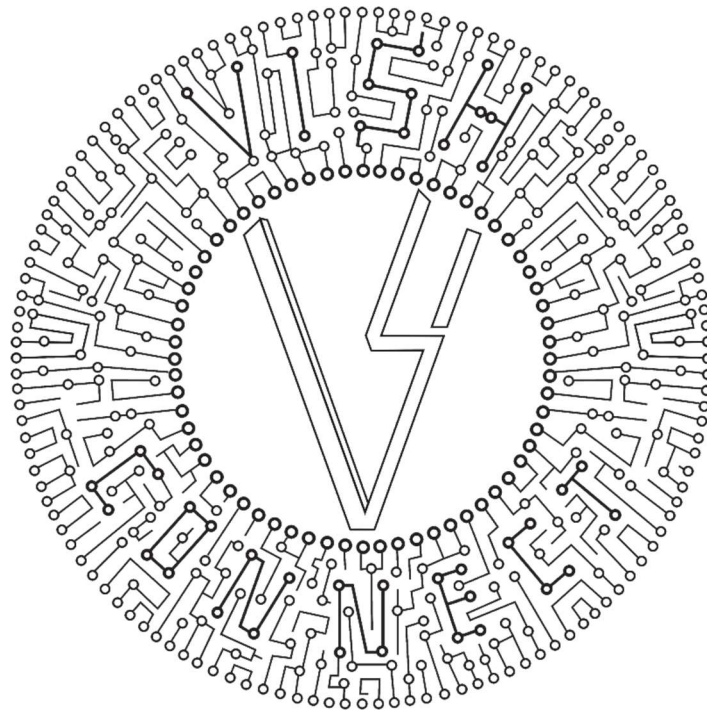




VISHCONNECT SOLUTIONS

Simplify Work Through Automation

SQL Workshop



Session 1: Introduction to SQL & Databases

Duration: 1.5–2 Hours

Overview of relational databases and SQL fundamentals

- **Introduction to database objects: tables, views, indexes**
- Instructions for setting up and connecting to an SQL database (MySQL, PostgreSQL, or SQL Server)
- **Guidance on writing basic queries with SELECT Practical Activities:**
- **Set up an SQL environment**
- **Retrieve data using SELECT and filters**

Session 2: Querying Data – Filtering & Sorting

Duration: 2 Hours

Using the WHERE clause for filtering data

- **Sorting results with ORDER BY**
- **Applying GROUP BY and HAVING for aggregations**
- **Utilizing DISTINCT to retrieve unique values Practical Activities:**
- **Query and filter a large dataset**
- **Perform aggregations using GROUP BY**

Session 3: Data Manipulation – Insert, Update & Delete

Duration: 2 Hours

Inserting data into tables using INSERT INTO

- **Modifying existing data using UPDATE**
- **Deleting data with DELETE**
- **Best practices for maintaining data integrity Practical Activities:**
- **Insert and update records in a sample database**
- **Implement data modification constraints**

Session 4: Joins & Relationships in SQL

Duration: 2 Hours

Understanding primary and foreign keys

- Working with different types of joins (INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN)
- **Using SELF JOIN and CROSS JOIN**
- **Combining multiple tables for analysis Practical Activities:**
- **Write queries using different join types**
- **Retrieve and analyze data from multiple related tables**

Session 5: Subqueries & Advanced SQL Functions

Duration: 2 Hours

Writing and using subqueries within SELECT, INSERT, UPDATE, and DELETE

- **Common table expressions (CTEs) vs. subqueries**
- Using window functions (ROW_NUMBER(), RANK(), DENSE_RANK(), PARTITION BY)
- **Applying string and date functions Practical Activities:**
- **Write nested subqueries for complex data retrieval**
- **Apply window functions to analyze data**

Session 6: Database Optimization & Performance Tuning

Duration: 2 Hours

Understanding indexing and its impact on performance

- **Using EXPLAIN for query optimization**
- **Best practices for writing efficient queries**
- **Introduction to database normalization Practical Activities:**
- **Analyze query performance using EXPLAIN**
- **Implement indexing for better query efficiency**

Session 7: SQL Security, Transactions & Final Project

Duration: 2 Hours

Overview of transactions (COMMIT, ROLLBACK, SAVEPOINT)

- **Implementing role-based access control**
- **Ensuring data security and preventing SQL injection**
- **Final project: Developing an SQL-driven application/report Practical Activities:**
- **Implement role-based access permissions**
- **Design and execute a complete database solution**

SQL Workshop

Contact Information:

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