

MSSQL Server



e-Learning Course



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COURSE MODULES

Module 1: Introduction to MSSQL Server

- Overview of RDBMS & SQL Server
- Editions & Versions of MSSQL Server
- SQL Server Architecture
- Installation & Configuration of MSSQL Server
- Understanding SQL Server Management Studio (SSMS)

Module 2: Database Basics & SQL Fundamentals

- Understanding Databases & Schemas
- Data Types in SQL Server
- Creating, Altering & Deleting Databases
- Understanding Tables & Constraints (Primary Key, Foreign Key, Unique, Check, Default)
- Data Manipulation Language (DML):
 - INSERT, UPDATE, DELETE, SELECT
- Data Definition Language (DDL):
 - CREATE, ALTER, DROP, TRUNCATE
- Data Control Language (DCL):
 - GRANT, REVOKE
- Transaction Control Language (TCL):
 - COMMIT, ROLLBACK, SAVEPOINT

Module 3: Querying Data with T-SQL

- Writing SELECT Queries
- Filtering Data (WHERE, HAVING, BETWEEN, LIKE, IN)
- Sorting & Grouping Data (ORDER BY, GROUP BY)
- Joins & Relationships:
 - Inner Join, Left Join, Right Join, Full Outer Join, Cross Join
- Subqueries & CTEs
- Window Functions (ROW_NUMBER(), RANK(), DENSE_RANK(), LEAD(), LAG())

Module 4: Advanced SQL & Performance Optimization

- Views & Indexed Views
- Stored Procedures & Functions
- Triggers & Event Handling
- Transactions & Locking Mechanisms
- Indexing Strategies (Clustered & Non-Clustered Indexes)
- Query Optimization & Execution Plans
- Common Table Expressions (CTE)

Module 5: SQL Server Security & User Management

- Authentication Modes (Windows & SQL Server)
- Creating & Managing Users & Roles
- Granting & Revoking Permissions
- Database Security Best Practices

Module 6: Backup & Recovery Strategies

- Types of Backups:
 - o Full, Differential, Transaction Log Backups
- Restoring Databases
- Point-in-Time Recovery
- SQL Server Always On & High Availability

Module 7: SQL Server Administration

- SQL Server Agent & Job Scheduling
- SQL Profiler & Performance Monitoring
- Database Mirroring & Replication
- Log Shipping & Failover Clustering

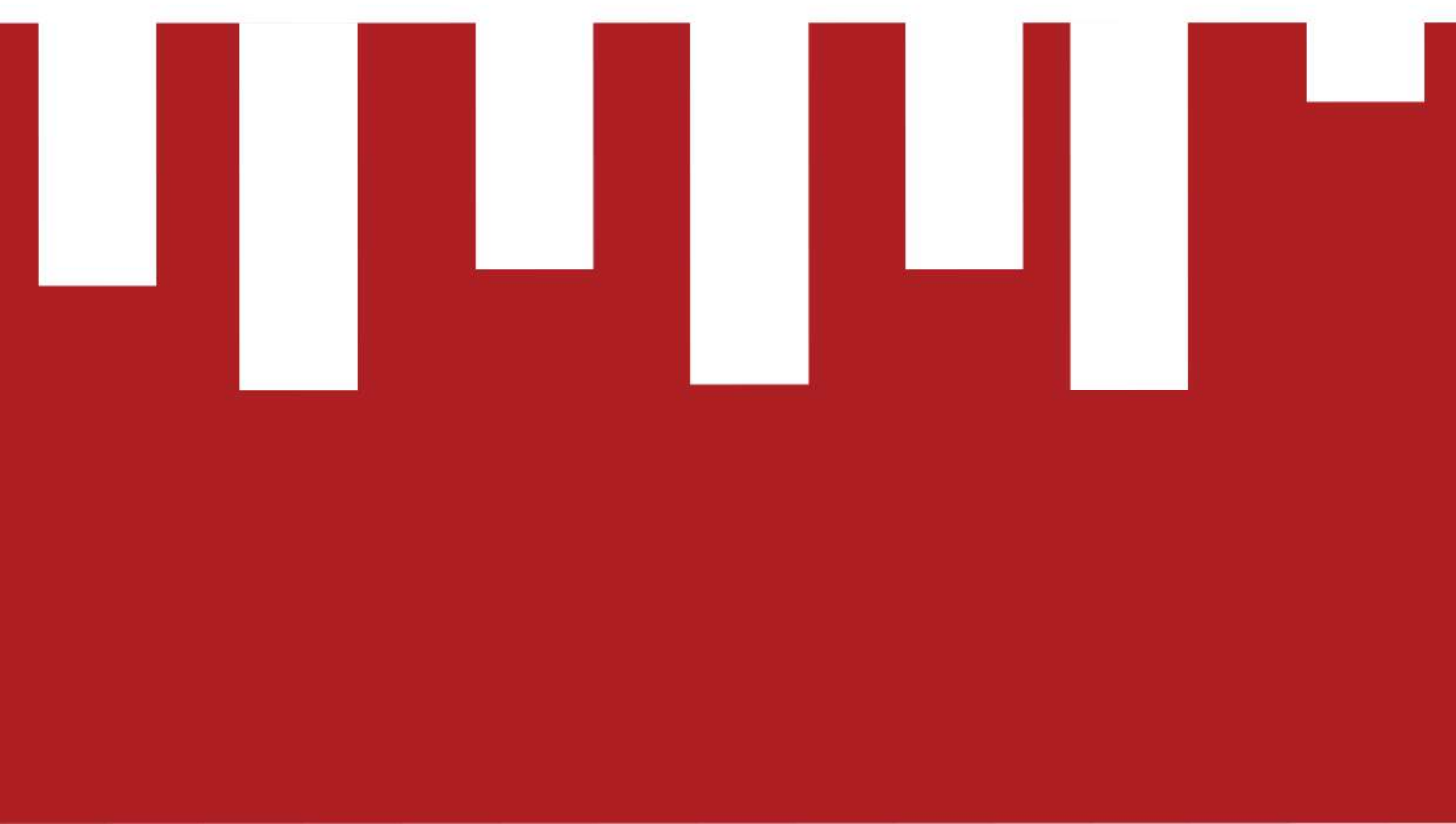
Module 8: Business Intelligence & Reporting

- Introduction to SQL Server Reporting Services (SSRS)
- Introduction to SQL Server Integration Services (SSIS)
- SQL Server Analysis Services (SSAS) Basics

Module 9: Working with Big Data & Cloud

- SQL Server on Azure
- Working with JSON & XML Data
- PolyBase & External Tables
- Integration with Power BI

Module 10: Capstone Project & Real-World Scenarios

- Building a Complete Database Solution
 - Query Performance Tuning on Large Datasets
 - Automating Maintenance Tasks
 - Implementing Security & Compliance Policies
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