# SQL Server and Data Management

*Duration : 5 days(40 hours)*

**Introduction to SQL Server**

- Overview of SQL Server
- SQL Server Editions and Features
- SQL Server Management Tools

**SQL Fundamentals**

- Understanding Databases and Tables
- Basic SQL Commands: SELECT, INSERT, UPDATE, DELETE
- Data Types in SQL Server
- SQL Functions and Operators
- Advanced SQL Queries: Joins, Subqueries, and Indexes

**Data and Database Security**

- SQL Server Security Architecture
- Authentication and Authorization
- Encryption Techniques in SQL Server
- Data Masking and Row-Level Security
- Auditing and Compliance

**Database Development**

- Database Design Principles
- Planning and Requirements Analysis
- Implementation of Database Schema
- Normalization and Denormalization Techniques

- Testing and Quality Assurance

**Database Management**

- Monitoring SQL Server Performance

- Performance Tuning and Optimization

- Maintenance Plans and Automation

- Backup and Recovery Strategies

- Index Maintenance and Optimization

**Database Scalability and Resource Optimization**

- Scaling Up vs. Scaling Out

- Partitioning and Sharding Techniques

- Query Optimization Strategies

- Performance Monitoring and Capacity Planning

**Business Continuity**

- High Availability Solutions

  - Always On Availability Groups

  - Failover Clustering

  - Log Shipping

  - Database Mirroring

- Backup and Restore Procedures

- Disaster Recovery Planning

- Incident Response and Recovery

- Best Practices for Ensuring Business Continuity

**Introduction to Data and Business Analytics**

- Overview of Business Analytics

- Importance of Data Visualization and Reporting Tools

**Exploring Design Tools: An Overview**

- Introduction to Crystal Reports

- Introduction to Tableau

- Introduction to Excel

- Introduction to Power BI

**Data Visualization Techniques**

- Understanding Different Types of Charts (Bar, Line, Pie, etc.)

- Using Graphs for Data Representation

- Other Visualization Techniques (Heatmaps, Scatter Plots, etc.)

**Data Preparation and Cleaning**

- Importance of Data Preparation

- Techniques for Data Cleaning

- Tools for Data Preparation

**Creating Dashboards**

- Best Practices for Dashboard Design

- Dashboard Elements and Layout

- Creating Dashboards in Tableau

- Creating Dashboards in Power BI

- Creating Dashboards in Excel

**Report Data Sorting, Grouping, and Summarizing**

- Sorting Data in Reports

- Grouping Data for Better Insights

- Summarizing Data with Key Metrics

**Working with Formulas and Functions in Reports**

- Using Formulas in Excel and Power BI

- Leveraging Functions in Tableau and Crystal Reports

- Combining Multiple Functions for Complex Calculations


**Interactive Reports**

- What are Interactive Reports?

- Creating Interactive Reports in Tableau

- Interactive Features in Power BI

- Enhancing Reports with Interactivity in Excel and Crystal Reports