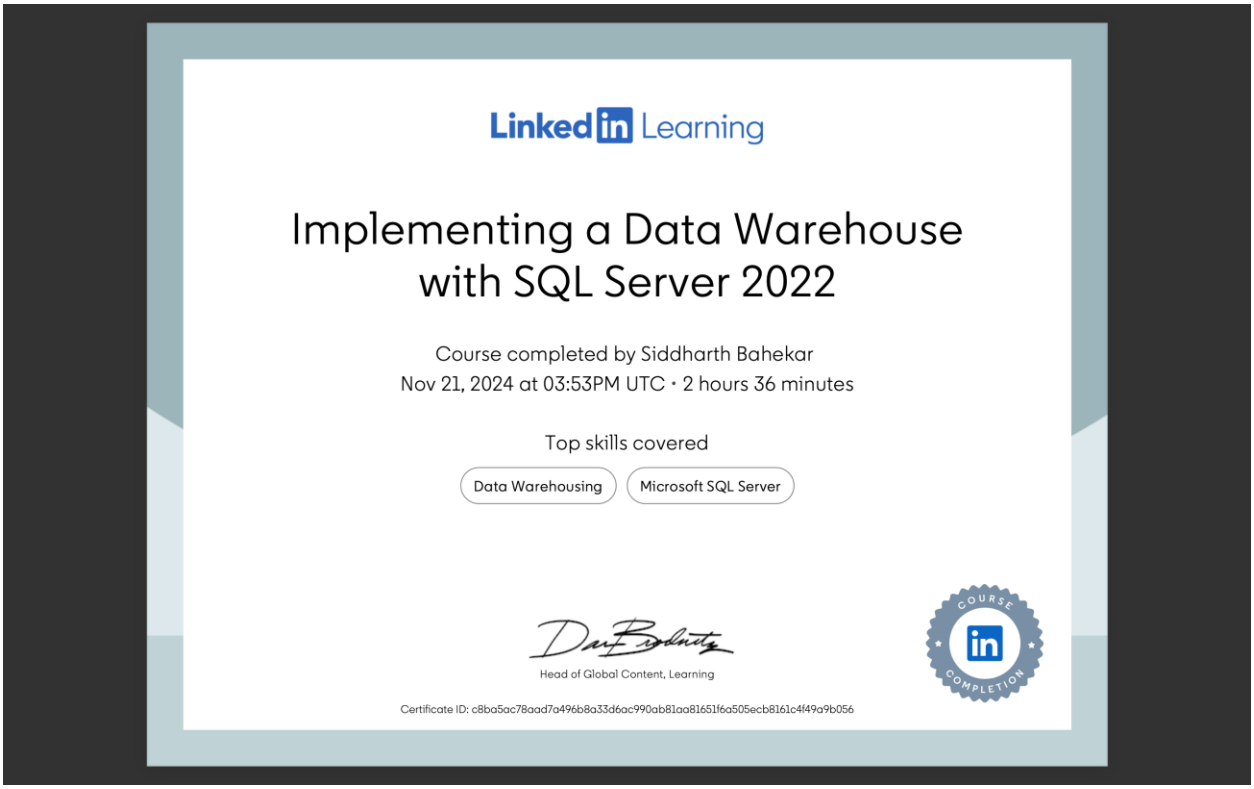
002417718 – Siddharth Bahekar – LinkedIn Learnings



The LinkedIn Learning course "Implementing a Data Warehouse with SQL Server 2022" covers a range of topics related to data warehousing, from fundamental concepts to advanced implementation techniques. Here's a summary of the key areas covered:

The course begins by introducing core data warehouse concepts and storage information. It explains how data warehouses differ from transactional databases, emphasizing their role in storing large volumes of historical data for analysis. The course showcases that while transactional databases are optimized for frequent updates and real-time processing, data warehouses are designed for complex queries and reporting on aggregated data.

A significant portion of the course focuses on dimensional modeling, a key concept in data warehouse design. It introduces dimensions and facts, explaining that dimensions provide context to numerical facts. The course covers two common schemas used in dimensional modeling: star schema and snowflake schema. In a star schema, a central fact table is surrounded by dimension tables, while a snowflake schema involves normalized dimension tables.

The course then takes us into the practical aspects of creating a data warehouse in SQL Server 2022. It guides learners through the process of designing dimension tables and fact tables, which

form the backbone of a data warehouse. Dimension tables typically contain descriptive attributes, while fact tables hold quantitative data and foreign keys to dimension tables.

Advanced topics like indexed views and columnstore indexes are also covered. Indexed views can significantly improve query performance by pre-computing and storing query results. Columnstore indexes, a feature heavily emphasized in SQL Server 2022, offer good performance benefits for data warehouse workloads. The course explains how columnstore indexes store data in a column-oriented format, allowing for better compression and faster query execution.

The course also touches on memory-optimized columnstore indexes and the process of rebuilding columnstore indexes to maintain optimal performance. These features are particularly relevant for handling large datasets efficiently.

ETL (Extract, Transform, Load) processes and SQL Server Integration Services (SSIS) are introduced as important components of data warehouse implementation. The course explains how ETL processes move and transform data from source systems into the data warehouse, and how SSIS provides a powerful platform for designing and executing these processes.

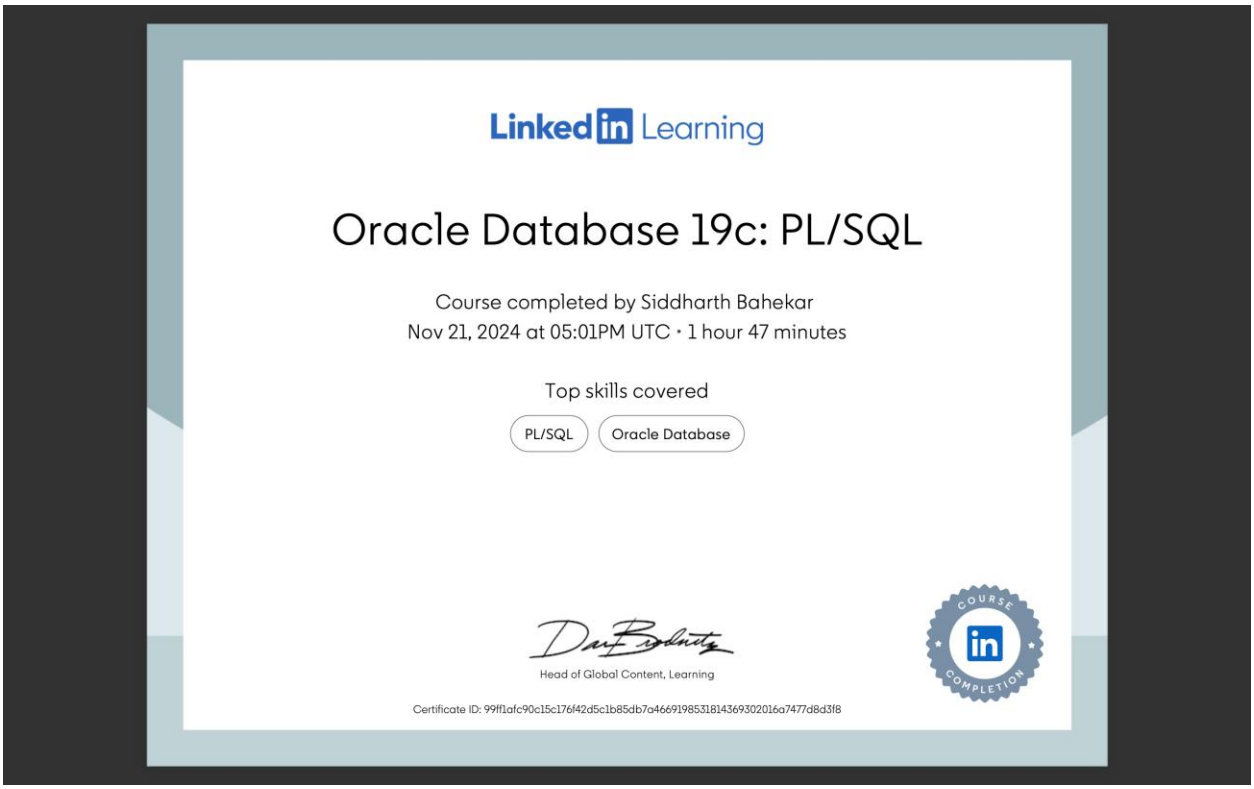
The course covers the concepts of data flow and control flow in SSIS. Data flow tasks handle the movement and transformation of data, while control flow manages the overall package execution, including sequencing and conditional logic.

For those interested in cloud-based solutions, the course includes a section on implementing Azure Synapse Analytics dedicated SQL pools. This part covers how to leverage cloud resources for scalable data warehousing solutions.

Data quality is another important topic addressed in the course. It emphasizes the importance of enforcing data quality measures to ensure the reliability and usefulness of the data warehouse. This might include data cleansing, validation, and governance practices.

The course also introduces Master Data Services, a feature of SQL Server that helps organizations manage and maintain master data entities. This is crucial for ensuring consistency across different systems and applications.

The course concludes by showing how to effectively consume and utilize the data warehouse, covering reporting tools and best practices for querying the warehouse.



The LinkedIn Learning course "Oracle Database 19c: PL/SQL" covers a range of topics related to PL/SQL programming in Oracle Database 19c.

PL/SQL is a powerful extension of SQL that provides procedural programming capabilities within the Oracle Database environment. It's particularly useful with Oracle Database 19c due to its tight integration with SQL and its ability to enhance database performance and security.

The course begins by exploring built-in PL/SQL procedures and functions. These are pre-defined routines that perform common tasks, such as string manipulation, date calculations, and data type conversions. For example, the DBMS_OUTPUT package allows you to display messages, while the TO_DATE function converts strings to date values.

Creating custom functions and procedures is a crucial aspect of PL/SQL programming. Functions are routines that return a value and can be used in SQL statements, while procedures are used to perform actions. Both are created using the CREATE OR REPLACE statement, followed by the function or procedure definition.

Variable declaration is fundamental in PL/SQL. Variables are declared in the declaration section of a PL/SQL block using the syntax: variable_name datatype[:= initial_value];. PL/SQL supports various data types, including NUMBER, VARCHAR2, and DATE.

Cursors are powerful features in PL/SQL used to handle multi-row queries. They allow you to process query results row by row. Explicit cursors are declared using the CURSOR keyword,

followed by a SELECT statement. They are then opened, fetched from, and closed within the PL/SQL block.

The course also covers the concept of invoker rights vs. definer rights, which determines the privileges under which a stored program runs. Definer rights mean the program runs with the privileges of the owner, while invoker rights run with the privileges of the user executing the program.PL/SQL blocks define scope, which determines where variables and subprograms can be accessed. The course explains how nested blocks create different levels of scope, affecting variable visibility and lifetime.

Control structures like FOR loops, WHILE loops, and IF statements are essential for program flow control in PL/SQL. The course introduces new features of PL/SQL loop constructs, such as the CONTINUE statement, which skips the current iteration and proceeds to the next one.

The SELECT INTO statement is used to retrieve a single row from a table and assign values to variables. The %ROWCOUNT attribute returns the number of rows affected by the most recent SQL operation.PL/SQL allows both static and dynamic SQL execution. Static SQL is compiled at compile time, while dynamic SQL is constructed and executed at runtime. This flexibility enables the creation of more adaptable database applications.

Error handling in PL/SQL is achieved through exceptions. The course covers both predefined exceptions (like NO_DATA_FOUND) and user-defined exceptions. These allow for handling of runtime errors and custom error conditions.

User-defined types, including object types and collection types, enable the creation of complex data structures in PL/SQL. These can be used with table functions to return sets of data, enhancing the flexibility and power of PL/SQL programs.

This course provides a comprehensive overview of PL/SQL programming in Oracle Database 19c, covering essential concepts from basic syntax to advanced features. It equips learners with the knowledge to write efficient, maintainable, and powerful database programs using PL/SQL.