

## Advanced Oracle SQL Tuning: The Definitive Reference

It's impossible to tune an Oracle database without understanding SQL tuning. Oracle is a SQL processing engine and the execution speed of any SQL query is influenced by many factors, both internal and external. As a declarative data access method, SQL relies on the Oracle cost-based optimizer to always choose the "best" execution plan for every SQL query. However, Oracle's SQL is among the most flexible and robust in the world, and along with this great power comes complexity. Tuning Oracle SQL is the single most important skill of any Oracle professional, and Oracle professionals are challenged to create SQL statements that will support thousands of concurrent executions with sub-second response time. "Advanced Oracle SQL Tuning" is a pragmatic treatment of Oracle SQL tuning, short on theory and big on real-world techniques and tips. This book is the culmination of the author's 25 years of full-time DBA experience and he shares expert tips and secrets for hyper charging SQL execution speed. This book covers advanced topics and it is not appropriate for beginners, dilettantes or neophytes.

This book is packed with real world examples that cover all the advanced features of PL/SQL. In turn, each major certification topic is covered in a separate chapter that makes understanding concepts easier. At the end of each chapter, you will find plenty of practice questions to strengthen and test your learning.If you are a PL/SQL developer looking for deeper insight and a move from mid-level programmer to professional database developer, then this is the best guide for you. This book is also an ideal guide for all the Associate level PL/SQL programmers who are preparing for the Professional 1Z0-146 certification. This book assumes you have prior knowledge of PL/SQL programming.

A poorly performing database application not only costs users time, but also has an impact on other applications running on the same computer or the same network. SQL Tuning provides an essential next step for SQL developers and database administrators who want to extend their SQL tuning expertise and get the most from their database applications. There are two basic issues to focus on when tuning SQL: how to find and interpret the execution plan of an SQL statement and how to change SQL to get a specific alternate execution plan. SQL Tuning provides answers to these questions and addresses a third issue that's even more important: how to find the optimal execution plan for the query to use.Author Dan Tow outlines a timesaving method he's developed for finding the optimum execution plan--rapidly and systematically--regardless of the complexity of the SQL or the database platform being used. You'll learn how to understand and control SQL execution plans and how to diagram SQL queries to deduce the best execution plan for a query. Key chapters in the book include exercises to reinforce the concepts you've learned. SQL Tuning concludes by addressing special concerns and unique solutions to "unsolvable problems."Whether you are a programmer who develops SQL-based applications or a database administrator or other who troubleshoots poorly tuned applications, SQL Tuning will arm you with a reliable and deterministic method for tuning your SQL queries to gain optimal performance.

Tuning of SQL code is generally cheaper than changing the data model. Physical and configuration tuning involves a search for bottlenecks that often points to SQL code or data model issues. Building an appropriate data model and writing properly performing SQL code can give 100%+ performance improvement. Physical and configuration tuning often gives at most a 25% performance increase. Gavin Powell shows that the central theme of Oracle10gR2 Performance Tuning is four-fold: denormalize data models to fit applications; tune SQL code according to both the data model and the application in relation to scalability; create a well-proportioned physical architecture at the time of initial Oracle installation; and most important, mix skill sets to obtain the best results. Fully updated for version 10gR2 and provides all necessary transition material from version 9i Includes all three aspects of Oracle database tuning: data model tuning, SQL & PL/SQL code tuning, physical plus configuration tuning Contains experienced guidance and real-world examples using large datasets Emphasizes development as opposed to operating system perspective

A Problem-Solution Approach

It's All about the Cardinalities

Oracle Applications Performance Tuning Handbook

Oracle Tuning Power Scripts

With 100+ High Performance SQL Scripts

Oracle8 Advanced Tuning & Administration

Expert Oracle SQL: Optimization, Deployment, and Statistics is about optimizing individual SQL statements, especially on production database systems. This Oracle-specific book begins by assuming you have already identified a particular SQL statement and are considering taking steps to improve its performance. The book describes a systematic process by which to diagnose a problem statement, identify a fix, and to implement that fix safely in a production system. You'll learn not only to improve performance when it is too slow, but also to stabilize performance when it is too variable. You'll learn about system statistics and how the Cost-Based Optimizer uses them to determine a suitable execution plan for a given statement. That knowledge provides the foundation from which to identify the root cause, and to stabilize and improve performance. Next after identifying a problem and the underlying root cause is to put in place a solution. Expert Oracle SQL: Optimization, Deployment, and Statistics explains how to apply various remedies such as changing the SQL statement, adding hints, changing the physical design, and more, and how they can be brought to bear on fixing a problem once and for all. Rolling a change out smoothly is an important topic when dealing with tuning and optimization. Expert Oracle SQL: Optimization, Deployment, and Statistics does not let you down in this critical area. The book contains two chapters of good information from an experienced professional on how to safely deploy changes into production so that your systems remaining running and available throughout the deployment process. Describes a systematic approach to tuning Oracle SQL Explains how things are supposed to work, what can go wrong, and how to fix it Takes you through the steps needed to stabilize performance in your production systems

Offers tips for improving the performance of any SQL database, no matter what the platform. Written for experienced database administrators familiar with SQL, the book identifies the similarities and differences of eight DBMSs, including Oracle 9i, IBM DB2 7.2, and Microsoft SQL server 2000. It provides strategies for refining sorts, subqueries, columns, tables, indexes, constraints, and locks. Annotation copyrighted by Book News, Inc., Portland, OR

Targeted at Oracle professionals who need fast and accurate working examples of complex issues, Oracle In-focus books target specific areas of Oracle technology in a concise manner. Plenty of working code is provided without a lot of theory, allowing database managers to solve their problems quickly without reviewing data that they already know. All code scripts are available for instant download from a companion web site.

Performance problems are rarely "problems" per se. They are more often "crises" during which you're pressured for results by a manager standing outside your cubicle while your phone rings with queries from the help desk. You won't have the time for a leisurely perusal of the manuals, nor to lean back and read a book on theory. What you need in that situation is a book of solutions, and solutions are precisely what Oracle Database 11g Performance Tuning Recipes delivers. Oracle Database 11g Performance Tuning Recipes is a ready reference for database administrators in need of immediate help with performance issues relating to Oracle Database. The book takes an example-based approach, wherein each chapter covers a specific problem domain. Within each chapter are "recipes," showing by example how to perform common tasks in that chapter's domain. Solutions in the recipes are backed by clear explanations of background and theory from the author team. Whatever the task, if it's performance-related, you'll probably find a recipe and a solution in this book. Provides proven solutions to real-life Oracle performance problems Offers relevant background and theory to support each solution Written by a team of experienced database administrators successful in their careers

Quick Start Guide to Oracle Query Tuning: Tips for Dbas and Developers

Oracle Performance Tuning for 10gR2

Expert Secrets for High Performance Programming

Oracle Core: Essential Internals for DBAs and Developers

Oracle SQL Performance Tuning and Optimization

This Book Includes : Learn SQL Basics for Beginners + Build Complex SQL Queries + Advanced SQL Query Optimization Techniques

**Oracle SQL Tuning with SQLTXPLAIN is a practical guide to SQL tuning the way Oracle's own experts do it, using a freely downloadable tool called SQLTXPLAIN. Using this simple tool you'll learn how to tune even the most complex SQL, and you'll learn to do it quickly, without the huge learning curve usually associated with tuning as a whole. Firmly based in real world problems, this book helps you reclaim system resources and avoid the most common bottleneck in overall performance, badly tuned SQL. You'll learn how the optimizer works, how to take advantage of its latest features, and when it's better to turn them off. Quickly tune any SQL statement no matter how complex. Build and tune test cases without affecting production. Use the latest tuning features with confidence.**

**Provides information on advanced Oracle SQL techniques for creating complex queries and extracting and summarizing data from large tables.**

**Proven PL/SQL Optimization Solutions In Oracle PL/SQL Performance Tuning Tips & Techniques, Oracle ACE authors with decades of experience building complex production systems for government, industry, and educational organizations present a hands-on approach to enabling optimal results from PL/SQL. The book begins by describing the discovery process required to pinpoint performance problems and then provides measurable and repeatable test cases. In-depth coverage of linking SQL and PL/SQL is followed by deep dives into essential Oracle Database performance tuning tools. Real-world examples and best practices are included throughout this Oracle Press guide. Follow a request-driven nine-step process to identify and address performance problems in web applications Use performance-related database tools, including data dictionary views, logging, tracing, PL/SQL Hierarchical Profiler, PL/Scope, and RUNSTATS Instrument code to pinpoint performance issues using call stack APIs, error stack APIs, and timing markers Embed PL/SQL in SQL and manage user-defined functions Embed SQL in PL/SQL using a set-based approach to handle large volumes of data Properly write and deploy data manipulation language triggers to avoid performance problems Work with advanced datatypes, including LOBs and XML Use caching techniques to avoid redundant operations Effectively use dynamic SQL to reduce the amount of code needed and streamline system management Manage version control and ensure that performance fixes are successfully deployed Code examples in the book are available for download.**

**Advanced Oracle SQL TuningThe Definitive ReferenceRampant Techpress**

**Toad for Oracle Unleashed**

**Oracle Database 11g The Complete Reference**

**Oracle Advanced PL/SQL Developer Professional Guide**

**Oracle PL/SQL Programming**

**Oracle Database 12c Performance Tuning Recipes**

**With Dictionary Internals SQL & Tuning Scripts**

This is the definitive guide to all Oracle utilities, and it is targeted at experienced Oracle professionals who need to perform powerful system-wide operating system internal operations on their Oracle databases. The authors approach Oracle Utilities from a functional perspective, adding value by explaining the "why" and "how" for the use of all Oracle Utilities. This comprehensive book includes details on all of the Oracle utilities, including experts-only sections on undocumented utilities, plus the Linux/UNIX utilities, Oracle command-line utilities, and the all-important DBA package utilities. This indispensable book covers all areas of Oracle database administration and includes secrets for database migration (with Data Pump and SQL\*Loader) and detailed tips for using The Oracle OS utilities (e.g. BBED, dbv, orastack, orakill). The book also covers Oracle tuning utilities, including ADDM and the SQL tuning advisors as well as the traditional command-line tuning utilities such as dbms\_alert and dbms\_xplan, tkprof and dbms\_debug. This book is special because noted Oracle experts supplement the operational considerations of Oracle utilities with expert insights and working scripts. The time savings from a single utility script is easily worth the price of this definitive book. This book is not for beginners. These are powerful utilities to be used only by experienced DBAs and developers who need to perform powerful system-wide operating system internal operations on their Oracle databases.

For Oracle tuning professionals wishing to add more tools to their Oracle tuning toolbox, this guidebook introduces the various tuning analytical tools and helpful strategies to make the database easier to use. Details describe how to extract information from the database and use it to determine and increase efficiency. It also provides specific steps with detailed information on how to congeal large amounts of database performance information into one pool from which the DBA can carefully choose tuning options based on what is predicted, all to give them the biggest improvement in performance for the least time and money investment. Sample code, sample code results, and guidelines on how to interpret the results help users manipulate code in an effective way. With countless hints, tips, and tools, the guide fully explains how to work with the Oracle system on order to achieve database performance excellence.

With tools for gaining as much as 30 times the execution speed, this handbook educates database administrators on how to rewrite SQL into PL/SQL and how to use advanced Oracle bulk array processing techniques to achieve high performance. Ready-to-use tips for saving millions of dollars in hardware costs by running applications at peak efficiencies are provided.

Targeted at senior Oracle DBAs and developers, these powerful techniques will help PL/SQL users save both time and money.

This Oracle-authorized handbook explains how to tune Oracle applications systems for maximum efficiency. Written by a Senior Principal of the Oracle Applications Performance Group, the book offers the latest expert techniques and covers Oracle Applications Smart Client through Release 11i.

Practical Oracle SQL

Oracle PL/SQL Tuning

Oracle SQL Tuning & CBO Internals

Expert Oracle SQL

Mastering Oracle SQL

**The authors have revised and updated this bestseller to include both the Oracle8i and new Oracle9i Internet-savvy database products.**

**Write powerful queries using as much of the feature-rich Oracle SQL language as possible, progressing beyond the simple queries of basic SQL as standardized in SQL-92. Both standard SQL and Oracle's own extensions to the language have progressed far over the decades in terms of how much you can work with your data in a single, albeit sometimes complex, SQL statement. If you already know the basics of SQL, this book provides many examples of how to write even more advanced SQL to huge benefit in your applications, such as:Pivoting rows to columns and columns to rowsRecursion in SQL with MODEL and WITH clausesAnswering Top-N questionsForecasting with linear regressions Row pattern matching to group or distribute rowsUsing MATCH\_RECOGNIZE as a row processing engineThe process of starting from simpler statements in SQL, and gradually working those statements stepwise into more complex statements that deliver powerful results, is covered in each example. By trying out the recipes and examples for yourself, you will put together the building blocks into powerful SQL statements that will make your application run circles around your competitors. What You Will LearnTake full advantage of advanced and modern features in Oracle SQL Recognize when modern SQL constructs can help create better applicationsImprove SQL query building skills through stepwise refinementApply set-based thinking to process more data in fewer queriesMake cross-row calculations with analytic functionsSearch for patterns across multiple rows using row pattern matchingBreak complex calculations into smaller steps with subquery factoring Who This Book Is For Oracle Database developers who already know some SQL, but rarely use features of the language beyond the SQL-92 standard. And it is for developers who would like to apply the more modern features of Oracle SQL, but don't know where to start. The book also is for those who want to write increasingly complex queries in a stepwise and understandable manner. Experienced developers will use the book to develop more efficient queries using the advanced features of the Oracle SQL language.**

**As Oracle professionals are challenged to create SQL statements that will support thousands of concurrent executions with sub-second response time, this book's timing is critical as tuning Oracle SQL has become the single most important skill of the Oracle professional. While not appropriate for the beginner, this book allows senior Oracle professionals to explore important internal mechanisms within Oracle and the powerful and complex internals of Oracle SQL execution. Topics include the internals of Oracle cost-based SQL optimizer, SQL execution internals within the library cache, Oracle SQL coding and optimization techniques, and Oracle index internals. Also included is a ready-to-use code depot full of working SQL tuning scripts, which allow for quick optimization of the SQL and indexes inside the Oracle database.**

**Explores Oracle's implementation of SQL and explains how to perform tasks including querying time-based data, implementing conditional logic in queries, writing queries, and joining data from two or more tables.**

**Oracle Performance Troubleshooting**

**Oracle 12c: SQL**

**The Definitive Reference**

### SQL Performance Explained

#### Mastering Oracle PL/SQL

#### Advanced Oracle SQL Tuning

A guide to SQL covers such topics as retrieving records, metadata queries, working with strings, data arithmetic, date manipulation, reporting and warehousing, and hierarchical queries.

The Definitive Guide to Oracle Database 11g Get full details on the powerful features of Oracle Database 11g from this thoroughly updated Oracle Press guide. Oracle Database 11g: The Complete Reference explains how to use all the new features and tools, execute powerful SQL queries, construct PL/SQL and SQL\*Plus statements, and work with large objects and object-relational databases. Learn how to implement the latest security measures, tune database performance, and deploy grid computing techniques. An invaluable cross-referenced appendix containing Oracle commands, keywords, features, and functions is also included. Install Oracle Database 11g or upgrade from an earlier version Create database tables, sequences, indexes, views, and user accounts Construct SQL statements, procedures, queries, and subqueries Optimize security using virtual private databases and transparent data encryption Import and export data using SQL\*Loader and Oracle Data Pump Use SQL replay, change management, and result caching Avoid human errors using flashback and automatic undo management Build and tune PL/SQL triggers, functions, and packages Develop database applications using Java, JDBC, and XML Optimize availability and scalability with Oracle Real Application Clusters

Pro Oracle SQL unlocks the power of SQL in the Oracle Database—one of the most potent SQL implementations on the market today. To master it requires a three-pronged approach: learn the language features, learn the supporting features that Oracle provides to help use the language effectively, and learn to think and work in sets. Karen Morton and her team help you master powerful aspects of Oracle SQL not found in competing databases. You'll learn analytic functions, the MODEL clause, and advanced grouping syntax—features that will help in creating good queries for reporting and business intelligence applications. Pro Oracle SQL also helps you minimize parsing overhead, read execution plans, test for correct results, and exert control over SQL execution in your database. You'll learn when to create indexes, how to verify that they make a difference, how to use SQL Profiles to optimize SQL in packaged applications, and much more. You'll also understand how SQL is optimized for working in sets, and that the key to getting accurate results lies in making sure that queries ask clear and precise questions. What's the bottom-line? Pro Oracle SQL helps you work at a truly professional level in Oracle dialect of SQL. You'll master the language, the tools to work effectively with the language, and the right way to think about a problem in SQL. Pro Oracle SQL helps you rise above the crowd to provide stellar service in your chosen profession. Endorsed by the OakTable Network, a group of Oracle technologists well-known for their rigorous and scientific approach to Oracle Database performance Comprehensive—goes beyond the language with a focus on what you need to know to write successful queries and data manipulation statements.

Oracle Core: Essential Internals for DBAs and Developers by Jonathan Lewis provides just the essential information about Oracle Database internals that every database administrator needs for troubleshooting—no more, no less. Oracle Database seems complex on the surface.

However, its extensive feature set is really built upon a core infrastructure resulting from sound architectural decisions made very early on that have stood the test of time. This core infrastructure manages transactions and the ability to commit and roll back changes, protects the integrity of the database, enables backup and recovery, and allows for scalability to thousands of users all accessing the same data. Most performance, backup, and recovery problems that database administrators face on a daily basis can easily be identified through understanding the essential core of Oracle Database architecture that Lewis describes in this book. Provides proven content from a world-renowned performance and troubleshooting expert Emphasizes the significance of internals knowledge to rapid identification of database performance problems Covers the core essentials and does not waste your time with esoterica

Proven Methods for Achieving Optimum Performance and Availability

SQL

Advanced Oracle Utilities: The Definitive Reference

Oracle PL/SQL Performance Tuning Tips & Techniques

ORACLE High-Performance SQL Tuning

SQL Cookbook

Bert Scalzo and Dan Hotka have written the definitive, up-to-date guide to Version 12.x, Dell's powerful new release of Toad for Oracle. Packed with step-by-step recipes, detailed screen shots, and hands-on exercises, Toad for Oracle Unleashed shows both developers and DBAs how to maximize their productivity. Drawing on their unsurpassed environments, Scalzo and Hotka thoroughly cover every area of Toad's functionality. You'll find practical insights into each of Toad's most useful tools, from App Designer to Doc Generator, ER Diagrammer to Code Road Map. The authors offer proven solutions you can apply immediately to solve a wide variety of problems, from maintaining code to scalability testing. Learn how to... Install and launch Toad, connect to a database, and explore Toad's new features Customize Toad to optimize productivity in your environment Use the Editor Window to execute SQL and PL/SQL, and view, save, or convert data Browse your schema, and create and edit objects Quickly generate useful reports of database's tables and data with the powerful Entity Relationship Diagrammer (ERD) and HTML documentation generator Work more efficiently with PL/SQL using code templates, snippets, and shortcuts Automate actions and applications with Automation Designer Perform key DBA tasks including database health checks, tablespace management, and object rebuilding Identify and optimize poorlyperforming SQL and applications ON THE WEB: Download all examples and source code presented in this book from [informit.com/title/9780134131856](http://informit.com/title/9780134131856) as it becomes available.

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. Get complete coverage of STATSPACK—Oracle's powerful tuning tool--inside this official guide Including ready-to-use STATSPACK scripts you'll be able to collect Oracle database running at peak performance.

Oracle 10g has become the most complex database ever created and Oracle tuning has become increasingly complex. This book provides a complete step-by-step approach for holistic Oracle tuning and it is the accumulated knowledge from tuning thousands of Oracle databases. Incorporating the principles of artificial intelligence, Oracle10g has captured and tracking database performance over time periods. This new complexity has introduced dozens of new v\$ and DBA views, plus dozens of Automatic Workload Repository (AWR) tables. The AWR and its interaction with the Automatic Database Diagnostic Monitor (ADDM) is a revolution in database tuning. By understanding the internal, you can develop time-series tuning models to predict upcoming outages and dynamically change the instance to accommodate the impending resource changes. This is not a book for beginners. Targeted at the senior Oracle DBA, this book dives deep into the internals of the v\$ views, the AWR table structures and the new DBA history views. Pack and identify the most challenging performance issues.

Written by a Senior Database Administrator who has worked with the Oracle RDBMS for thirty years, this is a book which teaches the skill of SQL Tuning for the Oracle Database. Not a list of one-off tricks or tips, nor a glossing over of topics; this book offers an in-depth process covering discovery, analysis, and problem resolution. Learn the FILTERED ROWS PERCENTAGE Cardinality based method of tuning Determine a query's Driving Table and Join Order Construct Query Diagrams, Data Models, and Join Trees Build and use Count / Filter / and Reconstruction Queries Identify WASTE in a Query Execution Plan Zero in on Cardinality Divergence using Estimated vs. Actuals Use the ACC strategy to build indexes for Problem Queries Exploit THE 2% RULE in analyzing Access method and Join method Classify queries as Precision Style or Warehouse Style Understand Hash Join mechanics and make Hash Joins go faster Make HINTS work as Detection Tools rather than clubs Avoid early Database Design flaws Manage Statistics and Uniform Distribution, Independence, Dynamic Sampling) (Staleness, Skew, Dependence, Defaulting, Out-Of-Bounds, Transiency, Bloat) Perfect your Question Based Analysis Technique and more Included are: a special chapter for EXADATA, a LAB which demonstrates the cardinality based process of SQL Tuning, and twenty three magical SQL scripts that are easy to do. Learn the skill of SQL Tuning as taught by an expert who does it for a living, and become the go-to specialist in your company. Chapter 1: DRIVING TABLE and JOIN ORDER Chapter 2: Ways to Use a Query Execution Plan Chapter 3: The Best Indexes for a Query Chapter 4: JOINS Chapter 5: HINTS Chapter 6: BASICS Chapter 7: ROW COUNTERS Chapter 8: EXADATA LAB: Reverse Engineering the QEP Appendix: Know Your Scripts Scripts for analyzing queries and plans Scripts for examining an active database Scripts for looking at metadata showplan showplanshort showplanconstraints showplancountqueries showplandatamodel showplandrivingtable showplanfilterqueries showplanfrpspreadsheetco showplanquerydiagram showplantables showplantablesunique loadplanfromcache loadplanfromhist showtopcpu showowner showindexes showconstraints showcolstats showhistograms showallscanrates showallworkareas It's all about the Cardinalities

Pro Oracle SQL

Tips, Tricks, and Techniques for DBAs

Optimization, Deployment, and Statistics

Generating Optimal Execution Plans

Everything Developers Need to Know about SQL Performance

Advanced Oracle PL/SQL Developer's Guide

*Explains how to tune SQL (Structured Query Language) queries to achieve optimal performance, regardless of the database platform, covering such topics as how to understand and control SQL execution plans and how to diagram SQL queries for the best execution plan for the query, in a tutorial that includes hands-on exercises to reinforce concepts. Original. (Advanced)*

*"Geoff Ingram has met the challenge of presenting the complexprocess of managing Oracle performance. This book can support everytechnical person looking to resolve Oracle8i and Oracle9iperformance issues." -Aki Ratner, President, Precise Software Solutions Ensuring high-performance and continuous availability of Oraclesoftware is a key focus of database managers. At least a dozenbooks address the subject of "performance tuning"-- that is, how tofine-tune the Oracle database for its greatest processingefficiency. Geoff Ingram argues that this approach simply isn'tenough. He believes that performance needs to be addressed rightfrom the design stage, and it needs to cover the entire system--notjust the database. High-Performance Oracle is a hands-on book, loaded with tips andtechniques for ensuring that the entire Oracle database system runsefficiently and doesn't break down. Written for Oracle developersand DBAs, and covering both Oracle8i and Oracle9i, the book goesbeyond traditional performance-tuning books and covers the keytechniques for ensuring 24/7 performance and availability of thecomplete Oracle system. The book provides practical solutions for: \* Choosing physical layout for ease of administration and efficientuse of space \* Managing indexes, including detecting unused indexes andautomating rebuilds \* SQL and system tuning using the powerful new features in Oracle9iRelease 2 \* Improving SQL performance without modifying code \* Running Oracle Real Application Clusters (RAC) for performanceand availability \* Protecting data using Recover Manager (RMAN), and physical andlogical standby databases The companion Web site provides the complete source code forexamples in the book, updates on techniques, and additionaldocumentation for optimizing your Oracle system.*

*Officially endorsed by the Oracle Corporation, the first guide available on the advanced capabilities of Oracle 8 outlines techniques for optimizing system performance and includes a CD-ROM with the book's code and a new version of SQLLab. Original. (Advanced).*

*Performance problems are rarely "problems" per se. They are more often "crises" during which you're pressured for results by a manager standing outside your cubicle while your phone rings with queries from the help desk. You won't have the time for a leisurely perusal of the manuals, nor to lean back and read a book on theory. What you need in that situation is a book of solutions, and solutions are precisely what Oracle Database 12c Performance Tuning Recipes delivers. Oracle Database 12c Performance Tuning Recipes is a ready reference for database administrators in need of immediate help with performance issues relating to Oracle Database. The book takes an example-based approach, wherein each chapter covers a specific problem domain. Within each chapter are "recipes," showing by example how to perform common tasks in that chapter's domain. Solutions in the recipes are backed by clear explanations of background and theory from the author team. Whatever the task, if it's performance-related, you'll probably find a recipe and a solution in this book. Provides proven solutions to real-life Oracle performance problems Offers relevant background and theory to support each solution Gets straight to the point for when you're under pressure for results*

Oracle SQL Tuning with Oracle QLTXPLAIN

Oracle Internals

High-Performance Oracle

Advanced Oracle SQL Programming

Oracle9i High-Performance Tuning with STATSPACK

The Expert Guide to Writing Complex Queries

Master the advanced concepts of PL/SQL for professional-level certification and learn the new capabilities of Oracle Database 12c About This Book Learn advanced application development features of Oracle Database 12c About This Book Learn advanced application development features of Oracle Database 12c and prepare for the 1Z0-146 examination Build robust and secure applications in Oracle PL/SQL using the best practices Packed with feature demonstrations and illustrations that will help you understand the enhanced capabilities of Oracle Database 12c Who This Book Is For This book is for Oracle developers responsible for database management. Readers are expected to have basic knowledge of Oracle Database and the fundamentals of PL/SQL programming. Certification aspirants can use this book to prepare for 1Z0-146 examination in order to be an Oracle Certified Professional in Advanced SQL About This Book Learn advanced application development features of Oracle Database 12c Discover techniques to analyze and maintain PL/SQL code Get acquainted with the best practices of writing PL/SQL code and develop secure applications In Detail This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to enhance service levels while reducing the IT costs incurred. Oracle Database is sometimes compared with Microsoft SQL Server, however, Oracle Database clearly supersedes SQL server in terms of high availability and addressing planned and unplanned downtime. Oracle PL/SQL provides a rich platform for a wide range of applications. This book provides a comprehensive guide to the most popular databases and allows users to make efficient use of their resources and to