.Net + SQL Development+ Azure Basics

Duration: 53 Days

PREREQUISITES

The following are the basic requirements in terms of skills for each of the candidates:

- Working knowledge of the Microsoft Windows Operating System
- Object Oriented Programming concepts
- Proficiency in any OOPs programming language (preferably C++/Java)
- Basic Knowledge of RDBMS and SQL
- Introductory Level Knowledge of various web technologies including:
  - HTML
  - JavaScript
  - CSS
  - XML

LAB SETUP

The following are the minimum basic software requirements for the Participant Computers (in order of installation):

- Microsoft Windows 10 Professional/Ultimate
- Microsoft Office 2010 including:
- Adobe Reader
- WinRar
- Visual Studio 2019 Professional
- Microsoft SQL Server 2019 Database with Client Tools (SSMS)
- Internet Information Server (IIS 10.0)

Course Outline

Day 01

Module 01: Basics of Computer Architecture Hardware and software

- Role of CPU, Memory
- Role of Operating System in Detail

Programming Language Journey (Advantage and Limitation) Features in Detail

- Machine Language
- Assembly language
- Procedural Language-C language
- Object-Oriented Language-C++
- GUI Based Programming Language-Visual Basic
- Java and .Net Language-C# Comparison in brief

Introduction to Development Models

- Application Development Models
  - The Desktop models
  - The Client-Server model (Tier Architecture till N-Tier)
  - The Web models

Module 02: Programming Fundamentals and OOPS Concept

- Pseudo Code Algorithm and Flow Chart
- Programming Constructs
- Software Engineering Principles
- Discussing Object Oriented Approach
- Procedural Programming vs Object Oriented Programming
- OOPS Fundamentals and Pillars Discussion
- Introducing GIT Repository
- Creating Git Repository

Module 03: Overview of the Microsoft .NET Framework

- Introduction to the .NET Platform and .NET Framework
- Framework Class Library, ADO.NET Library and ASP.NET Library
- Understanding the Common Type System (CTS)
- Introduction to the Need for the Common Language Runtime (CLR)
- Components of CLR and Roles
  - JIT Compiler
  - Type Checker
  - Exception Manager
  - Security Checker

- Com Marshaler
- Thread Support
- Garbage Collector
- Code manager
- Class Loader

➢ Managed Code Vs. Unmanaged Code

➢ Understanding the Just-In-Time (JIT) Compilation Process

- MSIL Code
- Metadata- The Self Explanatory Files
- Extracting IL Code and Viewing Metadata using ILDASM Tool
- .NET Assemblies Explanation
- Difference between .NET Exe File and Other Exe, DLL Description

➢ Overview of the .NET-Based Languages

➢ Comparison of the .NET-Based Languages

➢ The .NET Framework – Versions

Module 04: Using Microsoft Visual Studio .NET 2019

➢ Overview of Visual Studio .NET IDE Features

- Properties Window
- Tool Box
- Solution Explorer
- Server Explorer
- Object Browser
- Editor Browser

➢ Creating a Console Application Project

➢ Creating Windows Application Project

➢ Compiling Running and Debugging Application

➢ Folder Structure and File Types Created by Application

Day 2

Module 05: C# Language Fundamentals

- Structure of a C# Program
- Basic Input/Output Operations
- Commenting a Program
- Recommended Practices

Module 06: Using Value-Type Variables in C#

- Naming Variables
- Best Practices for Naming Conventions
- Using Built-In Data Types
- Creating User-Defined Data Types
- Converting Data Types
- Typecasting
- Boxing and Un-boxing data types

Module 07: C# Statements

- Introduction to Statements
- Using Selection Statements
- Using Iteration Statements
- Using Jump Statements
- Using Conditional Statements
- Applications Based on All Statements

Day 03

Module 08: Essentials of Object-Oriented Programming in C#

- Understanding Namespaces
- Understanding Scope Resolution
- Defining Classes
- Instantiating and Working with Objects
- Difference between Abstraction and Encapsulation
- Understanding and Implementing Encapsulation
- Defining Object-Oriented Systems

Module 09: String and Arrays in C#

- String Handling
  - The String and String Builder Class
  - Different Methods and Properties of String and String Builder Class
- Arrays
  - Overview of Arrays
  - Creating and using Single Dimension and Multi Dimension Arrays
  - Jagged Arrays
  - Using foreach Loop
  - Param Keyword

Day 04

Module 10: Methods and Parameters using C#

- Using Methods
- Using Parameters
  - Passing value type parameters
  - Passing Reference types (string, Array, object) as parameters
- Passing Parameters using Ref and Out keyword
- Static and Instance Members
- Explaining Constant and Read-only

Module 11: Creating Objects in C#

- Using Constructors
- Using Initializer Lists
- Initializing Data

Day 5

Module 12: Properties and Indexers in C#

- Data Fields
- Properties
- Using Indexers
- Compare and Contrast between Properties and Indexers

Day 06

Module 13: Inheritance in C#

- Deriving classes
- Understanding Type Hierarchy
- Hiding Base Class Member in Derived Class
- Implementing Multi Level Inheritance
- Using base keyword
- Using Static Classes

Module 14: Access Modifiers and Constructor

- Access Modifiers in C#
- Default Accessibility Level for Class, Methods and Structures
- Constructor Execution Sequence in Inheritance Scenario
- Default Constructor and Parameterized Constructor
- Constructor in Structure in C#
- Calling Base Class Constructor in Derived Class Constructor
- Using this keyword to Call One Constructor by another Constructor
- Discussing Public, Private and Protected Constructor
- Understanding Static Constructor
- Differentiating Static Constructor and Instance Constructor by call Mechanism
- Implementing Singleton Design Pattern and Understanding Static Class

Day 7

Module 15: Polymorphism in C#

- Polymorphism Using Methods
  - Overloading a Method
  - Overriding Virtual Method
- Abstract Class and Abstract Method
- Interface Implementation
- Interface Inheritance and Implementation
- Using Sealed Class and Sealed Method
- Discussed Inheritance and Interface Implementation in Structure
- Discussion to Differentiate Virtual Method, Abstract Method and Interface

Day 8

Module 16: Operators and Equality Comparison

- Introduction to operators
- Operator overloading
- Equality Comparison Operators and Methods
  - Comparing Value Equality
  - Comparing Reference Equality
  - Using ==, Equals, ReferenceEquals, CompareTo
  - Comparison by GetHashCode Method
  - Overriding Methods and Operators for Equality Comparison
- Overriding ToString Method

Module 17: Exception Handling

- Checked and Unchecked Statements
- Try, Catch and Finally
- Creating Custom Exception
- Exception Handling Best Practices
- Do's and Don'ts of Exception Handling

Day 09

Module 18: Collection Classes in C#

- Understanding Collection
- Using Different Collections viz. ArrayList, Stack, Queue, SortedList
- Understanding Different Interface viz. IEnumerable,
- IEnumerator, IComparable, IComparer, IList, IEquatable
- Hashing Mechanism
- Generic Collection Classes
- Performance Improvement using Generic Collection over Non-Generic version

Day 10

Module 19: Delegates and Events in C#

- Creating and using Delegates
  - Multicast Delegates
  - Anonymous Method
- When to Use Delegates, Events and Interfaces
- Covariance and Contravariance in Delegates
- Generic Delegates
- Comparing C++ Templates and C# Delegates
- Implementing Polymorphism Using Delegates
- Defining and using Events
- Creating Custom Events and Using it
- Passing Event Arguments

Module 20: Creating Windows Applications

- Creating a Windows Form
- Windows Form Controls
- Writing Code for Control Events
- Understanding Delegates and Events Implemented in windows Forms
- Writing a Common Method Called for Click Event of Multiple Buttons

Day 11

Module 21: Destroying Objects and Resource Management in C#

- Objects and Memory
- Using Destructors
- Destroying Objects
- Programming for the Garbage Collector
- Implementing the IDisposable Interface
- Understanding and Implementing Object Pooling
  - Cloning Objects implementing Shallow and Deep Copies

Module 22: File Handling

- FileSystemInfo Base Class, FileInfo Class and their Members
- Streams

- Reader/Writer
- Basic File IO

Module 23: Serialization

- Serialization Scenarios
- Serialization Attributes
- Object Graph
- Serialization Process
- Serialization Example
- Deserialization Example

Day 12

Module 24: Threading

- Threading & Synchronization
- Life cycle of a thread
- Different Thread Methods and Properties
- Synchronizing critical data using Synchronization objects
- Thread Pool

Module 25: Language Enhancements in C# 2.0

- Static Classes
- Property Accessors
- External Aliases
- Nullable types
- Iterators
- Partial types
- Generics

Module 26: Language Enhancements in C# 3.0

- Implicitly typed local variables
- Anonymous Types
- Extension Methods
- Object and Collection Initializer
- Lambda Expressions

- Query Expressions
- Expression Trees

Day 13

Module 27: Language Enhancement in C# 4.0, 5.0 and .NET 4.5

- Named and Optional Parameters
- Co and Contra variance
- Dynamic Typing and Late Binding
- Parallelization Overview
- Task Parallel Library
- Threads Vs. Tasks
- Parallel Extensions in .NET 4.5
- Async and await in C# 5.0

Module 28: C# 6.0 Features

- using Static.
- Auto property initializer.
- Dictionary Initializer.
- nameof Expression.
- New way for Exception filters.
- await in catch and finally block.
- Null – Conditional Operator.
- Expression – Bodied Methods
- Easily format strings – String interpolation

Day 14, 15

Module 29: C# 7.0 Features

- Tuples
- Deconstruction
- Non-'NULL' able reference type
- Minimizing Out variables
- Patterns Matching
- Readability Improvements with Literals
- Local functions
- Expression-bodied members
- Throw Expressions

Module 30: .NET Remoting

- Understanding Application Domain and Remoting Architecture
- Accessing .NET Components Across Application Domain
  - .NET Remoting architecture
  - Creation of Proxy Objects by the CLR
  - Using the Channel Services to Transport Remote
  - Object Across Application Domains
  - Using TCP Channel, Using HTTP Channel
- Formatter for Creating Message and Encoding it
  - Soap Formatter
  - Binary Formatter
- Activation Model
  - Server Activated
    - Creating a Single Call Object
    - Creating a Singleton Object
  - Client Activated
    - Managing Lifetime with Lease Manager
- Hosting .NET Remote Component
  - Using Framework Classes
- Using Configuration Files

Day 16, 17

Module 31: Design Patterns and Principles

- Understanding SOLID Design Principles
- Understanding Design Patterns and its real use
- Difference between Design Principles and Patterns
- Types of Design Patterns (Creational, Behavioural, Structural)
- Knowing and Implementing Few Important Design Patterns (Singleton, Factory, Abstract Factory)
- Design Patterns implemented in .NET Framework

Module 32: Dependency Injection using Unity Framework

- Dependency Inversion Principle
- Inversion of Control
- Dependency Injection
- Creating a console application
- Adding Reference to Microsoft Unity Framework
- Adding BL class
- Adding DL class
- Adding Interface
- How to configure the Unity Container
- Running and debugging an application
- Final output
- Dependency Injection Pros and Cons.

Day 18

Module 33: Unit Testing with TDD approach

- What is Unit Testing
- Advantages of Unit Testing
- Unit Testing C# Code using tools like Nunit
- MS Test Testing Framework
- Working with MS Test
- Microsoft Test Framework (Mock Framework)
- TDD Approach of Software Delivery
- Understanding SDLC Process Models (Waterfall Model, Agile Process Model)

Day 19

Module 34: RDBMS Fundamentals Concepts

- Why RDBMS
- Architecture layers
- Different models (hierarchy, network, OO, relational)
- RDBMS concepts: tables, keys, relationships
- Data types
- Create tables, basic DDL

Module 35: Creating Tables and Data Types

- Table Architectures
- Designing Tables
- Working with SQL Table Scripts
- Column in Tables
- Exploring Data Types
  - Character Data Types
  - Numeric Data Types
  - Date/Time Data Types
  - TEXT/NTEXT Data Types
  - Other Data Types
- Calculated Columns

Day 20

Module 36: Normalization Concepts

- Overview of SQL architecture (server, instance, DB, tables, temp DB)
- ER model concepts: entities, attributes, relationships, cardinality
- ER model notations, examples
- ER diagram assignment
- Mapping relationships
- Redundancy and normalization
- Normalization forms
- Dependency diagrams
- Translation to physical model

Module 37: SQL Server Overview

- What is SQL Server
- Advantages of SQL Server 2012
- SQL Server architecture
- SQL Server security Model
- SQL Server System databases

Day 21

Module 38: SQL Server Tools

- Server Tools
  - SQL Server manager
  - SQL Server Agent
  - Server Network Utility
- Client Tools
  - SQL Enterprise Manager
  - SQL Query Analyzer
  - Client Network Utility
- **SQL Profiler**

Module 39: Creating Databases

- Rules of Normalization
- Physical and logical database design
- Database File Concepts
- Configuring File Growth
- Using Multiple Files
- Using Filegroups

Module 40: Enforce Data integrity

- Types of data Integrity
  - Entity Integrity
  - Domain Integrity
  - Referential Integrity

- User-Defined Integrity

- Creating Keys
  - Primary Key Considerations
  - Creating Primary Keys
  - Creating foreign Keys
- Creating User Data Columns
  - Column Constraints

Day 22

Module 41: Partitions and Rank Function

Module 42: Retrieving and Modifying Data

- Select Data From a single Table
- Select Data from Multiple tables
- Select Options
  - TOP N
  - DISTINCT
  - BITWISE
  - CASE
- Working with Nulls
  - Testing for Nulls
  - Handling Nulls
- Scalar Functions
  - Summing and Grouping Data
  - Aggregate Functions
  - Using the CUMPUTE and COMPUTE BY Clause
  - Generating Totals
- Inserting Data
- Updating Data
- Deleting Data
- Potential Data Modification Obstacles

Day 23

Module 43: JOINS

- Using Joins
  - Inner Joins
  - Outer Joins
  - Self Joins
  - Cross Joins
- Using Sub Queries
  - Simple Sub Queries
  - Correlated Sub queries
- Common Table Expression
  - What is CTE
  - When to use CTE
  - Advantages of CTE
  - CTE in Action
  - Multiple CTE in one query
- Using Unions
  - Intersection Unions
  - Difference Unions
- Tuning queries
  - Execution Plan Analysis
  - Using SET Commands
  - UNION Vs UNION ALL
  - IN Vs. EXISTS Vs. JOIN
  - NOT IN Vs. NOT EXISTS Vs. LEFT JOIN
  - BETWEEN
- GROUP BY AND OREDRBY Clauses

Day 24

- **T-SQL PROGRAMMING**
- **Variable Declarations**
- Programming Constructs
- Conditional statements
- If-else

- Case
- While
- Break
- Continue

Module 44: IMPLEMENTING FUNCTIONS

- Creating Functions
- Implement Scalar Functions
- Create Table Valued Functions

Module 45: IMPLEMENTING STORED PROCEDURES

- What is Stored Procedure
- Creating Stored Procedures
- Executing Stored Procedures
- Creating Parameterized Stored Procedures
- Handle errors in a stored procedure

Day 25

Module 46: IMPLEMENTING TRIGGERS

- What is Trigger in SQL Server
- Why and when to use a trigger
- Types of Triggers (DDL and DML Triggers)
- Creating and Applying After Trigger and Instead of Trigger

Module 47: IMPLEMENTING INDEXES

- What is Index
- Advantages of Index
- Types of Indexes (Clustered, Non-clustered, Unique, Filtered Indexes)
- Create, Delete and Modify Indexes

Day 26

Module 48: IMPLEMENTING CURSORS

- What is Cursor
- Types of Cursors (Implicit and Explicit Cursor)
- Creating Cursors and Fetching Data from it

Module 49: Transaction in SQL SERVER

- What is Transaction
- Properties of Transaction
- Transaction Control
- Isolation Level in Transaction

Day 27

Module 50: Data-Centric Applications and ADO.NET

- The Managed provider
  - ADO.NET SQL Server managed Provider
  - OLEDB Managed Provider
- Understanding ADO.NET Architecture

Module 51: Connecting to Data Sources

- Choosing a .NET data Provider
- Defining a Connection
- Managing a Connection
- Handling Connection Exceptions
- Connection Pooling

Module 52: Performing Connected Database Operations

- Working in a Connected Environment
- Building Command Objects
- Executing Commands That Return a Single Value
- Executing Commands That Return Rows
- Executing Command That Doesn’t Return any Value
- Using Transactions
- Applications Using All These Features

Day 28

Module 53: Building Datasets

- Working in a Disconnected Environment
- Building DataSets and DataTables
- Building and Saving DataSets
- Defining Data Relationship
- Modifying Data in a Data Table
- Sorting and Filtering
- Application Using All These Features

Day 29

Module 54: Reading and Writing XML with ADO.NET

- Overview of XML Architecture in .Net
- Creating XSD schemas
- Loading Schema and Data into Dataset
- Writing XML from Dataset

Module 55: Introduction to LINQ

- The Role and Scope of LINQ
- Use of Extension Methods / Lambdas with LINQ
- Core LINQ Assemblies / Namespaces / Project Types
- Examining LINQ Query Operators
- The Query Operator - LINQ type relationship
- Building LINQ Query Expressions
- LINQ Over Objects

Day 30

Module 56: LINQ to SQL

- DLINQ-Centric Attributes and Types
- The Role of Entity Classes
- Creating Entity Classes using sqlmetal.exe / Visual Studio
- The Role of the DataContext

- Submitting Queries to Relational Databases

Module 57: Entity Framework

- Building Entity Data Models
- Using Code First, DB First and Model First Approach
- Querying Entity Data
- Creating, Updating, and Deleting Entity Data

Day 31

Module 58: Introduction to the Internet

- Understand the history of Internet.
- Understand Web terminology.
- Understand IP addresses
- TCP/IP Protocol
- Domain Name System
- HTTP Protocol
- Servers – Web Servers
- Web Browsers
- Working of WWW
- HTML – Static and Dynamic Web Pages

Day 32

Module 59: HTML 5

- Versions of HTML
- Role of Browsers
- Heading Tags
- Paragraph Tags
- Text Formatting Tags
- Types of Lists
- Tables
- Working with Images
- Forms in HTML
- HTTP GET Vs. HTTP POST
- New Form Elements in HTML5

Module 60: CSS 3.0

- Versions of CSS
- Inline Style Sheets
- Mixed Style Sheets
- External Style Sheets
- Types of Style Sheet Elements – Elements and Classes

Day 33

Module 61: JavaScript

- Versions of JavaScript
- Working with JavaScript Functions
- Passing Parameters
- Returning Values
- Handling HTML Events
- Validating a Form before Submission using JavaScript

Day 34

Module 62: jQuery

- Introduction to jQuery
  - What and Why of JQuery
  - JQuery Selectors
  - JQuery Events
- jQuery Effects
  - Hide/Show
  - Fade
  - Animate
  - Slide
  - Stop
  - Callback
  - Chaining
- jQuery HTML
  - GET

- SET
- Add
- Remove

- jQuery and CSS
  - Classes
  - Methods
  - Properties
- jQuery Traversing
- jQuery and Ajax

Module 63: JSON

- JSON Intro
- JSON Syntax
- JSON Data Types
- JSON Parse
- JSON Stringfy
- JSON Objects
- JSON Arrays

Module 64: Bootstrap Fundamentals

- Bootstrap Overview
- Environment Setup
- Layouts in Bootstrap 5
- Contents in Bootstrap 5
- FORMS in Bootstrap 5
- Components in Bootstrap 5

Day 35

Module 65: ASP.NET 4.5 Application Model

- What is ASP.NET
- Role of IIS in Web Application
- Request/Response Model
- How Web Request is Processed
- Application Life Cycle

- Compilation Model in ASP.NET

Module 66: ASP.NET Web Forms

- ASP.NET Programming Model
- Web Forms Code Model
- The code behind Web Forms
- Separation of content & Business logic
- Web Forms Page Life Cycle

Module 67: ASP.NET Web Form Controls

- HTML Controls
- HTML Server Controls
- ASP Web Controls
- Writing Inline Code
- Writing Code Separately in Code Behind File

Day 36

Module 68: ASP.NET Web Form Event Model

- Understanding Page Level Events
- Control Level events
- Application-Level Events
- Session Level Events
- Error Events

Module 69: Validation in ASP.NET

- Validation Scenarios
- Understanding the Need for Validation
- Client-side Validation and Server-side Validation
- Using Different Validation Controls
  - Required Field Validator
  - Compare Validator
  - Range Validator
  - Custom Validator
  - Regular Expression Validator

Module 70: The ASP.NET Post Back Model

- Understand PostBack model of ASP.NET
- Write code that interacts with the PostBack model of ASP.NET

Module 71: Debugging Tracing and Exception Handling ASP.NET Application

- Debugging Tools in Visual studio
- Using Breakpoints
- variable window
- Stepping and Data Viewing
- Understanding Remote Debugging
- Tracing and Handling Page-level errors
- Tracing and Handling Application-level errors
- Handling IIS Related Errors
- **Logging onto File/Server/Database**

Day 37

Module 72: Creating a Common Layout using Master Pages in ASP.NET

- Describe the concept of a Master Page
- Describe the concept of a Content Page
- Design Master Pages
- Configure Content Pages

Module 73: Caching

- Using Cache Object
- Using ASP.NET Output Caching
- Data Caching
- Cache Dependency

Module 74: Securing a Microsoft ASP.NET Web Application

- Web Application Security Overview
- Working with Windows-Based Authentication
- Working with Forms-Based Authentication
- Overview of Microsoft Passport Authentication
- Implementing Security to parts of a Web Application

Day 38, 39

Module 75: State Management in ASP.NET

- Session Objects
- Application Objects
- Cookies and Cookieless Session
- Query String
- View State

Module 76: Creating and Consuming Web Services

- The Need for Web Services
  - Evolution of Distributed Application
  - Problems with Traditional Distributed Application
  - Introducing Web Services
  - The Web Technology Stack and .NET
  - The .NET Alternative to Web Services
  - Common Web Services Scenarios
- Web Services Architectures
  - Service-Oriented Architecture
  - Web Service Architectures and Service-Oriented Architecture
  - Roles in a Web Service Architecture
  - The Web Services Programming Model
- The Underlying Technologies of Web Services
  - HTTP Fundamentals
  - XML Essentials
  - SOAP Fundamentals
- Consuming Web Services
  - WSDL Documents
  - Web Service Discovery
  - Web Service Proxies
  - Implementing a Web Service Consumer Using Visual Studio.NET
  - Implementing a Web Service Consumer for Non-.NET Client
- Implementing a Web Service
  - Creating a Web service Project
  - Implementing Web Service Methods

- Implementing Web Service Methods, Exposing Them and Controlling Their Behaviour

Day 40

Module 77: Exploring ASP.NET MVC

- Exploring ASP.NET MVC 5
- ASP.NET Web Forms – issues
- ASP.NET MVC Architecture
- ASP.NET MVC Benefits
- features of MVC 5
- ASP.NET Web Forms or MVC?
- Exploring a Web Pages Application
- Exploring a Web Forms Application
- Exploring an MVC Application

Module 78: Getting Started with ASP.NET MVC

- ASP.NET MVC project templates
- Understanding the structure of an ASP.NET MVC project
- Naming conventions
- Creating views
- Defining controllers
- Defining a data model

Module 79: Creating a Complete ASP.NET MVC Application

- Creating strongly-typed views
- Understanding URLs and action methods
- Using HTML helpers
- Handling form post-backs (Ajax call with json)
- Data validation
- Defining Models and Views
- Handling Form Submissions
- Custom model bindings

Day 41

Module 80: Working with Controllers in ASP.NET MVC

- Routes and Controllers
- Adding custom entries to a route table
- Actions and Parameters
- Action Results
- Action Selectors
- Action Filters
- Passing validation errors to Views
- Passing temporary data to Views
- Asynchronous Controllers

Module 81: Using the Razor View Engine

- What, why and when
- Razor Syntax
- Code Expressions
- Code Blocks
- Layout Views
- HTML Helpers
- Partial Views
- Rendering Sections
- Commenting
- Calling utility functions
- Calling Model data
- Bundling and Minification

Module 82: Building a Resilient ASP.NET MVC 5 Web Application

- Developing Secure Sites
- State Management
- View bag
- View data
- Temp Data
- Using hidden fields

- Session and Application State

Day 42

Module 83: Working with Data (Part 1)

- The Entity Framework (Code based/model based/ DB first)
- Building Entities
- Using LINQ
- Defining a data repository
- Performing CRUD operation in database using Scaffolding
- Html Custom Helper Templates

Module 84: Working with Data (Part II)

- Performing complex custom CRUD operations
- Using ADO.NET Entity Framework
- Using ADO.NET
- Table relation in code first approach and others
- Data Annotation

Day 43

Module 85: Controlling Access to ASP.NET MVC 5 Web Applications

- Authentication & Authorization
- Membership providers
- Roles based authentication
- Avoiding cross site request forgery
- OAuth - social login
- Implementing Authentication and Authorization
- Assigning Roles and Membership

Day 44

Module 86: RESTful Web Services using Web API

- Why REST Services?
- What is REST?
- Comparing REST with other SOA frameworks
- Introduction to ASP.NET Web API

Module 87: Implementing Web APIs in ASP.NET MVC 5 Web Applications

- Developing a Web API
- Calling a Web API from Web Applications
- Developing a Web API to perform a CRUD operation
- Calling a Web API from ASP.NET MVC application

Day 45

Module 88: Introduction to ASP.NET Core

- Introduction
- What is ASP.NET Core?
- ASP.NET Core Features
- Advantages of ASP.NET Core
- MVC Pattern
- Understanding ASP.NET Core MVC
- ASP.NET Core vs. ASP.NET MVC vs. ASP.NET Web Forms

Module 89: ASP.NET Core First Application

- ASP.NET Core Environment Setup
- ASP .NET Core First Application
- Project Layout
- Understanding Life Cycle of ASP.Net Core Request

Module 90: Controllers & Action Methods

- Controllers Overview
- Action Methods and IActionResult object

- Passing data from Controller to View
- Understanding Action Selectors
- Action Filters
- Building Custom Action Filters
- Middleware
- Asynchronous Action Methods

Module 91: Views

- Introducing Razor View
- Advantages of Razor View
- Razor Syntax
- Types of Views
- Partial Views
- Layout Pages
- Special Views
- View Categorization based on Model

Day 46

Module 92: Model Binding

- Html Form behavior
- Model Binder Overview
- DefaultModelBinder
- Binding to Complex Classes
- IFormCollection Model Binding
- IFormFile Model Binder
- Bind Attribute
- TryUpdateModelAsync

Module 93: Validations & Data Annotations

- Data Annotations and Validations Overview
- Validations with Data Annotation
- Server Side and Client-Side Validation
- Custom Server-side validation
- Model level validation using IValidatableObject
- Custom unobtrusive Client-side Validation

- Remote Validation

Day 47

Module 94: MVC and Entity Framework Core

- Basic CRUD Operations using Entity Framework
- Separation of work using BO Classes
- Writing Generic Class / Repository
- Caching in Repository

Module 95: Routing

- Url Routing Overview
- Custom Routes
- Attribute Routing
- Routing Constraints

Day 48

Azure Basics

- Introduction to Cloud Services
- Azure Fundamental

Day 49-53

Mini Project to consolidate learnings