

# Mastering PostgreSQL

In Application Development



Dimitri Fontaine, PostgreSQL Major Contributor

*1st Edition*

# Mastering Postgresql In Application Development

**Hans-Jürgen Schönig**



## **Mastering PostgreSQL In Application Development:**

**Mastering PostgreSQL in Application Development** Dimitri Fontaine,2017-11-05 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 10](#) Hans-Jürgen Schönig,2018-01-31 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 administrating a PostgreSQL database and a working knowledge of SQL are required to make the best use of this book [Mastering PostgreSQL 17](#) Hans-Jürgen Schönig,2024-12-27 Learn advanced PostgreSQL techniques vital for everyday operation and security with a focus on PostgreSQL 17 its new features and evolving real world applications Key Features Optimize queries and performance for PostgreSQL installations Secure databases with advanced access controls and encryption Master replication backups and disaster recovery strategies Purchase of the print or Kindle book includes a free PDF eBook Book Description Starting with new features introduced in PostgreSQL 17 the sixth edition of this book provides comprehensive insights into advanced database management helping you elevate your PostgreSQL skills to an

expert level Written by Hans Jürgen Schönig a PostgreSQL expert with over 25 years of experience and the CEO of CYBERTEC PostgreSQL International GmbH this guide distills real world expertise from supporting countless global customers It guides you through crucial aspects of professional database management including performance tuning replication indexing and security strategies You'll learn how to handle complex queries optimize execution plans and enhance user interactions with advanced SQL features such as window functions and JSON support Hans equips you with practical approaches for managing database locks transactions and stored procedures to ensure peak performance With real world examples and expert solutions you'll also explore replication techniques for high availability along with troubleshooting methods to detect and resolve bottlenecks preparing you to tackle everyday challenges in database administration By the end of the book you'll be ready to deploy secure and maintain PostgreSQL databases efficiently in production environments What you will learn Deploy and manage PostgreSQL in production environments Improve database throughput and ensure speedy responses from PostgreSQL Utilize indexes partitions and full text search Handle transactions locking and concurrency issues Secure PostgreSQL with encryption and access controls Implement replication for high availability Get to grips with handling redundancy and data safety Fix the most common issues and real world problems faced by PostgreSQL users Who this book is for This book is for database administrators PostgreSQL developers and IT professionals who want to implement advanced functionalities and tackle complex administrative tasks using PostgreSQL 17 A foundational understanding of PostgreSQL and core database concepts is essential along with familiarity with SQL Prior experience in database administration will enhance your ability to leverage the advanced techniques presented in this book

*Mastering PostgreSQL 13 - Fourth Edition* HANS-JÜRGEN. SCHONIG, 2020-11-13 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 9.6 Hans-Jurgen Schonig,2017-05-30 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 administrating 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

*Enterprise and Organizational Modeling and Simulation* Robert Pergl, Eduard Babkin, Russell Lock, Pavel Malyzhenkov, Vojtěch Merunka, 2019-11-13 This book constitutes the refereed proceedings of the 15th International Workshop on Enterprise and Organizational Modeling and Simulation EOMAS 2019 held in Rome Italy in June 2019 The main focus of EOMAS is on the role importance and application of modeling and simulation within the extended organizational and enterprise context The 12 full papers presented in this volume were carefully reviewed and selected from 25 submissions They were organized in topical sections on conceptual modeling enterprise engineering and formal methods

**PostgreSQL Basic Training for Application Developers** Robert Wingate, 2019-11-30 This book will help you learn the basic information and skills you need to develop applications with PostgreSQL The instruction examples and questions answers in this book are a fast track to becoming productive as quickly as possible The content is easy to read and digest well organized and focused on honing real job skills Programming examples are coded in both Java and C NET PostgreSQL Basic Training for Application Developers is a key step in the direction of mastering PostgreSQL application development so you ll be ready to join a technical team

**Mastering PostgreSQL 13** Hans-Jürgen Schönig, 2020-11-13 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 15 Hans-Jürgen Schönig, 2023-01-31 Master the capabilities of PostgreSQL 15 to efficiently administer and maintain your database Purchase of the print or Kindle book includes a free PDF eBook Key Features Using real world examples get to grips with expert PostgreSQL 15 concepts Explore performance improvement database replication data replication database administration and more Extend PostgreSQL s functionalities to suit your organization s needs with minimal effort Book Description Starting with an introduction to the newly released features of PostgreSQL 15 this updated fifth edition will help you get to grips with PostgreSQL administration and how to build dynamic database solutions for enterprise apps including designing both physical and technical aspects of the system You ll explore advanced PostgreSQL features such as logical replication database clusters advanced indexing 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 Among the other skills that the book will help you build you ll cover transactions handling recursions working with JSON and JSONB data and setting up a Patroni cluster It will show you how to improve performance with query optimization You ll also focus on managing 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 use your database to its utmost capacity by implementing advanced administrative tasks with ease What you will learn 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 Get the hang of replication and failover techniques Improve the security of your database server and handle encryption effectively Troubleshoot your PostgreSQL instance for solutions to common and not so common problems Perform database migration from Oracle to PostgreSQL with ease Who this book is for This database administration book is for PostgreSQL developers database administrators and professionals who want to implement advanced functionalities and master complex administrative tasks with PostgreSQL 15 Prior experience in PostgreSQL and familiarity with the basics of database administration will assist with understanding key concepts covered in the book

Mastering PostgreSQL Frahaan Hussain, Kameron Hussain, 2024-01-30 Mastering PostgreSQL A Comprehensive Guide for Developers is an essential resource for anyone looking to deepen their understanding of database management and

development using PostgreSQL the world's most advanced open source database system. This guide takes you beyond the basics delving into the sophisticated aspects of PostgreSQL that are crucial for high performance and complex applications. With clear explanations, practical examples, and expert insights, this book covers a wide range of topics that are vital for modern database developers. From advanced SQL techniques to effective data modeling, system architecture considerations, and performance tuning, this book equips you with the knowledge to design and maintain scalable, efficient, and robust databases. Readers will learn how to optimize PostgreSQL settings for maximum performance, understand the nuances of transaction management and concurrency control, and master complex querying including window functions and recursive queries. The book also provides detailed guidance on database security, backup strategies, and disaster recovery procedures, ensuring that your data remains safe and accessible. Furthermore, **Mastering PostgreSQL** delves into the intricacies of system architecture, discussing how PostgreSQL fits within a larger software ecosystem. It provides practical advice on integrating PostgreSQL with various programming languages and frameworks, making it a valuable asset for backend developers. Throughout the book, real-world scenarios and challenges are addressed, offering readers the chance to apply their learning in practical situations. Whether you are a seasoned database professional or a developer looking to expand your database skills, this comprehensive guide is your go-to resource for mastering PostgreSQL. By the end of this book, you will have a thorough understanding of PostgreSQL's capabilities and be well-equipped to design, develop, and maintain complex and high-performing database solutions, positioning you at the forefront of today's database technology landscape.

**Multi Model Databases with Rust** Evan Pradipta Hardinatha, Jaisy Malikulmulki Arasy, Chevan Walidain, Idham Hanif Multazam, Raffy Aulia Adnan, Razka Athallah Adnan, 2024-12-25 MMDR Multi Model Databases with Rust is a comprehensive guide that bridges the gap between modern database management systems and the powerful, memory-safe programming language Rust. This book is designed to serve as a vital resource for both database professionals and software developers, offering in-depth knowledge on the implementation, optimization, and integration of multi-model databases using Rust.

**Mastering PostgreSQL** Hans-Jurgen Schonig, 2017-05-30 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 12-Third Edition Hans-Jürgen Schönig, 2019-11-29 Master PostgreSQL 12 features such as advanced indexing high availability monitoring and much more to efficiently manage and maintain your database Key Features Grasp advanced PostgreSQL 12 concepts with real world examples and sample datasets Explore query parallelism data replication database administration and more Extend PostgreSQL functionalities to suit your organization's needs with minimal effort Book Description Thanks to its reliability robustness and high performance PostgreSQL has become the most advanced open source database on the market This third edition of Mastering PostgreSQL helps you build dynamic database solutions for enterprise applications using the latest release of PostgreSQL which enables database analysts to design both physical and technical aspects of system architecture with ease Starting with an introduction to the newly released features in PostgreSQL 12 this book will help you build efficient and fault tolerant PostgreSQL applications You'll thoroughly examine the advanced features of PostgreSQL including logical replication database clusters performance tuning monitoring and user management You'll also work with the PostgreSQL optimizer configure PostgreSQL for high speed and understand how to move from Oracle to PostgreSQL As you progress through the chapters you'll cover transactions locking indexes and how to optimize queries for improved performance Additionally you'll learn how to manage network security and explore backups and replications while understanding useful PostgreSQL extensions to help you in optimizing 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 implementing advanced administrative tasks effortlessly What you will learn Understand the advanced SQL functions in PostgreSQL 12 Use indexing features in PostgreSQL to fine tune the performance of queries Work with stored procedures and manage backup and

recovery Master replication and failover techniques to reduce data loss Replicate PostgreSQL database systems to create backups and to scale your database Manage and improve the security of your server to protect your data Troubleshoot your PostgreSQL instance for solutions to common and not so common problems Who this book is for This book is for PostgreSQL developers and administrators and database professionals who want to implement advanced functionalities and master complex administrative tasks with PostgreSQL 12 Prior exposure to PostgreSQL as well as familiarity with the basics of database administration is expected *Mastering PostgreSQL 11* Hans-Jürgen Schönig, 2018-10-30 Master the capabilities of PostgreSQL 11 to efficiently manage and maintain your database Key Features Master advanced concepts of PostgreSQL 11 with real world datasets and examples Explore query parallelism data replication and database performance while working with larger datasets Extend the functionalities of your PostgreSQL instance to suit your organization's needs with minimal effort Book Description This second edition of *Mastering PostgreSQL 11* helps you build dynamic database solutions for enterprise applications using the latest release of PostgreSQL which enables database analysts to design both the physical and technical aspects of the system architecture with ease This book begins with an introduction to the newly released features in PostgreSQL 11 to help you build efficient and fault tolerant PostgreSQL applications You'll examine all of the advanced aspects of PostgreSQL in detail including logical replication database clusters performance tuning monitoring and user management You will also work with the PostgreSQL optimizer configuring PostgreSQL for high speed and see how to move from Oracle to PostgreSQL As you progress through the chapters you will cover transactions locking indexes and optimizing queries to improve performance Additionally you'll learn to manage network security and explore backups and replications while understanding the useful extensions of PostgreSQL so that you can optimize the speed and performance of large databases By the end of this book you will be able to use your database to its utmost capacity by implementing advanced administrative tasks with ease What you will learn Get to grips with advanced PostgreSQL 11 features and SQL functions 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 Perform database migration from MySQL and Oracle to PostgreSQL with ease Who this book is for This book is for data and database professionals wanting to implement advanced functionalities and master complex administrative tasks with PostgreSQL 11 Prior experience of database administration with PostgreSQL database will aid in understanding the concepts covered in this book *Mastering PHP 4.1* Jeremy Allen, Charles Hornberger, 2002 Build Dynamic Database Driven Web Sites PHP is a fully developed server side embedded scripting language and its importance for web application development has grown with the rise of the Apache web server Are you a novice programmer This book starts with the basics and takes you wherever you want to go A seasoned pro You'll be amazed at how much you can capitalize on PHP's power and object oriented support and how it leverages your knowledge of

other languages Finally if you re a PHP user in search of an authoritative reference you need look no further Mastering PHP 4 1 guides you through all levels of real world web programming problems and provides expert advice on which solutions work best Coverage Includes Reading and writing files Validating data with regular expressions Accessing MySQL and PostgreSQL databases Accessing LDAP servers Generating images and PDF documents on the fly Building authentication and access control systems Sending e mail and building web to e mail interfaces Creating your own classes Closing common security holes in PHP scripts Parsing and generating XML documents Using sessions to store persistent data Debugging misbehaving scripts Encrypting and decrypting sensitive data Note CD ROM DVD and other supplementary materials are not included as part of eBook file *Forthcoming Books* Rose Army,2003-04 **Learning PostgreSQL 10** Salahaldin Juba,Andrey Volkov,2017-12-01 Leverage the power of PostgreSQL 10 to build powerful database and data warehousing applications About This Book Be introduced to the concept of relational databases and PostgreSQL one of the fastest growing open source databases in the world Learn client side and server side programming in PostgreSQL and how to administer PostgreSQL databases Discover tips on implementing efficient database solutions with PostgreSQL 10 Who This Book Is For If you re interested in learning more about PostgreSQL one of the most popular relational databases in the world then this book is for you Those looking to build solid database or data warehousing applications with PostgreSQL 10 will also find this book a useful resource No prior knowledge of database programming or administration is required to get started with this book What You Will Learn Understand the fundamentals of relational databases relational algebra and data modeling Install a PostgreSQL cluster create a database and implement your data model Create tables and views define indexes and implement triggers stored procedures and other schema objects Use the Structured Query Language SQL to manipulate data in the database Implement business logic on the server side with triggers and stored procedures using PL pgSQL Make use of advanced data types supported by PostgreSQL 10 Arrays hstore JSONB and others Develop OLAP database solutions using the most recent features of PostgreSQL 10 Connect your Python applications to a PostgreSQL database and work with the data efficiently Test your database code find bottlenecks improve performance and enhance the reliability of the database applications In Detail PostgreSQL is one of the most popular open source databases in the world and supports the most advanced features included in SQL standards and beyond This book will familiarize you with the latest new features released in PostgreSQL 10 and get you up and running with building efficient PostgreSQL database solutions from scratch We ll start with the concepts of relational databases and their core principles Then you ll get a thorough introduction to PostgreSQL and the new features introduced in PostgreSQL 10 We ll cover the Data Definition Language DDL with an emphasis on PostgreSQL and the common DDL commands supported by ANSI SQL You ll learn to create tables define integrity constraints build indexes and set up views and other schema objects Moving on you ll get to know the concepts of Data Manipulation Language DML and PostgreSQL server side programming capabilities using PL pgSQL This will give you a very

robust background to develop, tune, test, and troubleshoot your database application. We'll also explore the NoSQL capabilities of PostgreSQL and connect to your PostgreSQL database to manipulate data objects. By the end of this book, you'll have a thorough understanding of the basics of PostgreSQL 10 and will have the necessary skills to build efficient database solutions.

**Style and approach** This book is a comprehensive beginner-level tutorial on PostgreSQL and introduces the features of the newest version 10 along with explanation of concepts in a very easy-to-understand manner. Practical tips and examples are provided at every step to ensure you are able to grasp each topic as quickly as possible.

*Developing Modern Database Applications with PostgreSQL* Dr. Quan Ha Le, Marcelo Diaz, 2021-08-13

Get up to speed with core PostgreSQL tasks such as database administration, application development, database performance monitoring, and database testing.

**Key Features** Build real-world enterprise database management systems using PostgreSQL 12 features. Explore the development, administrative, and security aspects of PostgreSQL 12. Implement best practices from industry experts to build powerful database applications.

**Book Description** PostgreSQL is an open-source object-relational database management system (DBMS) that provides enterprise-level services including high performance and scalability. This book is a collection of unique projects providing you with a wealth of information relating to administering, monitoring, and testing PostgreSQL. The focus of each project is on both the development and the administrative aspects of PostgreSQL. Starting by exploring development aspects such as database design and its implementation, you'll then cover PostgreSQL administration by understanding PostgreSQL architecture, PostgreSQL performance, and high-availability clusters. Various PostgreSQL projects are explained through current technologies such as DevOps and cloud platforms using programming languages like Python and Node.js. Later, you'll get to grips with the well-known database API tool PostgREST before learning how to use popular PostgreSQL database testing frameworks. The book is also packed with essential tips and tricks and common patterns for working seamlessly in a production environment. All the chapters will be explained with the help of a real-world case study on a small banking application for managing ATM locations in a city. By the end of this DBMS book, you'll be proficient in building reliable database solutions as per your organization's needs.

**What you will learn** Set up high-availability PostgreSQL database clusters in the same containment, a cross-containment, and on the cloud. Monitor the performance of a PostgreSQL database. Create automated unit tests and implement test-driven development for a PostgreSQL database. Develop PostgreSQL apps on cloud platforms using DevOps with Python and Node.js. Write robust APIs for PostgreSQL databases using Python programming, Node.js, and PostgREST. Create a geospatial database using PostGIS and PostgreSQL. Implement automatic configuration by Ansible and Terraform for PostgreSQL. Who this book is for This PostgreSQL book is for database developers, database administrators, data architects, or anyone who wants to build end-to-end database projects using PostgreSQL. This book will also appeal to software engineers, IT technicians, computer science researchers, and university students who are interested in database development and administration. Some familiarity with PostgreSQL and Linux is required to grasp the concepts.

covered in the book effectively

**Learning PostgreSQL** Salahaldin Juba, Achim Vannahme, Andrey Volkov, 2015-11-30  
Create develop and manage relational databases in real world applications using PostgreSQL About This Book Learn about the PostgreSQL development life cycle including its testing and refactoring Build productive database solutions and use them in Java applications A comprehensive guide to learn about SQL PostgreSQL procedural language and PL pgSQL Who This Book Is For If you are a student database developer or an administrator interested in developing and maintaining a PostgreSQL database then this book is for you No knowledge of database programming or administration is necessary What You Will Learn Learn concepts of data modelling and relation algebra Install and set up PostgreSQL database server and client software Implement data structures in PostgreSQL Manipulate data in the database using SQL Implement data processing logic in the database with stored functions triggers and views Test database solutions and assess the performance Integrate database with Java applications Detailed knowledge of the main PostgreSQL building objects most used extensions Practice database development life cycle including analysis modelling documentation testing bug fixes and refactoring In Detail PostgreSQL is one of the most powerful and easy to use database management systems It has strong support from the community and is being actively developed with a new release every year PostgreSQL supports the most advanced features included in SQL standards Also it provides NoSQL capabilities and very rich data types and extensions All that makes PostgreSQL a very attractive solution in various kinds of software systems The book starts with the introduction of relational databases with PostgreSQL It then moves on to covering data definition language DDL with emphasis on PostgreSQL and common DDL commands supported by ANSI SQL You will then learn the data manipulation language DML and advanced topics like locking and multi version concurrency control MVCC This will give you a very robust background to tune and troubleshoot your application The book then covers the implementation of data models in the database such as creating tables setting up integrity constraints building indexes defining views and other schema objects Next it will give you an overview about the NoSQL capabilities of PostgreSQL along with Hstore XML Json and arrays Finally by the end of the book you ll learn to use the JDBC driver and manipulate data objects in the Hibernate framework Style and approach An easy to follow guide to learn programming build applications with PostgreSQL and manage a PostgreSQL database instance

**Mastering PostgreSQL 17 - Sixth Edition** Hans-Jürgen Schönig, 2024-12-27 This book provides an expert level exploration of PostgreSQL 17 s advanced features

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