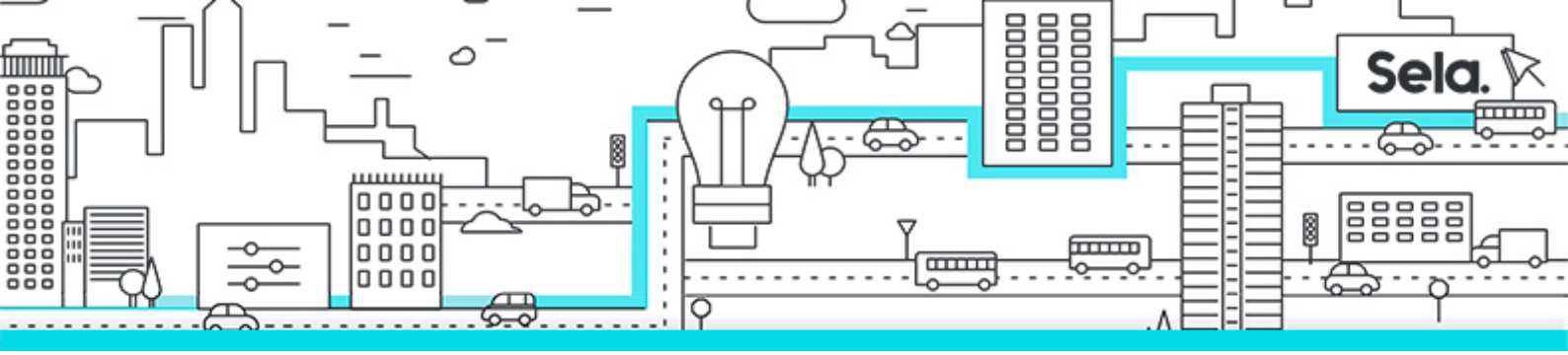
Sela.

20761C

# Querying Data with Transact-SQL

college@sela.co.il 03-6176666




# Querying Data with Transact-SQL

20761C - Version: 1

## 5 days course

**Description:**

This course is designed to introduce students to Transact-SQL.

**Intended Audience:**

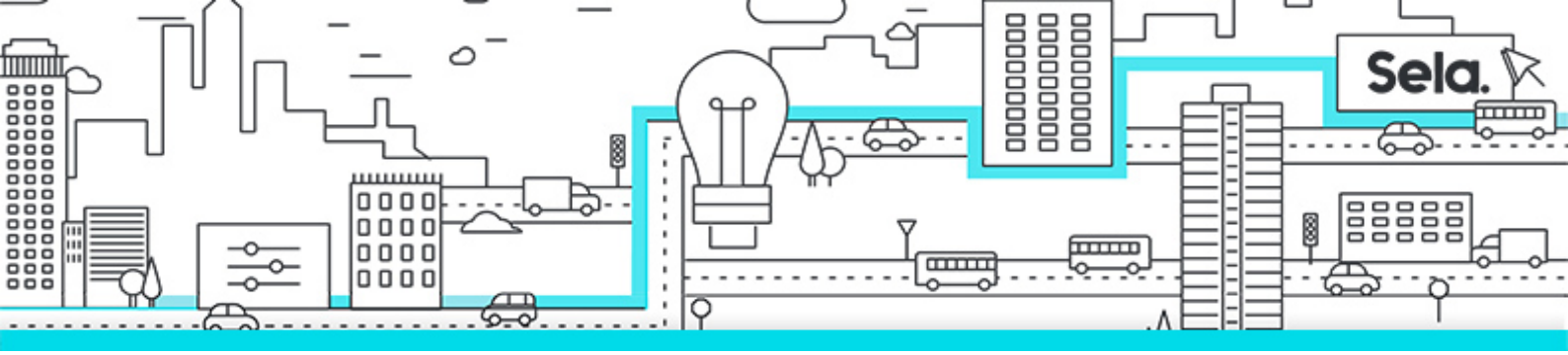
The main purpose of the course is to give students a good understanding of the Transact-SQL language which is used by all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence. As such, the primary target audience for this course is: Database Administrators, Database Developers and BI professionals.

**Prerequisites:**

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of relational databases.

**Objectives:**

- Describe key capabilities and components of SQL Server.
- Describe T-SQL, sets, and predicate logic.
- Write a single table SELECT statement.
- Write a multi-table SELECT statement.
- Write SELECT statements with filtering and sorting.
- Describe how SQL Server uses data types.
- Write DML statements.
- Write queries that use built-in functions.
- Write queries that aggregate data.



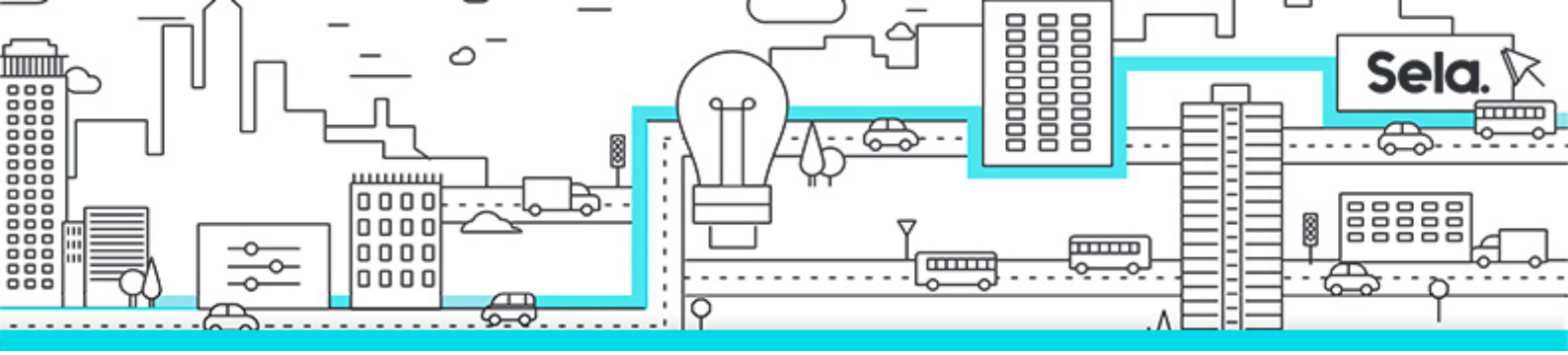

• Write subqueries.
• Create and implement views and table-valued functions.
• Use set operators to combine query results.
• Write queries that use window ranking, offset, and aggregate functions.
• Transform data by implementing pivot, unpivot, rollup and cube.
• Create and implement stored procedures.
• Add programming constructs such as variables, conditions, and loops to T-SQL code.

**Topics:**

- **Module 1: Introduction to Microsoft SQL Server**
  - The Basic Architecture of SQL Server
  - SQL Server Editions and Versions
  - Getting Started with SQL Server Management Studio
  - Lab : Working with SQL Server Tools

- **Module 2: Introduction to T-SQL Querying**
  - Introducing T-SQL
  - Understanding Sets
  - Understanding Predicate Logic
  - Understanding the Logical Order of Operations in SELECT statements
  - Lab : Introduction to T-SQL Querying

- **Module 3: Writing SELECT Queries**
  - Writing Simple SELECT Statements
  - Eliminating Duplicates with DISTINCT
  - Using Column and Table Aliases
  - Writing Simple CASE Expressions
  - Lab : Writing Basic SELECT Statements



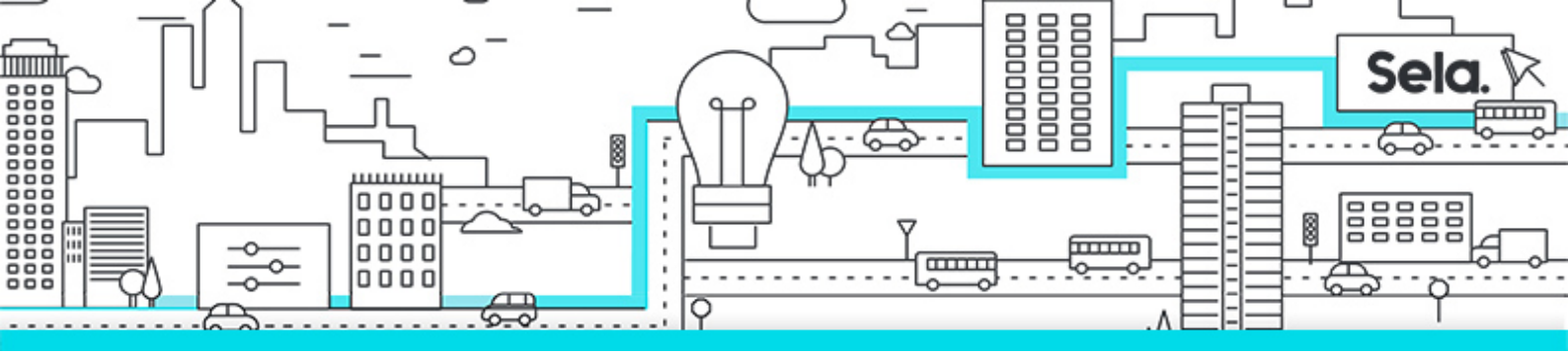

- **Module 4: Querying Multiple Tables**
  - Understanding Joins
  - Querying with Inner Joins
  - Querying with Outer Joins
  - Querying with Cross Joins and Self Joins
  - Lab : Querying Multiple Tables

- **Module 5: Sorting and Filtering Data**
  - Sorting Data
  - Filtering Data with Predicates
  - Filtering Data with TOP and OFFSET-FETCH
  - Working with Unknown Values
  - Lab : Sorting and Filtering Data

- **Module 6: Working with SQL Server Data Types**
  - Introducing SQL Server Data Types
  - Working with Character Data
  - Working with Date and Time Data
  - Lab : Working with SQL Server Data Types

- **Module 7: Using DML to Modify Data**
  - Adding Data to Tables
  - Modifying and Removing Data
  - Generating automatic column values
  - Lab : Using DML to Modify Data

- **Module 8: Using Built-In Functions**
  - Writing Queries with Built-In Functions
  - Using Conversion Functions
  - Using Logical Functions
  - Using Functions to Work with NULL




- Lab : Using Built-In Functions

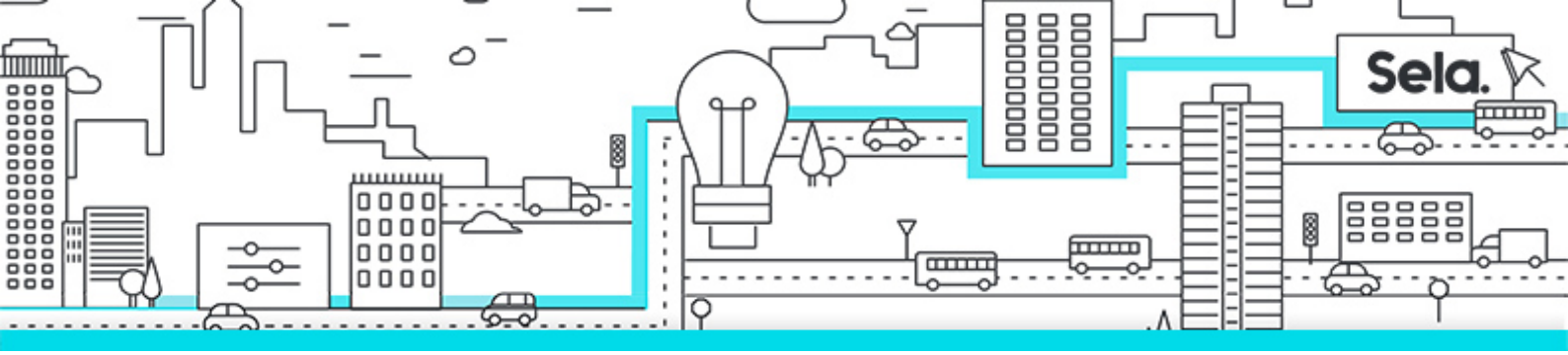
• **Module 9: Grouping and Aggregating Data**
- Using Aggregate Functions
- Using the GROUP BY Clause
- Filtering Groups with HAVING
- Lab : Grouping and Aggregating Data

• **Module 10: Using Subqueries**
- Writing Self-Contained Subqueries
- Writing Correlated Subqueries
- Using the EXISTS Predicate with Subqueries
- Lab : Using Subqueries

• **Module 11: Using Table Expressions**
- Using Views
- Using Inline Table-Valued Functions
- Using Derived Tables
- Using Common Table Expressions
- Lab : Using Table Expressions

• **Module 12: Using Set Operators**
- Writing Queries with the UNION operator
- Using EXCEPT and INTERSECT
- Using APPLY
- Lab : Using Set Operators

• **Module 13: Using Windows Ranking, Offset, and Aggregate Functions**
- Creating Windows with OVER
- Exploring Window Functions
- Lab : Using Windows Ranking, Offset, and Aggregate Functions




- **Module 14: Pivoting and Grouping Sets**
  - Writing Queries with PIVOT and UNPIVOT
  - Working with Grouping Sets
  - Lab : Pivoting and Grouping Sets

- **Module 15: Executing Stored Procedures**
  - Querying Data with Stored Procedures
  - Passing Parameters to Stored procedures
  - Creating Simple Stored Procedures
  - Working with Dynamic SQL
  - Lab : Executing Stored Procedures

- **Module 16: Programming with T-SQL**
  - T-SQL Programming Elements
  - Controlling Program Flow
  - Lab : Programming with T-SQL

- **Module 17: Implementing Error Handling**
  - Implementing T-SQL error handling
  - Implementing structured exception handling
  - Lab : Implementing Error Handling

- **Module 18: Implementing Transactions**
  - Transactions and the database engines
  - Controlling transactions
  - Lab : Implementing Transactions