

you can use when you create a highly available infrastructure, including hybrid topologies. Note that this course does not cover SQL Server Failover Cluster Installation with shared storage. By the end of the book, you'll be equipped with all that you need to know to develop robust and high performance infrastructure. What you will learn Configure and troubleshoot Replication, AlwaysOn, and Log Shipping Study the best practices to implement HA and DR solutions Design HA and DR topologies for the SQL Server and study how to choose a topology for your environment Use T-SQL to configure replication, AlwaysOn, and log shipping Migrate from On-Premise SQL Server to Azure SQL Database Manage and maintain AlwaysOn availability groups for extended database mirroring Who this book is for Professional SQL Server High Availability and Disaster Recovery is for you if you are a database administrator or database developer who wants to improve the performance of your production environment. Prior experience of working with SQL Server will help you get the most out of this book. Learn to design more effective and sophisticated business reports While most users of SQL Server Reporting Services are now comfortable designing and building simple reports, business today demands increasingly complex reporting. In this book, top Reporting Services design experts have contributed step-by-step recipes for creating various types of reports. Written by well-known SQL Server Reporting Services experts, this book gives you the tools to meet your clients' needs Direct from Microsoft, this bundle contains the following two study guides at a \$15 discount: Exam Ref 70-761 Querying Data with Transact-SQL, 9781509304332, offers professional-level preparation that helps candidates maximize their exam performance and sharpen their skills on the job. It focuses on the specific areas of expertise modern database professionals need to succeed with T-SQL database queries. Exam Ref 70-762 Developing SQL Databases, 9781509304912, offers professional-level preparation that helps candidates maximize their exam performance and sharpen their skills on the job. It focuses on the specific areas of expertise modern database professionals need to succeed with SQL database development. These are the two exams necessary for the MCSA certification in SQL Server 2016 Database Development. Learn SQL Server Reporting Services and become current with the 2016 edition. Develop interactive, dynamic reports that combine graphs, charts, and tabular data into attractive dashboards and reports to delight business analysts and other users of corporate data. Deliver mobile reports to anywhere and any device. Build vital knowledge of Reporting Services at a time when Microsoft's dominance in business intelligence is on the rise. Beginning SQL Server Reporting Services turns novices into skilled report developers. The book begins by explaining how to set up the development environment. It then walks you through creating your first reports using the built-in wizard. After showing what is possible, the book breaks down and explains the skills needed to create reports from scratch. And not just reports! But also dashboards with charts, graphs, and maps. Each chapter builds on knowledge gained in the previous chapters with step-by-step tutorials. sql server=" reporting=" services=" is=" a=" skillset=" in=" high=" demand=" knowing=" about=" can=" help=" everyone=" from=" seasoned=" database=" administrators=" to=" mid-life=" career=" changers=" hoping=" break=" into=" information=" technology. iBeginning SQL Server Reporting Services Build reports with and without the built-in wizard. Build interactive features such as drill-through reports. Build dashboards full of charts, graphs, and maps. Build mobile reports. What You Will Learn Set up your development environment. Organized projects and share components among reports. Create report using a wizard. Create reports from scratch, including grouping levels, parameters, and drill through features. Build interactive dashboard with graphs, charts, and maps. Deploy and manage reports for use by others in the business. Who This Book Is For Database professionals of all experience levels who have some experience in databases and want to make the leap into business intelligence reporting. The book is an excellent choice for those needing to add Reporting Services to their current list of skills, or who are looking for a skill set that is in demand for in order to break into IT. Learn effective and scalable database design techniques in a SQL Server 2016 and higher environment. This book is revised to cover in-memory online transaction processing, temporal data storage, row-level security, durability enhancements, and other design-related features that are new or changed in SQL Server 2016. Designing an effective and scalable database using SQL Server is a task requiring skills that have been around for forty years coupled with technology that is constantly changing. Pro SQL Server Relational Database Design and Implementation covers everything from design logic that business users will understand, all the way to the physical implementation of design in a SQL Server database. Grounded in best practices and a solid understanding of the underlying theory, Louis Davidson shows how to "get it right" in SQL Server database design and lay a solid groundwork for the future use of valuable business data. The pace of change in relational database management systems has been tremendous these past few years. Whereas in the past it was enough to think about optimizing data residing on spinning hard drives, today one also must consider solid-state storage as well as data that are constantly held in memory and never written to disk at all except as a backup. Furthermore, there is a trend toward hybrid cloud and on-premise database configurations as well as a move toward preconfigured appliances. Pro SQL Server Relational Database Design and Implementation guides in the understanding of these massive changes and in their application toward sound database design. Gives a solid foundation in best practices and relational theory Covers the latest implementation features in SQL Server 2016 Helps you master in-memory OLTP and use it effectively Takes you from conceptual design to an effective, physical implementation What You Will Learn Develop conceptual models of client data using interviews and client documentation Recognize and apply common database design patterns Normalize data models to enhance scalability and the long term use of valuable data Translate conceptual models into high-performing SQL Server databases Secure and protect data integrity as part of meeting regulatory requirements Create effective indexing to speed query performance Who This Book Is For Programmers and database administrators of all types who want to use SQL Server to store data. The book is especially useful to those wanting to learn the very latest design features in SQL Server 2016, features that include an improved approach to in-memory OLTP, durability enhancements, temporal data support, and more. Chapters on fundamental concepts, the language of database modeling, SQL implementation, and of course, the normalization process, lay a solid groundwork for readers who are just entering the field of database design. More advanced chapters serve the seasoned veteran by tackling the very latest in physical implementation features that SQL Server has to offer. The book has been carefully revised to cover all the design-related features that are new in SQL Server 2016. Prepare for Microsoft Exam 70-764—and help demonstrate your real-world mastery of skills for database administration. This exam is intended for database administrators charged with installation, maintenance, and configuration tasks. Their responsibilities also include setting up database systems, making sure those systems operate efficiently, and regularly storing, backing up, and securing data from unauthorized access. Focus on the expertise measured by these objectives: • Configure data access and auditing • Manage backup and restore of databases • Manage and monitor SQL Server instances • Manage high availability and disaster recovery This Microsoft Exam Ref: • Organizes its coverage by exam objectives • Features strategic, what-if scenarios to challenge you • Assumes you have working knowledge of database installation, configuration, and maintenance tasks. You should also have experience with setting up database systems, ensuring those systems operate efficiently, regularly storing and backing up data, and securing data from unauthorized access. About the Exam Exam 70-764 focuses on skills and knowledge required for database administration. About Microsoft Certification Passing both Exam 70-764 and Exam 70-765 (Provisioning SQL Databases) earns you credit toward an MCSA: SQL 2016 Database Administration certification. See full details at: microsoft.com/learning Advance your career with SQL Server 2016 T-SQL programming. When you will learn this book, you will also know SQL Server 2005/2008/2012/2014 since the book has frequent version references. Develop your own Transact-SQL code for querying, modifying, managing & administering data in Microsoft SQL Server 2016. You will learn data management both through visual interface and writing T-SQL scripts, stored procedures, user-defined functions & triggers. Contents at a Glance SQL Server 2016 New Features CHAPTER 1: SQL Server Sample & System Databases CHAPTER 2: Installing SQL Server 2016 CHAPTER 3: Structure of the SELECT Statement CHAPTER 4: SQL Server Management Studio CHAPTER 5: New Programming Features in SS 2012 & 2014 CHAPTER 6: JOINING Tables with INNER & OUTER JOINS CHAPTER 7: Basic SELECT Statement Syntax & Examples CHAPTER 8: Subqueries in SELECT Statements CHAPTER 9: SELECT INTO Table Creation & Population CHAPTER 10: Modify Data - INSERT, UPDATE, DELETE & MERGE CHAPTER 11: The Magic of Transact-SQL Programming CHAPTER 12: Exporting & Importing Data APPENDIX A: Job Interview Questions APPENDIX B: Job Interview Answers INDEX for Beginner SQL Programming Using Microsoft SQL Server 2016 392 Up-to-Date Coverage of Microsoft® SQL Server® 2016 Reporting Services, Including the Mobile Report Publisher Build, publish, and maintain paginated and mobile reports using the expert tips and best practices contained in this hands-on guide. Written by a member of the original Reporting Services development team, Microsoft SQL Server 2016 Reporting Services, Fifth Edition, fully explains the process of creating and distributing reports and shows how to maximize all of the powerful, integrated SSRS capabilities, including the new and enhanced features. A detailed case study and sample reports are featured in this practical resource. • Plan for, install, configure, and customize SQL Server 2016 Reporting Services • Design and generate feature-rich reports using the Report Wizard • Work with Report Designer in Visual Studio, Report Builder, and the Mobile Report Publisher • Incorporate charts, images, gauges, and maps • Enhance your reports through summarizing, totaling, and interactivity • Build reusable report templates • Embed Visual Basic .NET functions and subreports • Enable end-user access via the Report Server and its web portal interface • Integrate SSRS reports with your own websites and custom applications • Follow along with sample reports from the book's case study Over 70 practical recipes to analyze multi-dimensional data in SQL Server 2016 Analysis Services cubes About This Book Updated for SQL Server 2016, this book helps you take advantage of the new MDX commands and the new features introduced in SSAS Perform time-related, context-aware, and business related-calculations with ease to enrich your Business Intelligence solutions Collection of techniques to write flexible and high performing MDX queries in SSAS with carefully structured examples Who This Book Is For This book is for anyone who has been involved in working with multidimensional data. If you are a multidimensional cube developer, a multidimensional database administrator, or a report developer who writes MDX queries to access multidimensional cube, this book will help you. If you are a power cube user or an experienced business analyst, you will also find this book invaluable in your data analysis. This book is for you are interested in doing more data analysis so that the management can make timely and accurate business decisions. What You Will Learn Grasp the fundamental MDX concepts, features, and techniques Work with sets Work with Time dimension and create time-aware calculations Make analytical reports compact, concise, and efficient Navigate cubes Master MDX for reporting with Reporting Services (new) Perform business analytics Design efficient cubes and efficient MDX queries Create metadata-driven calculations (new) Capture MDX queries and many other techniques In Detail If you're often faced with MDX challenges, this is a book for you. It will teach you how to solve various real-world business requirements using MDX queries and calculations. Examples in the book introduce an idea or a problem and then guide you through the process of implementing the solution in a step-by-step manner, inform you about the best practices and offer a deep knowledge in terms of how the solution works. Recipes are organized by chapters, each covering a single topic. They start slowly and logically progress to more advanced techniques. In case of complexity, things are broken down. Instead of one, there are series of recipes built one on top of another. This way you are able to see intermediate results and debug potential errors faster. Finally, the cookbook format is here to help you quickly identify the topic of interest and in it a wide range of practical solutions, that is – MDX recipes for your success. Style and approach This book is written in a cookbook format, where you can browse through and look for solutions to a particular problem in one place. Each recipe is short, to the point and grouped by relevancy. All the recipes are sequenced in a logical progression; you will be able to build up your understanding of the topic incrementally. If you're an application developer, or you're training to be one, this 2016 edition of Murach's classic SQL Server book is made for you. To start, it presents the SQL statements that you need to retrieve and update the data in a database. These are the SQL statements that you'll use every day. Then, it shows you how to design a database, how to implement that design, and how to work with database features like views, scripts, stored procedures, functions, triggers, transactions, security, XML data, BLOB data with FILESTREAM storage, and the CLR integration feature. The result? You'll be able to create database applications that are thoroughly professional. You'll be familiar with the DBA-related issues that let you work far more effectively than most of your colleagues. And you'll have a handy reference at your side to answer questions and handle new challenges as they come up. This comprehensive introduction to SQL Server begins with an overview of database design basics and the SQL query language along with an in-depth look at SQL Server itself Progresses on to a clear explanation of how to implement fundamental concepts with the new 2008 version of SQL Server Discusses creating and changing tables, managing keys, writing scripts, working with stored procedures, programming with XML, using SQL Server Reporting and Integration Services, and more Features updated and new material, including new examples using Microsoft's AdventureWorks sample database Improve your ability to develop, manage, and troubleshoot SQL Server solutions by learning how different components work "under the hood," and how they communicate with each other. The detailed knowledge helps in implementing and maintaining high-throughput databases critical to your business and its customers. You'll learn how to identify the root cause of each problem and understand how different design and implementation decisions affect performance of your systems. New in this second edition is coverage of SQL Server 2016 Internals, including In-Memory OLTP, columnstore enhancements, Operational Analytics support, Query Store, JSON, temporal tables, stretch databases, security features, and other improvements in the new SQL Server version. The knowledge also can be applied to Microsoft Azure SQL Databases that share the same code with SQL Server 2016. Pro SQL Server Internals is a book for developers and database administrators, and it covers multiple SQL Server versions starting with SQL Server 2005 and going all the way up to the recently released SQL Server 2016. The book provides a solid road map for understanding the depth and power of the SQL Server database server and teaches how to get the most from the platform and keep your databases running at the level needed to support your business. The book: • Provides detailed knowledge of new SQL Server 2016 features and enhancements • Includes revamped coverage of columnstore indexes and In-Memory OLTP • Covers indexing and transaction strategies • Shows how various database objects and technologies are implemented internally, and when they should or should not be used • Demonstrates how SQL Server executes queries and works with data and transaction log What You Will Learn Design and develop database solutions with SQL Server. Troubleshoot design, concurrency, and performance issues. Choose the right database objects and technologies for the job. Reduce costs and improve availability and manageability. Design disaster recovery and high-availability strategies. Improve performance of OLTP and data warehouse systems through in-memory OLTP and Columnstore indexes. Who This Book Is For Pro SQL Server Internals is a book for developers and database administrators who want to design, develop, and maintain systems in a way that gets the most from SQL Server. This book is an excellent choice for people who prefer to understand and fix the root cause of a problem rather than applying a 'band aid' to it. 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 Up to Speed on Microsoft® SQL Server® 2019 Quickly and Easily Start working with Microsoft SQL Server 2019 in no time with help from this thoroughly revised, practical resource. Filled with real-world examples and hands-on exercises, Microsoft SQL Server 2019: A Beginner's Guide, Seventh Edition starts by explaining fundamental relational database system concepts. From there, you'll learn how to write Transact-SQL statements, execute simple and complex database queries, handle system administration and security, and use powerful analysis and reporting tools. New topics such as SQL and JSON support, graph databases, and support for machine learning with R and Python are also covered in this step-by-step tutorial. • Install, configure, and customize Microsoft SQL Server 2019 • Create and modify database objects with Transact-SQL statements • Write stored procedures and user-defined functions • Handle backup and recovery, and automate administrative tasks • Tune your database system for optimal availability and reliability • Secure your system using authentication, encryption, and authorization • Work with SQL Server Analysis Services, Reporting Services, and other BI tools • Gain knowledge of relational storage, presentation, and retrieval of data stored in the JSON format • Manage graphs using SQL Server Graph Databases • Learn about machine learning support for R and Python Expert techniques to build cutting-edge business solutions with tabular modeling About This Book* Build and deploy Tabular Model projects from relational data sources* Leverage DAX and create high-performing calculated fields and measures* Create ad-hoc reports based on a Tabular Model solution* Filled with tips to monitor and optimize your tabular solutions Who This Book Is For This book is for SQL BI professionals and Architects who want to exploit the full power of the new Tabular models in Analysis Services. Some knowledge of previous versions of Analysis services would be helpful but is not essential. What you will learn* Understand what Tabular services mode is and how it speeds up development* Build solutions using a variety of sample data sets* Explore various built-in actions and transitions in SSAS 2016* Implement row, column, and role based security in a Tabular Data model* Realize the benefits of In-Memory and DirectQuery deployment modes* Uncover the most significant enhancements to SQL Server 2016 Analysis Services * Optimize Data Models and Relationships Usage In Detail SQL Server Analysis Service (SSAS) has been widely used across multiple businesses to build smart online analytical reporting solutions. It includes two different types of modeling for analysis services: Tabular and Multi Dimensional. This book covers Tabular modeling, which uses the concepts of tables and relationships with a fast in-memory engine that provides state of art compression algorithms and query performance. The book begins by quickly taking you through the various concepts required to model tabular data and set up the necessary tools and services. As you learn to create tabular models using tools such as Excel and Power View, you'll get to know various strategies to deploy your model on the server and choose a query mode (In-memory or DirectQuery) that best suits your reporting needs. You'll also find out how to implement key and newly introduced DAX functions to create calculated columns and measures for your model data. Last but not least, you'll get to know techniques that will help you administer and secure your BI implementation along with some widely used tips and tricks to optimize your reporting solution. By the end of this book, you'll have gained hands-on experience of various impactful enhancements that have now been added to Tabular models in SSAS 2016 and you'll be able to improve user satisfaction via faster reports and analytical queries. Optimize reporting and BI with Microsoft SQL Server 2016 Professional Microsoft SQL Server 2016 Reporting Services and Mobile Reports provides a comprehensive lesson in business intelligence (BI), operational reporting and Reporting Services architecture using a clear, concise tutorial approach. You'll learn effective report solution design based upon many years of experience with successful report solutions. Improve your own reports with advanced, best-practice design, usability, query design, and filtering techniques. Expert guidance provides insight into common report types and explains where each could be made more efficient, while providing step-by step instruction on Microsoft SQL Server 2016. All changes to the 2016 release are covered in detail, including improvements to the Visual Studio Report Designer (SQL Server Data Tools) and Report Builder, Mobile Dashboard Designer, the new Report Portal Interface, HTML-5 Rendering, Power BI integration, Custom Parameters Pane, and more. The Microsoft SQL Server 2016 release will include significant changes. New functionality, new capabilities, re-tooled processes, and changing support require a considerable update to existing knowledge. Whether you're starting from scratch or simply upgrading, this book is an essential guide to report design and business intelligence solutions. Understand BI fundamentals and Reporting Services architecture Learn the ingredients to a successful report design Get up to speed on Microsoft SQL Server 2016 Grasp the purpose behind common designs to optimize your reporting Microsoft SQL Server Reporting Services makes reporting faster, easier, and more powerful than ever in web, desktop and portal solutions. Compatibility with an extensive variety of data sources makes it a go-to solution for organizations across the globe. The 2016 release brings some of the biggest changes in years, and the full depth and breadth of these changes can create a serious snag in your workflow. For a clear tutorial geared toward the working professional, Professional Microsoft SQL Server 2016 Reporting Services and Mobile Reports is the ideal guide for getting up to speed and producing successful reports. Book + Content Update Program SQL Server 2016 High Availability Unleashed provides start-to-finish coverage of SQL Server's powerful high availability (HA) solutions for your traditional on-premise databases, cloud-based databases (Azure or AWS), hybrid databases (on-premise coupled with the cloud), and your emerging Big Data solutions. This complete guide introduces an easy-to-follow, formal HA methodology that has been refined over the past several years and helps you identify the right HA solution for your needs. There is also additional coverage of both disaster recovery and business continuity architectures and considerations. You are provided with step-by-step guides, examples, and sample code to help you set up, manage, and administer these highly available solutions. All examples are based on existing production deployments at major Fortune 500 companies around the globe. This book is for all intermediate-to-advanced SQL Server and Big Data professionals, but is also organized so that the first few chapters are great foundation reading for CIOs, CTOs, and even some tech-savvy CFOs. Learn a formal, high availability methodology for understanding and selecting the right HA solution for your needs Deep dive into Microsoft Cluster Services Use selective data replication topologies Explore thorough details on AlwaysOn and availability groups Learn about HA options with log shipping and database mirroring/ snapshots Get details on Microsoft Azure for Big Data and Azure SQL Explore business continuity and disaster recovery Learn about on-premise, cloud, and hybrid deployments Provide all types of database needs, including online transaction processing, data warehouse and business intelligence, and Big Data Explore the future of HA and disaster recovery In addition, this book is part of InformIT's exciting Content Update Program, which provides content updates for major technology improvements! As significant updates are made to SQL Server, sections of this book will be updated or new sections will be added to match the updates to the technologies. As updates become available, they will be delivered to you via a free Web Edition of this book, which can be accessed with any Internet connection. To learn more, visit informit.com/cup. How to access the Web Edition: Follow the instructions inside to learn how to register your book to access the FREE Web Edition. Optimize reporting and BI with Microsoft SQL Server 2016 Professional Microsoft SQL Server 2016 Reporting Services and Mobile Reports provides a comprehensive lesson in business intelligence (BI), operational reporting and Reporting Services architecture using a clear, concise tutorial approach. You'll learn effective report solution design based upon many years of experience with successful report solutions. Improve your own reports with advanced, best-practice design, usability, query design, and filtering techniques. Expert guidance provides insight into common report types and explains where each could be made more efficient, while providing step-by step instruction on Microsoft SQL Server 2016. All changes to the 2016 release are covered in detail, including improvements to the Visual Studio Report Designer (SQL Server Data Tools) and Report Builder, Mobile Dashboard Designer, the new Report Portal Interface, HTML-5 Rendering, Power BI integration, Custom Parameters Pane, and more. The Microsoft SQL Server 2016 release will include significant changes. New functionality, new capabilities, re-tooled processes, and changing support require a considerable update to existing knowledge. Whether you're starting from scratch or simply upgrading, this book is an essential guide to report design and business intelligence solutions. Understand BI fundamentals and Reporting Services architecture Learn the ingredients to a successful report design Get up to speed on Microsoft SQL Server 2016 Grasp the purpose behind common designs to optimize your reporting Microsoft SQL Server Reporting Services makes reporting faster, easier, and more powerful than ever in web, desktop and portal solutions. Compatibility with an extensive variety of data sources makes it a go-to solution for organizations across the globe. The 2016 release brings some of the biggest changes in years, and the full depth and breadth of these changes can create a serious snag in your workflow. For a clear tutorial geared toward the working professional, Professional Microsoft SQL Server 2016 Reporting Services and Mobile Reports is the ideal guide for getting up to speed and producing successful reports. Get the most out of the rich development capabilities of SQL Server 2016 to build efficient database applications for your organization About This Book Utilize the new enhancements in Transact-SQL and security features in SQL Server 2016 to build efficient database applications Work with temporal tables to get information about data stored in the table at any point in time A detailed guide to SQL Server 2016, introducing you to multiple new features and enhancements to improve your overall development experience Who This Book Is For This book is for database developers and solution architects who plan to use the new SQL Server 2016 features for developing efficient database applications. It is also ideal for experienced SQL Server developers who want to switch to SQL Server 2016 for its rich development capabilities. Some understanding of the basic database concepts and Transact-SQL language is assumed. What You Will Learn Explore the new development features introduced in SQL Server 2016 Identify opportunities for In-Memory OLTP technology, significantly enhanced in SQL Server 2016 Use columnstore indexes to get significant storage and performance improvements Extend database design solutions using temporal tables Exchange JSON data between applications and SQL Server in a more efficient way Migrate historical data transparently and securely to Microsoft Azure by using Stretch Database Use the new security features to encrypt or to have more granular control over access to rows in a table Simplify performance troubleshooting with Query Store Discover the potential of R's integration with SQL Server In Detail Microsoft SQL Server 2016 is considered the biggest leap in the data platform history of the Microsoft, in the ongoing era of Big Data and data science. Compared to its predecessors, SQL Server 2016 offers developers a unique opportunity to leverage the advanced features and build

applications that are robust, scalable, and easy to administer. This book introduces you to new features of SQL Server 2016 which will open a completely new set of possibilities for you as a developer. It prepares you for the more advanced topics by starting with a quick introduction to SQL Server 2016's new features and a recapitulation of the possibilities you may have already explored with previous versions of SQL Server. The next part introduces you to small delights in the Transact-SQL language and then switches to a completely new technology inside SQL Server - JSON support. We also take a look at the Stretch database, security enhancements, and temporal tables. The last chapters concentrate on implementing advanced topics, including Query Store, columnstore indexes, and In-Memory OLTP. You will finally be introduced to R and how to use the R language with Transact-SQL for data exploration and analysis. By the end of this book, you will have the required information to design efficient, high-performance database applications without any hassle. Style and approach This book is a detailed guide to mastering the development features offered by SQL Server 2016, with a unique learn-as-you-do approach. All the concepts are explained in a very easy-to-understand manner and are supplemented with examples to ensure that you—the developer—are able to take that next step in building more powerful, robust applications for your organization with ease. Up-to-date Microsoft SQL Server 2016 skills made easy! Get up and running on Microsoft SQL Server 2016 in no time with help from this thoroughly revised, practical resource. The book offers thorough coverage of SQL management and development and features full details on the newest business intelligence, reporting, and security features. Filled with new real-world examples and hands-on exercises, Microsoft SQL Server 2016: A Beginner's Guide, Sixth Edition, starts by explaining fundamental relational database system concepts. From there, you will learn how to write Transact-SQL statements, execute simple and complex database queries, handle system administration and security, and use the powerful analysis and BI tools. XML, spatial data, and full-text search are also covered in this step-by-step tutorial. · Revised from the ground up to cover the latest version of SQL Server · Ideal both as a self-study guide and a classroom textbook · Written by a prominent professor and best-selling author Build smarter and efficient database application systems for your organization with SQL Server 2017 Key Features Build database applications by using the development features of SQL Server 2017 Work with temporal tables to get information stored in a table at any time Use adaptive querying to enhance the performance of your queries Book Description Microsoft SQL Server 2017 is the next big step in the data platform history of Microsoft as it brings in the power of R and Python for machine learning and containerization-based deployment on Windows and Linux. Compared to its predecessor, SQL Server 2017 has evolved into Machine Learning with R services for statistical analysis and Python packages for analytical processing. This book prepares you for more advanced topics by starting with a quick introduction to SQL Server 2017's new features and a recapitulation of the possibilities you may have already explored with previous versions of SQL Server. The next part introduces you to enhancements in the Transact-SQL language and new database engine capabilities and then switches to a completely new technology inside SQL Server: JSON support. We also take a look at the Stretch database, security enhancements, and temporal tables. Furthermore, the book focuses on implementing advanced topics, including Query Store, columnstore indexes, and In-Memory OLTP. Towards the end of the book, you'll be introduced to R and how to use the R language with Transact-SQL for data exploration and analysis. You'll also learn to integrate Python code in SQL Server and graph database implementations along with deployment options on Linux and SQL Server in containers for development and testing. By the end of this book, you will have the required information to design efficient, high-performance database applications without any hassle. What you will learn Explore the new development features introduced in SQL Server 2017 Identify opportunities for In-Memory OLTP technology Use columnstore indexes to get storage and performance improvements Exchange JSON data between applications and SQL Server Use the new security features to encrypt or mask the data Control the access to the data on the row levels Discover the potential of R and Python integration Model complex relationships with the graph databases in SQL Server 2017 Who this book is for Database developers and solution architects looking to design efficient database applications using SQL Server 2017 will find this book very useful. In addition, this book will be valuable to advanced analysis practitioners and business intelligence developers. Database consultants dealing with performance tuning will get a lot of useful information from this book as well. Some basic understanding of database concepts and T-SQL is required to get the best out of this book. This book is your field guide to planning, deploying, managing, and troubleshooting Always On Availability Groups. The Always On Availability Groups feature is an enterprise-level solution for high availability and disaster recovery. Always On provides a rich set of options that reduce overhead and resource usage and enable database administrators to implement and manage high availability and disaster recovery solutions far more easily than by implementing the log-shipping and database-mirroring solutions of the past. Pro SQL Server Always On Availability Groups shows how to reduce downtime, maximize application availability, and provide data protection. The goal is always to have your SQL Server databases up and running whenever you need them, rain or shine, disaster or otherwise. With a focus on real-world experiences and war stories, authors Uttam Parui and Vivek Sanil offer you: Tips, tricks, and best practices for architecting and deploying availability groups. The confidence required to manage and monitor availability groups. Techniques to troubleshoot common issues that you may face during and after deploying availability groups in a mission-critical production environment. What You Will Learn Grasp important concepts underlying high-availability and disaster recovery. Plan and deploy Always On Availability Groups in your corporate environment. Manage Availability Groups to ensure constant readiness and high throughput. Monitor Availability Group performance and troubleshoot problems fast. Build on the cloud and make Windows Azure part of your availability solution. Employ proven techniques and best practices as tested and shared by the authors. Audience Pro SQL Server Always On Availability Groups is aimed at SQL Server architects, database administrators, and IT professionals who are tasked with architecting and deploying a high-availability and disaster recovery solution involving Microsoft SQL Server. This book is also for SQL Server support staff who will be managing and supporting existing availability group deployments. "The Exploring SQL Server 2016: Intermediate course is the second course in the two course series on Microsoft SQL Server 2016. The course builds on the topics covered in the Exploring SQL Server 2016: Fundamentals course and explores the topics of SQL Server Integration Services (SSIS), SQL Server Analysis Services (SSAS) and SQL Server Reporting Services (SSRS). The course also touches the security and encryption aspect in SQL Server programming. This SQL Server 2016: Intermediate course covers the more advanced topics of integration, analysis and reporting related to the SQL Server 2016. It also explores the advanced integration in R language, security and encryption features in MS SQL Server 2016. The course when combined with the SQL Server 2016: Fundamentals course is a comprehensive package to master Microsoft SQL Server 2016 and pass any certification exam related to it."--Resource description page. Improve your ability to develop, manage, and troubleshoot SQL Server solutions by learning how different components work "under the hood," and how they communicate with each other. The detailed knowledge helps in implementing and maintaining high-throughput databases critical to your business and its customers. You'll learn how to identify the root cause of each problem and understand how different design and implementation decisions affect performance of your systems. New in this second edition is coverage of SQL Server 2016 Internals, including In-Memory OLTP, columnstore enhancements, Operational Analytics support, Query Store, JSON, temporal tables, stretch databases, security features, and other improvements in the new SQL Server version. The knowledge also can be applied to Microsoft Azure SQL Databases that share the same code with SQL Server 2016. Pro SQL Server Internals is a book for developers and database administrators, and it covers multiple SQL Server versions starting with SQL Server 2005 and going all the way up to the recently released SQL Server 2016. The book provides a solid road map for understanding the depth and power of the SQL Server database server and teaches how to get the most from the platform and keep your databases running at the level needed to support your business. The book: • Provides detailed knowledge of new SQL Server 2016 features and enhancements • Includes revamped coverage of columnstore indexes and In-Memory OLTP • Covers indexing and transaction strategies • Shows how various database objects and technologies are implemented internally, and when they should or should not be used • Demonstrates how SQL Server executes queries and works with data and transaction log What You Will Learn Design and develop database solutions with SQL Server. Troubleshoot design, concurrency, and performance issues. Choose the right database objects and technologies for the job. Reduce costs and improve availability and manageability. Design disaster recovery and high-availability strategies. Improve performance of OLTP and data warehouse systems through in-memory OLTP and Columnstore indexes. Who This Book Is For Developers and database administrators who want to design, develop, and maintain systems in a way that gets the most from SQL Server. This book is an excellent choice for people who prefer to understand and fix the root cause of a problem rather than applying a 'band aid' to it. Get the most out of the rich development capabilities of SQL Server 2016 to build efficient database applications for your organization About This Book- Utilize the new enhancements in Transact-SQL and security features in SQL Server 2016 to build efficient database applications- Work with temporal tables to get information about data stored in the table at any point in time- A detailed guide to SQL Server 2016, introducing you to multiple new features and enhancements to improve your overall development experience Who This Book Is For This book is for database developers and solution architects who plan to use the new SQL Server 2016 features for developing efficient database applications. It is also ideal for experienced SQL Server developers who want to switch to SQL Server 2016 for its rich development capabilities. Some understanding of the basic database concepts and Transact-SQL language is assumed. What You Will Learn- Explore the new development features introduced in SQL Server 2016- Identify opportunities for In-Memory OLTP technology, significantly enhanced in SQL Server 2016- Use columnstore indexes to get significant storage and performance improvements- Extend database design solutions using temporal tables- Exchange JSON data between applications and SQL Server in a more efficient way- Migrate historical data transparently and securely to Microsoft Azure by using Stretch Database- Use the new security features to encrypt or to have more granular control over access to rows in a table- Simplify performance troubleshooting with Query Store- Discover the potential of R's integration with SQL Server In Detail Microsoft SQL Server 2016 is considered the biggest leap in the data platform history of the Microsoft, in the ongoing era of Big Data and data science. Compared to its predecessors, SQL Server 2016 offers developers a unique opportunity to leverage the advanced features and build applications that are robust, scalable, and easy to administer. This book introduces you to new features of SQL Server 2016 which will open a completely new set of possibilities for you as a developer. It prepares you for the more advanced topics by starting with a quick introduction to SQL Server 2016's new features and a recapitulation of the possibilities you may have already explored with previous versions of SQL Server. The next part introduces you to small delights in the Transact-SQL language and then switches to a completely new technology inside SQL Server - JSON support. We also take a look at the Stretch database, security enhancements, and temporal tables. The last chapters concentrate on implementing advanced topics, including Query Store, columnstore indexes, and In-Memory OLTP. You will finally be introduced to R and how to use the R language with Transact-SQL for data exploration and analysis. By the end of this book, you will have the required information to design efficient, high-performance database applications without any hassle. Style and approach This book is a detailed guide to mastering the development features offered by SQL Server 2016, with a unique learn-as-you-do approach. All the concepts are explained in a very easy-to-understand manner and are supplemented with examples to ensure that you—the developer—are able to take that next step in building more powerful, robust applications for your organization with ease. With Microsoft SQL Server 2016, a variety of new features and enhancements to the data platform deliver breakthrough performance, advanced security, and richer, integrated reporting and analytics capabilities. In this ebook, we introduce new security features: Always Encrypted, Row-Level Security, and dynamic data masking; discuss enhancements that enable you to better manage performance and storage: TemDB configuration, query store, and Stretch Database; review several improvements to Reporting Services; and also describe Always On Availability Groups, tabular enhancements, and R integration. Conquer SQL Server 2019 administration—from the inside out Dive into SQL Server 2019 administration—and really put your SQL Server DBA expertise to work. This supremely organized reference packs hundreds of timesaving solutions, tips, and workarounds—all you need to plan, implement, manage, and secure SQL Server 2019 in any production environment: on-premises, cloud, or hybrid. Six experts thoroughly tour DBA capabilities available in SQL Server 2019 Database Engine, SQL Server Data Tools, SQL Server Management Studio, PowerShell, and Azure Portal. You'll find extensive new coverage of Azure SQL, big data clusters, PolyBase, data protection, automation, and more. Discover how experts tackle today's essential tasks—and challenge yourself to new levels of mastery. Explore SQL Server 2019's toolset, including the improved SQL Server Management Studio, Azure Data Studio, and Configuration Manager Design, implement, manage, and govern on-premises, hybrid, or Azure database infrastructures Install and configure SQL Server on Windows and Linux Master modern maintenance and monitoring with extended events, Resource Governor, and the SQL Assessment API Automate tasks with maintenance plans, PowerShell, Policy-Based Management, and more Plan and manage data recovery, including hybrid backup/restore, Azure SQL Database recovery, and geo-replication Use availability groups for high availability and disaster recovery Protect data with Transparent Data Encryption, Always Encrypted, new Certificate Management capabilities, and other advances Optimize databases with SQL Server 2019's advanced performance and indexing features Provision and operate Azure SQL Database and its managed instances Move SQL Server workloads to Azure: planning, testing, migration, and post-migration

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