**The C#, ASP.NET Core, and SQL Server Application Development**

**23 Half Days**

This course is designed to new developers those who wants to start application development using Microsoft .NET Technology and the SQL Server. The Course covers the SQL Server database programming and the Web Application development using ASP.NET Core.

**SQL Server Programming**

Day 1: Introduction to Database

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| 1. What is SQL Server database?    1. Concept behind using database    2. Normalization Process       1. 0th to 4th Normalization 2. SQL Server Data Types |

Day 2: Database Programming

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| 1. Creating Database    1. Settings Size of the Database    2. Volume Increase 2. Creating Tables    1. Columns    2. Keys       1. Primary Key and Foreign Keys       2. Unique Keys       3. Constraints    3. Alter Tables    4. Alter Columns |

Day 3: DML Queries and Select Statements

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| 1. Inserting, Updating, and Deleting Rows 2. Performing Sub-Queries 3. Working with Groups and Joins |

Day 4: Using Built-In Functions

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| 1. Using Built-In Functions    1. Scalar    2. Aggregate    3. String |
| 1. Creating Custom functions |

Day 5: Stored Procedures

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| 1. Creating Stored Procs    1. DML    2. Transactions    3. Exception Handling |

Day 6: Working with Triggers and Cursors

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| 1. Creating Insert Update, and Delete Tables 2. Working with Cursors |

**C# Programming**

Day 8: .NET Core Application

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| 1. Understanding .NET Core Eco-System    1. C# Programming Language    2. Data Types    3. Creating Console App    4. Execution of the Application |

Day 9: C# Object Oriented Programming

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| 1. Concept of Object-Oriented Programing    1. Encapsulation and Abstraction    2. Inheritance with **is-a** relation    3. Polymorphism |

Day 10: C# Programming

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| 1. Creating Classes    1. Access Specifiers    2. Access Modifiers    3. Creating Properties and Methods |

Day 11: C# Inheritance

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| 1. Working with Inheritance    1. Abstract Class    2. Overloading    3. Overriding and Shadowing |

Day 12: Working with Polymorphism

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| 1. Working with Polymorphism    1. Runtime Polymorphism using Abstract Class 2. Working with Events and Delegates 3. Working with Extension Methods 4. Working with Lambda Expressions |

Day 13: Working with Interface

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| 1. Working with Interfaces    1. Difference between Abstract class and interface    2. Implicit and Explicit Implementation |

Day 14: Data Access using Entity Framework Core

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| 1. What is Object Relational Mapping (ORM)?    1. The EF Core Object Model    2. DbContext Class    3. DbSet Class    4. The Concept of using ORM |

Day 15: The EF Core Database First Approach

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| 1. The Database First Approach    1. Creating Entities from Database using Scaffolding    2. The Data Access Layer for Performing CRUD Operations |

Day 16: The EF Core Code-First Approach

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| 1. The Code-First Approach    1. Creating Entity Classes    2. Creating DbContext Classes    3. Generating Migration    4. Creating Database and Tables |

Day 17: Understanding the ASP.NET Core Eco-System

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| 1. What is ASP.NET Core Eco-System    1. MVC Apps and API Apps       1. Services       2. Middlewares    2. The Concept MVC       1. Models       2. Views       3. Controllers |

Day 18: Working with MVC

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| 1. Creating Models using EF Core    1. Creating Services for Data Access    2. Registering the Service in Dependency Container 2. Creating Controllers with Action Methods    1. IActionResult Interface    2. Model Validations    3. Custom Validations |

Day 19: Working with MVC

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| 1. Creating Views    1. Scaffolding    2. Tag-Helpers    3. Model Binding 2. Navigation across the Controllers    1. TempData and Sessions |

Day 20: The Concept Filters and Middleware

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| 1. MVC Request Processing    1. The Concept of FiIters    2. Creating and Applying Filters 2. The ASP.NET Core Middlewares    1. Creating Middlewares    2. Applying Middlewares |

Day 21: Working with APIs

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| 1. The Concept of APIs    1. API Controller Class    2. HTTP Action Methods    3. Creating APIs |

Day 22: Securing MVC Apps

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| 1. The Users, Roles and Policies    1. The UserManager, RoleManager, and SignInManager classes    2. The Login Page    3. The Policies for enhancing Roles based Security |