

Expert Techniques for Query Optimization, High Availability, and Efficiency

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In today's data-driven world, it's more important than ever to have a database that is performant, reliable, and efficient. This book will teach you the expert techniques you need to optimize your database queries, ensure high availability, and improve efficiency.



PostgreSQL 10 High Performance: Expert techniques for query optimization, high availability, and efficient database maintenance by Enrico Pirozzi

★★★★☆ 4.1 out of 5

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Enhanced typesetting : Enabled
Print length : 510 pages



You'll learn how to:

- Identify and fix slow queries
- Create indexes and other performance-enhancing structures
- Configure your database for optimal performance
- Implement high availability solutions to keep your database up and running
- Monitor your database to identify and resolve performance issues

Whether you're a database administrator, a developer, or a data analyst, this book will help you get the most out of your database.

Query Optimization

Query optimization is the process of improving the performance of database queries. This can be done by:

- Identifying and fixing slow queries
- Creating indexes and other performance-enhancing structures
- Configuring your database for optimal performance

By following the techniques in this book, you can significantly improve the performance of your database queries.

Identifying and Fixing Slow Queries

The first step to query optimization is to identify slow queries. This can be done by using a query profiler, which is a tool that can measure the performance of your queries.

Once you have identified slow queries, you can begin to fix them. There are a number of techniques that you can use to improve the performance of your queries, including:

- Adding indexes to your tables
- Rewriting your queries to use more efficient syntax
- Tuning your database configuration

By following these techniques, you can significantly improve the performance of your slow queries.

Creating Indexes and Other Performance-Enhancing Structures

Indexes are data structures that can be used to speed up the performance of your queries. Indexes work by creating a mapping between the values in a column and the location of the corresponding rows in the table.

There are a number of different types of indexes, including:

- B-tree indexes
- Hash indexes
- Bitmap indexes

The type of index that you choose will depend on the specific needs of your application.

In addition to indexes, there are a number of other performance-enhancing structures that you can create, including:

- Materialized views
- Partitioned tables
- Data warehouses

By creating these structures, you can significantly improve the performance of your database.

Configuring Your Database for Optimal Performance

The way that you configure your database can also have a significant impact on its performance. There are a number of different settings that you can adjust, including:

- The buffer pool size
- The checkpoint interval
- The number of worker processes

The optimal settings for your database will depend on the specific needs of your application.

High Availability

High availability is the ability of a system to remain up and running even in the event of a hardware or software failure.

There are a number of different ways to achieve high availability, including:

- Using a redundant array of independent disks (RAID) to protect your data from disk failures

- Implementing a failover cluster to automatically switch to a backup server in the event of a server failure
- Using a cloud-based database service that provides built-in high availability

By implementing these techniques, you can ensure that your database is always available, even in the event of a failure.

Efficiency

Efficiency is the ability of a system to use resources wisely.

There are a number of different ways to improve the efficiency of your database, including:

- Denormalizing your data to reduce the number of joins
- Using caching to store frequently accessed data in memory
- Compressing your data to reduce the amount of storage space required

By following these techniques, you can improve the efficiency of your database and reduce the cost of ownership.

By following the techniques in this book, you can significantly improve the performance, reliability, and efficiency of your database. This will help you to get the most out of your data and to make better decisions.

If you are interested in learning more about database optimization, there are a number of resources available online. You can also find training

courses and



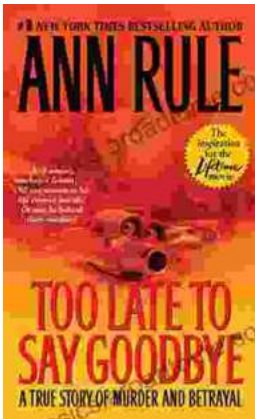
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