: it actually is the world's most advanced Open Source database as said in its slogan on the official website. By the end of this book, you will know why, and agree!

*Mastering PostgreSQL 13 - Fourth Edition* Lulu.com

This book is for moderate to advanced PostgreSQL database professionals who wish to extend PostgreSQL, utilizing the most updated features of PostgreSQL 9.4. For a better understanding of this book, familiarity with writing SQL, a basic idea of query tuning, and some coding experience in your preferred language is expected.

**The Ultimate Guide to Building Efficient Queries** Packt Publishing Ltd

This is the first volume of a book series covering PostgreSQL from the database administration point of view. The book covers PostgreSQL 11 on Linux analysing the install procedure either from source and with packages on Debian and RPM based systems. A good part of the book explains the logical organisation and the physical structure in order to give the reader a good starting point to understand the PostgreSQL internals. Logical backup and restore with `pg_dump` are also analysed and performance tips for speeding up a disaster recovery are given. The book also explains how PostgreSQL executes a query, the maintenance and the internal statistics in order to give the database administrators the know how for keeping PostgreSQL running efficiently at all time.

*The Bulgarian C# Book* Pearson Education

This book includes the newly introduced features in PostgreSQL 11, and shows you how to build better PostgreSQL applications, and administer your PostgreSQL database efficiently. You will master the advanced features of PostgreSQL and acquire the necessary skills to build efficient database solutions.

*Over 120 recipes to build high-performance and fault-tolerant PostgreSQL database solutions* "O'Reilly Media, Inc."

A comprehensive guide to understanding key techniques for architecture and hardware planning, monitoring, replication, backups, and decoupling Key Features Newly updated edition, covering the latest PostgreSQL 12 features with hands-on industry-driven recipes Create a PostgreSQL cluster that stays online even when disaster strikes Learn how to avoid costly downtime and data loss that can ruin your business Book Description Databases are nothing without the data they store. In the event of an outage or technical catastrophe, immediate recovery is essential. This updated edition ensures that you will learn the important concepts related to node architecture design, as well as techniques such as using `repmgr` for failover automation. From cluster layout and hardware selection to software stacks and horizontal scalability, this PostgreSQL cookbook will help you build a PostgreSQL cluster that will survive crashes, resist data corruption, and grow smoothly with customer demand. You'll start by understanding how to plan a PostgreSQL database architecture that is resistant to outages and scalable, as it is the scaffolding on which everything rests. With the bedrock established, you'll cover the topics that PostgreSQL database administrators need to know to manage a highly available cluster. This includes configuration, troubleshooting, monitoring and alerting, backups through proxies, failover automation, and other considerations that are essential for a healthy PostgreSQL cluster. Later, you'll learn to use multi-master replication to maximize server availability. Later chapters will guide you through managing major version upgrades without downtime. By the end of this book, you'll have learned how to build an efficient and adaptive PostgreSQL 12 database cluster. What you will learn Understand how to protect data with PostgreSQL replication tools Focus on hardware planning to ensure that your database runs efficiently Reduce database resource contention with connection pooling Monitor and visualize cluster activity with Nagios and the TIG (Telegraf, InfluxDB, Grafana) stack Construct a robust software stack that can detect and avert outages Use multi-master to achieve an enduring PostgreSQL cluster Who this book is for This book is for Postgres administrators and developers who are looking to build and maintain a highly reliable PostgreSQL cluster. Although knowledge of the new features of PostgreSQL 12 is not required, a basic understanding of PostgreSQL administration is expected.

**Mastering PostgreSQL 9.6** Faber Publishing

Master the capabilities of PostgreSQL 10 to efficiently manage and maintain your database Key Features Your one-stop guide to mastering advanced concepts in PostgreSQL 10 with ease Master query optimization, replication, and high availability with PostgreSQL Extend the functionalities of your PostgreSQL instance to suit your organizational needs with minimal effort Book Description PostgreSQL is an open source database used for handling large datasets (big data) and as a JSON document database. This book highlights the newly introduced features in PostgreSQL 10, and shows you how you can build better PostgreSQL applications, and administer your PostgreSQL database more efficiently. We begin by explaining advanced database design concepts in PostgreSQL 10, along with indexing and query optimization. You will also see how to work with event triggers and perform concurrent transactions and table partitioning, along with exploring SQL and server tuning. We will walk you through implementing advanced administrative tasks such as server maintenance and monitoring, replication, recovery, high availability, and much more. You will understand common and not-so-common troubleshooting problems and how you can overcome them. By the end of this book, you will have an expert-level

command of advanced database functionalities and will be able to implement advanced administrative tasks with PostgreSQL 10. What you will learn Get to grips with the advanced features of PostgreSQL 10 and handle advanced SQL Make use of the indexing features in PostgreSQL and fine-tune the performance of your queries Work with stored procedures and manage backup and recovery Master replication and failover techniques Troubleshoot your PostgreSQL instance for solutions to common and not-so-common problems Learn how to migrate your database from MySQL and Oracle to PostgreSQL without any hassle Who this book is for If you are a PostgreSQL data architect or an administrator and want to understand how to implement advanced functionalities and master complex administrative tasks with PostgreSQL 10, then this book is perfect for you. Prior experience of administering a PostgreSQL database and a working knowledge of SQL are required to make the best use of this book.

**PHP and MySQL Web Development** "O'Reilly Media, Inc."

Mastering Rust, Second Edition covers a comprehensive list of topics that will help you gain deeper insights into the language. It will allow you how to create high performing applications effortlessly.

*Practical PostgreSQL* Packt Publishing Ltd

Obtain all the skills you need to configure and manage a PostgreSQL database. In this book you will begin by installing and configuring PostgreSQL on a server by focusing on system-level parameter settings before installation. You will also look at key post-installation steps to avoid issues in the future. The basic configuration of PostgreSQL is tuned for compatibility rather than performance. Keeping this in mind, you will fine-tune your PostgreSQL parameters based on your environment and application behavior. You will then get tips to improve database monitoring and maintenance followed by database security for handling sensitive data in PostgreSQL. Every system containing valuable data needs to be backed-up regularly. PostgreSQL follows a simple back-up procedure and provides fundamental approaches to back up your data. You will go through these approaches and choose the right one based on your environment. Running your application with limited resources can be tricky. To achieve this you will implement a pooling mechanism for your PostgreSQL instances to connect to other databases. Finally, you will take a look at some basic errors faced while working with PostgreSQL and learn to resolve them in the quickest manner. What You Will Learn Configure PostgreSQL for performance Monitor and maintain PostgreSQL instances Implement a backup strategy for your data Resolve errors faced while using PostgreSQL Who This Book Is For Readers with basic knowledge of PostgreSQL who wish to implement key solutions based on their environment.

**Over 100 recipes to design a highly available server with the advanced features of PostgreSQL 12, 3rd Edition** Packt Publishing Ltd

Master the capabilities of PostgreSQL 9.6 to efficiently manage and maintain your database About This Book Your one-stop guide to mastering the advanced concepts in PostgreSQL with ease Master query optimization, replication, and high availability with PostgreSQL Extend the functionalities of PostgreSQL to suit your organizational needs with minimum effort Who This Book Is For If you are a PostgreSQL data architect or an administrator who wants to understand how to implement advanced functionalities and master complex administrative tasks with PostgreSQL, then this book is perfect for you. Prior experience of administering a PostgreSQL database and a working knowledge of SQL is required to make the best use of this book. What You Will Learn Get to grips with the advanced features of PostgreSQL 9.6 and handle advanced SQL Make use of the indexing features in PostgreSQL and fine-tune the performance of your queries Work with the stored procedures and manage backup and recovery Master the replication and failover techniques Troubleshoot your PostgreSQL instance for solutions to the common and not-so-common problems Learn how to migrate your database from MySQL and Oracle to PostgreSQL without any hassle In Detail PostgreSQL is an open source database used for handling large datasets (Big Data) and as a JSON document database. It also has applications in the software and web domains. This book will enable you to build better PostgreSQL applications and administer databases more efficiently. We begin by explaining the advanced database design concepts in PostgreSQL 9.6, along with indexing and query optimization. You will also see how to work with event triggers and perform concurrent transactions and table partitioning, along with exploring SQL and server tuning. We will walk you through implementing advanced administrative tasks such as server maintenance and monitoring, replication, recovery and high availability, and much more. You will understand the common and not-so-common troubleshooting problems and how you can overcome them. By the end of this book, you will have an expert-level command of the advanced database functionalities and will be able to implement advanced administrative tasks with PostgreSQL. Style and Approach This book is a comprehensive guide covering all the concepts you need to master PostgreSQL. Packed with hands-on examples, tips and tricks, even the most advanced concepts are explained in a very easy-to-follow manner. Every chapter in the book does not only focus on how each task is performed, but also why.

*Mastering PostgreSQL 13* Packt Publishing Ltd

Mastering PostgreSQL in Application Development Lulu.com

**Mastering PostgreSQL 12** Packt Publishing Ltd

The open source PostgreSQL database is soaring in popularity, as thousands of database and web professionals discover its powerful features, transaction support, performance, and industrial-strength scalability. In this book, a founding member of the PostgreSQL development team introduces everything you need to know to succeed with PostgreSQL, from basic SQL commands through database administration and optimization. PostgreSQL assumes no previous database expertise: it establishes a firm foundation of basic concepts and commands before turning to PostgreSQL's advanced, innovative capabilities. Bruce Momjian walks readers step-by-step from their first database queries through the complex queries needed to solve real-world problems. He presents proper query syntax, then explores the value and use of each key SQL commands in working applications. Learn to manipulate and update databases, customize queries, work with SQL aggregates, use joins, combine SELECTs with subqueries, work with triggers and transactions, import and export data, use PostgreSQL query tools, and more. Discover PostgreSQL techniques for server-side programming and multi-user control, and master PostgreSQL's interfaces to C, C++, ODBC, JDBC, Perl, and Tcl/TK. You'll also find detailed coverage of PostgreSQL administration, including backups, troubleshooting, and access configuration.