

Databases With Postgresql

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.

Updated to include the new features introduced in PostgreSQL 13, this book shows you how to build better PostgreSQL applications and administer your PostgreSQL database efficiently. You'll master the advanced features of PostgreSQL and develop the skills you need to build secure and highly available database solutions.

Salt has become one of the major players in automation and configuration management solutions. This book starts with the basics of the tool, the procedures to get up and running with Salt and then moves on to configuring very simple but important details to receive optimal performance from the tool. It also walks you through Salt configurations for different infrastructure components and the details of the Salt modules for each of the components. The book also provides some common problem scenarios and how to troubleshoot them. With detailed configuration, their explanation and command line outputs of the module execution, Salt Cookbook will help you to get up and running with Salt for all your infrastructural needs.

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.

"PostgreSQL Developer's Handbook" provides a complete overview of the PostgreSQL database server and extensive coverage of its core features, including object orientation, PL/SQL, and the most important programming interfaces. The authors introduce the reader to the language and syntax of PostgreSQL and then move quickly into sophisticated programming topics.

Completely updated for Django 3.1 Django for Professionals takes your web development skills to the next level, teaching you how to build production-ready websites with Python and Django. Once you have learned the basics of Django there is a massive gap between building simple "toy apps" and what it takes to build a "production-ready" web application suitable for deployment to thousands or even millions of users. In the book you'll learn how to:

- * Build a Bookstore website from scratch
- * Use Docker and PostgreSQL locally to mimic production settings
- * Implement advanced user registration with email
- * Write comprehensive tests
- * Adopt advanced security and performance improvements
- * Add search and file/image uploads

If you want to take advantage of all that Django has to offer, Django for Professionals is a comprehensive best practices guide to building and deploying modern websites.

This book will get you up and running with building efficient relational database solutions right from scratch with the newest features of PostgreSQL 11. You will learn the end-to-end working of relational databases and how to work with database structures. You will also be able to write essential SQL statements, perform data manipulation and ...

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.

Get to know effective ways to improve PostgreSQL's performance and master query optimization, and database monitoring. About This Book

- Perform essential database tasks such as benchmarking the database and optimizing the server's memory usage
- Learn ways to improve query performance and optimize the PostgreSQL server
- Explore a wide range of high availability and replication

mechanisms to build robust, highly available, scalable, and fault-tolerant PostgreSQL databases Who This Book Is For If you are a developer or administrator with limited PostgreSQL knowledge and want to develop your skills with this great open source database, then this book is ideal for you. Learning how to enhance the database performance is always an exciting topic to everyone, and this book will show you enough ways to enhance the database performance. What You Will Learn Build replication strategies for homogeneous and heterogeneous databases Test and build a powerful machine with multiple bench marking techniques Get to know a few SQL injection techniques Find out how to manage the replication using multiple tools Benchmark the database server using multiple strategies Work with the query processing algorithms and their internal behaviors Build a proper plan to upgrade or migrate to PostgreSQL from other databases See the essential database load balancing techniques and the various partitioning approaches PostgreSQL provides Learn memory optimization techniques and database server configurations 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. It also provides NoSQL capabilities and very rich data types and extensions. All of this makes PostgreSQL a very attractive solution in software systems. If you run a database, you want it to perform well and you want to be able to secure it. As the world's most advanced open source database, PostgreSQL has unique built-in ways to achieve these goals. This book will show you a multitude of ways to enhance your database's performance and give you insights into measuring and optimizing a PostgreSQL database to achieve better performance. This book is your one-stop guide to elevate your PostgreSQL knowledge to the next level. First, you'll get familiarized with essential developer/administrator concepts such as load balancing, connection pooling, and distributing connections to multiple nodes. Next, you will explore memory optimization techniques before exploring the security controls offered by PostgreSQL. Then, you will move on to the essential database/server monitoring and replication strategies with PostgreSQL. Finally, you will learn about query processing algorithms. Style and approach This comprehensive guide is packed with practical administration tasks. Each topic is explained using examples and a step-by-step approach.

In Detail PostgreSQL is a powerful, open source, enterprise database. This PostgreSQL 9 Administration Cookbook LITE book describes key aspects of the PostgreSQL open source database system. The book will help a sysadmin or DBA with key administration issues in PostgreSQL: configuration, monitoring and diagnosis, and setting up regular maintenance. This hands-on guide will assist developers working on live databases supporting web or enterprise software applications. To find out more about upgrading to the full edition, visit www.packtpub.com/lite-editions and log into your account for offers and help. If you don't have an account on PacktPub.com, visit today and set one up! Approach Written in the cookbook style, this book offers learning and techniques through recipes. It contains step-by-step instructions for administrators and developers to manage databases in PostgreSQL. The book is designed in such a way that you can read it chapter by chapter or refer to recipes in no particular order. Who this book is for This book is for Sysadmins, Database Administrators, Architects, Developers, and anyone with an interest in planning for or running live production databases. The book assumes that you are familiar with the basic operation of PostgreSQL.

A practical guide to administer, monitor and replicate your PostgreSQL 10 database Key Features Get to grips with the capabilities of PostgreSQL 10 to administer your database more efficiently Monitor, tune, secure and protect your database for optimal performance A step-by-step, recipe-based guide to help you tackle any problem in PostgreSQL 10 administration with ease Book Description PostgreSQL is a powerful, open source database management system with an enviable reputation for high performance and stability. With many new features in its arsenal, PostgreSQL 10 allows users to scale up their PostgreSQL infrastructure. This book takes a step-by-step, recipe-based approach to effective PostgreSQL administration. Throughout this book, you will be introduced to these new features such as logical replication, native table partitioning, additional query parallelism, and much more. You will learn how to tackle a variety of problems that are basically the pain points for any database administrator - from creating tables to managing views, from improving performance to securing your database. More importantly, the book pays special attention to topics such as monitoring roles, backup, and recovery of your PostgreSQL 10 database, ensuring high availability, concurrency, and replication. By the end of this book, you will know everything you need to know to be the go-to PostgreSQL expert in your organization. What you will learn Get to grips with the newly released PostgreSQL 10 features to improve database performance and reliability Manage open source PostgreSQL versions 10 on various platforms. Explore best practices for planning and designing live databases Select and implement robust backup and recovery techniques in PostgreSQL 10 Explore concise and clear guidance on replication and high availability Discover advanced technical tips for experienced users Who this book is for This book is for database administrators, data architects, developers, or anyone with an interest in planning for, or running, live production databases using PostgreSQL. It is most suited to those looking for hands-on solutions to any problem associated with PostgreSQL administration.

"A practical guide to the Advanced Open Source Database"--Cover.

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.

Arguably the most capable of all the open source databases, PostgreSQL is an object-relational database management system first developed in 1977 by the University of California at Berkeley. In spite of its long history, this robust database suffers from a lack of easy-to-use documentation. Practical PostgreSQL fills that void with a fast-paced guide to installation, configuration, and usage. This comprehensive new volume shows you how to compile PostgreSQL from source, create a database, and configure PostgreSQL to accept client-server connections. It also covers the many advanced features, such as transactions, versioning, replication, and referential integrity that enable developers and DBAs to use PostgreSQL for serious business applications. The thorough introduction to PostgreSQL's PL/pgSQL programming language explains how you can use this very useful but under-documented feature to develop stored procedures and triggers. The book includes a complete command reference, and database administrators will appreciate the chapters on user management, database maintenance, and backup & recovery. With Practical PostgreSQL, you will discover quickly why this open source database is such a great open source alternative to proprietary products from Oracle, IBM, and Microsoft.

Enterprises require support and agility to work with big data repositories and relational databases. FUJITSU Enterprise Postgres is one of the leading relational database management systems (RDBMSs), and it is designed to work with large data sets. As more

companies transform their infrastructures with hybrid cloud services, they require environments that protect the safety of their data and business rules. At IBM®, we believe that your data is yours and yours alone. The insights and advantages that come from your data are yours to use in the pursuit of your business objectives. IBM is dedicated to this mission, and the IBM LinuxONE platform is designed around this core statement. IBM LinuxONE is a secure and scalable data serving and computing platform that is made for today's critical workloads. IBM LinuxONE is an all-Linux enterprise platform for open innovation that combines the best of Linux and open technology with the best of enterprise computing in one system. Combining FUJITSU Enterprise Postgres, which is a robust Relational Database Management System (RDBMS) that provides strong query performance and high availability (HA), with IBM LinuxONE can transform your application and data portfolio by providing innovative data privacy, security, and cyber resiliency capabilities, which are all delivered with minimal downtime. This IBM Redbooks® publication describes data serving with FUJITSU Enterprise Postgres 12 that is deployed on IBM LinuxONE, which provides the scalability, business-critical availability, and security that your enterprise requires. This publication is useful to IT architects, system administrators, and others who are interested in understanding the significance of using FUJITSU Enterprise Postgres on IBM LinuxONE. This publication is written for those who are familiar with IBM LinuxONE and have some experience in the use of PostgreSQL.

This book will get you up and running with the working of relational databases, data modeling, data manipulation, and more. You will learn to build efficient relational database solutions from scratch using the latest features of PostgreSQL 12 and 13. You'll also be able to identify bottlenecks to enhance the performance of database applications.

If you are a system administrator, database administrator, architect, developer, or anyone with an interest in planning, managing, and designing database solutions using PostgreSQL, this is the book for you. This book is suited for you if you have some prior experience with any relational database or with the SQL language.

If you are a database administrator who needs to get to grips with PostgreSQL quickly and efficiently, then this book is for you. This book will also be highly beneficial if you are a project leader or a developer who is interested in knowing more about database systems or bottleneck detection, as it will enable you to work more closely and cooperatively with your administrators.

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.

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.

The easiest way to set up a PostgreSQL database server on Windows Get up-and-running on PostgreSQL quickly using this hands-on guide. Filled with real-world examples, PostgreSQL 8 for Windows offers you practical, step-by-step details on installing, configuring, and using PostgreSQL 8--the full-featured, open-source database management system--on Windows platforms. You'll learn to administer, secure, and tune your database and use SQL. You'll also discover how to interface Microsoft Access, Microsoft .NET, Visual C++, and Java with the PostgreSQL database. Install and configure PostgreSQL 8 on Windows Customize your system using the configuration files Work with the utilities Administer your database from the pgAdmin III graphical interface Use the psql command line program to manually execute SQL commands Take advantage of built-in functions or create your own stored procedures and triggers Implement tested security measures Maintain optimal database performance Access a PostgreSQL database from a Microsoft Access application and migrate Access databases to PostgreSQL Create .NET, Visual C++, and Java applications that interface with your PostgreSQL server

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.

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.

Practical SQL is an approachable and fast-paced guide to SQL (Structured Query Language), the standard programming language for defining, organizing, and exploring data in relational databases. The book focuses on using SQL to find the story your data tells, with the popular open-source database PostgreSQL and the pgAdmin interface as its primary tools. You'll first cover the fundamentals of databases and the SQL language, then build skills by analyzing data from the U.S. Census and other federal and state government agencies. With exercises and real-world examples in each chapter, this book will teach even those who have never programmed before all the tools necessary to build powerful databases and access information quickly and efficiently. You'll learn how to: - Create databases and related tables using your own data - Define the right data types for your information - Aggregate, sort, and filter data to find patterns - Use basic math and advanced statistical functions - Identify errors in data and clean them up - Import and export data using delimited text files - Write queries for geographic information systems (GIS) - Create advanced queries and automate tasks Learning SQL doesn't have to be dry and complicated. Practical SQL delivers clear examples with an easy-to-follow approach to teach you the tools you need to build and manage your own databases. This book uses PostgreSQL, but the SQL syntax is applicable to many database applications, including Microsoft SQL Server and MySQL.

Provides information on Asterisk, an open source telephony application.

This book is for developers and data architects who have some exposure to databases. It is assumed that you understand the basic concepts of tables and common database objects, including privileges and security.

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. If you are a database developer who wants to learn how to design and implement databases for application development using PostgreSQL, this is the book for you. Existing knowledge of basic database concepts and some programming experience is required

Beginning Databases with PostgreSQL From Novice to Professional Apress

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. 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.

A practical guide to administer, monitor and replicate your PostgreSQL 11 database Key Features Study and apply the newly introduced features in PostgreSQL 11 Tackle any problem in PostgreSQL 11 administration and management Catch up on expert techniques for monitoring, fine-tuning, and securing your database Book Description PostgreSQL is a powerful, open source database management system with an enviable reputation for high performance and stability. With many new features in its arsenal, PostgreSQL 11 allows you to scale up your PostgreSQL infrastructure. This book takes a step-by-step, recipe-based approach to effective PostgreSQL administration. The book will introduce you to new features such as logical replication, native table partitioning, additional query parallelism, and much more to help you to understand and control, crash recovery and plan backups. You will learn how to tackle a variety of problems and pain points for any database administrator such as creating tables, managing views, improving performance, and securing your database. As you make steady progress, the book will draw attention to important topics such as monitoring roles, backup, and recovery of your PostgreSQL 11 database to help you understand roles and produce a summary of log files, ensuring high availability, concurrency, and replication. By the end of this book, you will have the necessary knowledge to manage your PostgreSQL 11 database efficiently. What you will learn Troubleshoot open source PostgreSQL version 11 on various platforms Deploy best practices for planning and designing live databases Select and implement robust backup and recovery techniques in PostgreSQL 11 Use pgAdmin or OmniDB to perform database administrator (DBA) tasks Adopt efficient replication and high availability techniques in PostgreSQL Improve the performance of your PostgreSQL solution Who this book is for This book is designed for database administrators, data architects, database developers, or anyone with an interest in planning and running live production databases using PostgreSQL 11. It is also ideal if you're looking for hands-on solutions to any problem associated with PostgreSQL 11 administration. Some experience with handling PostgreSQL databases will be beneficial

Develop programmatic functions to create powerful database applications About This Book Write complex SQL queries and design a robust database design that fits your application's need Improve database performance by indexing, partitioning tables, and query optimizing A comprehensive guide covering the advanced PostgreSQL concepts without any hassle Who This Book Is For If you are a PostgreSQL developer with a basic knowledge of PostgreSQL development and you're want deeper knowledge to develop applications, then this book is for you. As this book does not cover basic installation and configurations, you should have PostgreSQL installed on your machine as a prerequisite. What You Will Learn Write more complex queries with advanced SQL queries Design a database that works with the application exactly the way you want Make the database work in extreme conditions by tuning, optimizing, partitioning, and indexing Develop applications in other programming languages such as Java and PHP Use extensions to get extra benefits in terms of functionality and performance Build an application that does not get locked by data manipulation Explore in-built db functions and data type conversions In Detail PostgreSQL is the most advanced open source database in the world. It is easy to install, configure, and maintain by following the documentation; however, it's difficult to develop applications using programming languages and design databases accordingly. This book is what you need to get the most out of PostgreSQL You will begin with advanced SQL topics such as views, materialized views, and cursors, and learn about performing data type conversions. You will then perform trigger operations and use trigger functions in PostgreSQL. Next we walk through data modeling, normalization concepts, and the effect of transactions and locking on the database. The next half of the book covers the types of indexes, constrains, and the concepts of table partitioning, as well as the different mechanisms and approaches available to write efficient queries or code. Later, we explore PostgreSQL Extensions and Large Object Support in PostgreSQL. Finally, you will perform database operations in PostgreSQL using PHP and Java. By the end of this book, you will have mastered all the aspects of PostgreSQL development. You will be able to build efficient enterprise-grade applications with PostgreSQL by making use of these concepts Style and approach Every chapter follows a step by step approach that first explains the concept , then shows you how to execute it practically so that you can implement them in your application.

A guide to building applications with Rails covers such topics as metaprogramming, Active Support library, advanced database functions, security principles, RESTful architecture, and optimizing performance.

Starting an application is simple enough, whether you use migrations, a model-synchronizer or good old-fashioned hand-rolled SQL. A year from now, however, when your app has grown and you're trying to measure what's happened... the story can quickly change when data is overwhelming you and you need to make sense of what's been accumulating. Learning how PostgreSQL works is just one aspect of working with data. PostgreSQL is there to enable, enhance and extend what you do as a developer/DBA. And just like any tool in your toolbox, it can help you create crap, slice off some fingers, or help you be the superstar that you are. That's the perspective of A Curious Moon - data is the truth, data is your friend, data is your business. The tools you use (namely PostgreSQL) are simply there to safeguard your treasure and help you understand what it's telling you. But what does it mean to be "data-minded"? How do you even get started? These are good questions and ones I struggled with when outlining this book. I quickly realized that the only way you could truly understand the power and necessity of

solid database design was to live the life of a new DBA... thrown into the fire like we all were at some point...Meet Dee Yan, our fictional intern at Red:4 Aerospace. She's just been handed the keys to a massive set of data, straight from Saturn, and she has to load it up, evaluate it and then analyze it for a critical project. She knows that PostgreSQL exists... but that's about it. Much more than a tutorial, this book has a narrative element to it a bit like *The Martian*, where you get to know Dee and the problems she faces as a new developer/DBA... and how she solves them. The truth is in the data...

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 Postgres 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 Postgres

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 Postgres. 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.

*The most updated PostgreSQL book on the market, covering version 8.0

*Highlights the most popular PostgreSQL APIs, including C, Perl, PHP, and Java

*This is two books in one; it simultaneously covers key relational database design principles, while teaching PostgreSQL

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

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!

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