🎯 *TRAINING OBJECTIVE*

By the end of this SQL course, students will:

- ☑ Understand database concepts and SQL fundamentals.
- ☑ Be able to write, test, and optimize SQL queries
- ☑ Perform data extraction, transformation, and reporting tasks.
- ☑ Build real-world queries for analytics and reporting (e.g., Power BI, MIS).
- ☑ Be job-ready to manage and analyze data using SQL in corporate environments.

Session 1: Introduction to SQL & Database Fundamentals

- What is a Database? What is RDBMS?
- Understanding Tables, Rows & Columns
- SQL Overview (DDL, DML, DCL, TCL)
- Data Types in SQL (INT, VARCHAR, DATE, etc.)
- Basic Commands: CREATE, ALTER, DROP
- Inserting, Updating, and Deleting Records

Session 2: Data Retrieval & Filtering (Basic Level)

- SELECT Statement (Syntax & Usage)
- Filtering Data with WHERE
- Using Logical Operators: AND, OR, NOT
- Wildcards & Pattern Matching: LIKE, %, _
- Sorting & Filtering: ORDER BY, DISTINCT, TOP, LIMIT
- Aliases for Tables and Columns

Session 3: SQL Functions & Expressions (Intermediate Level)

- String Functions: LEN, UPPER, LOWER, SUBSTRING, TRIM
- Numeric Functions: ROUND, CEIL, FLOOR, ABS
- Date Functions: GETDATE(), DATEDIFF(), DATEPART()
- NULL Handling: ISNULL, COALESCE
- Conditional Logic: CASE, IIF

Session 4: Joins & Relationships (Intermediate Level)

- Understanding Keys (Primary, Foreign)
- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL OUTER JOIN
- Real-world join examples (Employee–Department–Manager)

Session 5: Aggregations & Grouping

- Aggregate Functions: SUM, AVG, COUNT, MIN, MAX
- GROUP BY and HAVING clauses
- Filtering aggregated results
- Combining results using UNION, INTERSECT, EXCEPT
- Difference between WHERE and HAVING.

TRANSITY GLOBAL

Session 6: Subqueries & Nested Queries (Advanced Level)

- Single-row and Multi-row Subqueries
- Correlated Subqueries
- Subqueries inside SELECT, FROM, and WHERE
- Using subqueries for conditional filtering
- Performance optimization in nested queries

Session 7: Views, Indexes & Stored Procedures (Advanced Level)

- Views: Create, Modify, Drop
- Indexes: Clustered vs Non-Clustered
- Stored Procedures: Basics & Parameters
- Functions: Scalar & Table-Valued
- Transactions: COMMIT, ROLLBACK, SAVEPOINT

Session 8: Advanced SQL Concepts & Final Project (Expert Level)

- Common Table Expressions (CTE)
- Window Functions: ROW_NUMBER, RANK, DENSE_RANK
- Query Optimization Techniques
- Handling Large Datasets (Performance Tips)
- Common SQL Mistakes and How to Avoid Them