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GitHub : https://github.com/Craysav/DBFoundations

Assignment 6

Introduction

Structured Query Language (SQL) is a programming language used to manage relational databases. SQL has three important database objects: Views, Functions, and Stored Procedures. Views are virtual tables used to simplify complex queries, summarize data, and enforce security policies. Functions and Stored Procedures are user-defined programs used to perform complex calculations, data manipulations, or database modifications. These objects have differences and similarities that need to be understood to determine when they should be used.

Topic – Explain When You Would Use a SQL View

Structured Query Language Views are particularly useful in situations where complex queries or data processing tasks are involved. Instead of writing complex and time-consuming queries that require a high level of SQL knowledge, a view can be created to abstract away the underlying complexity of the data. Views can help developers to avoid duplication of complex queries throughout an application and to simplify the application's overall architecture. Views can also be used to partition data and provide an additional level of security by allowing users to access only certain columns or rows of data. For example, you want to create a View for a colleague giving a presentation about Employees at your company. Typically allowing your colleague to view Employee's personal information regarding Social Security Numbers, and Bank information could result in a breach of the company's privacy policies, so in this case a customized View would be optimal. Additionally, views can be used to collect data, join tables, and filter data without modifying the underlying tables that are already present in the database. Overall, Structured Query Language Views provide a simple and powerful way to simplify the complexity of the underlying data and simplify database management and application development.

Topic – Explain the Differences & Similarities Between a View, Function, & Stored Procedure

Structured Query Language Views, Functions, and Stored Procedures are three important database objects used in relational database management systems. Views are virtual tables that display data from one or more tables in the database, while Functions and Stored Procedures are user-defined programs that execute specific tasks defined by the user. Views can simplify

complex queries, summarize data, and enforce security policies. Example, a view can be created to show only the most recent orders for a customer or to summarize sales data by region or product category. While Functions and Stored Procedures can be used to perform complex calculations, data manipulations, or database modifications. One key difference between Views and Functions/Stored Procedures is that Views are read-only, while Functions and Stored Procedures can modify the data in the database. Functions and Stored Procedures can also accept input parameters and return output values, while Views cannot. Stored Procedures can be used to execute complex sequences of SQL statements, while Functions can be used in SELECT, INSERT, UPDATE, and DELETE statements to perform complex calculations on data. For example, a function can be used to calculate the total dollar amount of an order or to format the data before it is displayed in the results panel, while a stored procedure can be used to execute a sequence of Structured Query Language statements or to modify multiple tables at once. In terms of similarities, Views, Functions, and Stored Procedures can all be used to improve the efficiency of data retrieval and management, and all can be used to simplify the underlying complexity of the data. Overall, each of these database objects has a unique set of use cases and strengths, and understanding the differences between them can help to determine which one is the best fit for a particular task.

Summary

Structured Query Language is a powerful language used to manage relational databases, and three important database objects used in Structured Query Language are Views, Functions, and Stored Procedures. Views are used to simplify complex queries, summarize data, and enforce security policies, while Functions & Stored Procedures are used to perform complex calculations, manipulate or modify data in a relational database management system. Views can segment data, provide an additional layer of security, and can be used to collect data, join tables, and filter data without modifying the underlying tables. Functions and Stored Procedures can modify the data in the database, accept input parameters, and return output values, while Views are not able to. Stored Procedures are used to execute complex sequences of Structured Query Language statements, while Functions can be used to perform complex calculations on data in a relational database management system. All three objects can be used to improve the efficiency of data extraction & management. Understanding the similarities and differences between Views, Functions, and Stored Procedures is essential in determining which one is the best fit for a particular task. All in all Views, Functions, and Stored Procedures are essential Structured Query Language tools that can significantly enhance data management and make database programming tasks much more manageable.