

## Querying Microsoft SQL Server with Transact-SQL

### **Module: 1**

- Introduction to Transact-SQL
- What is Transact-SQL
- The SELECT statement
- The WHERE clause
- Sorting results
- Calculations
- CASE expressions

### **Module: 2**

- Joining tables with Transact-SQL
- The JOIN clause
- Inner joins
- Outer joins
- Self-joins and cross joins

### **Module: 3**

- Filtering and sorting results
- Implement the ORDER BY clause
- Filter data with the WHERE clause
- Limit the number of rows returned by a query
- Implement NULL logic

### **Module: 4**

- SQL Server data types
- Understand data types?
- Implement string data types
- Implement temporal data types

### **Module: 5**

- Inserting, updating and deleting data
- Insert new records
- Update existing records
- Delete data

### **Module: 6**

- Using SQL Server functions with Transact-SQL
- Understand function types in SQL Server
- Convert data using functions

- Implement logical functions
- Work with NULL data using functions

#### **Module : 7**

- Aggregating data with Transact-SQL
- Implement aggregation in SQL Server
- Group records in SQL Server
- Filter aggregated data

#### **Module: 8**

- Implement subqueries with Transact-SQL
- Implement scalar and multi-valued sub-queries
- Implement correlated subqueries
- Implement existence checks with subqueries

#### **Module: 9**

- Create queries that use table expressions
- Create views
- Create table-valued functions
- Implement derived tables
- Implement common table expressions

#### **Module: 10**

- Use UNION, INTERSECT, EXCEPT and APPLY on multiple sets of data
- Write queries with the UNION operator
- Write queries with the INTERSECT and EXCEPT operators
- Write queries with the APPLY operator

#### **Module: 11**

- Implement window functions in queries
- Understand window functions
- Implement window functions

#### **Module: 12**

- Use PIVOT and grouping sets in queries
- Implement PIVOT in queries
- Implement grouping sets in queries

#### **Module: 13**

- Use stored procedures in queries
- Query data with stored procedures
- Interact with stored procedures using input and output parameters
- Write simple stored procedures

- Pass dynamic SQL to SQL Server

#### **Module: 14**

- Implement programming features in Transact-SQL
- Understand T-SQL programming elements
- Implement loops and conditions in T-SQL queries

#### **Module: 15**

- Add error handling to queries
- Understand SQL Server error handling
- Implement structured exception handling

#### **Module : 16**

- Use transactions in queries
- Understand database transactions
- Implement transactions in T-SQL