

.NET FULLSTACK



CURRICULUM

Introduction of Dot Net Framework

- What is Dot Net?
- Why Dot Net?
- Advantages of Dot Net
- Component of Dot Net
- What is Framework?
- Versions of Framework
- CLR architecture
- CTS architecture
- CLS architecture
- DLR architecture
- What is JIT?
- Types of JIT?
 - Pre-JIT COMPILER
 - Econo-JIT COMPILER
 - Normal-JIT COMPILER

Getting Started with Visual Studio

- Understanding Project and Solution Explorer
- Creating a Project and Solution
- Understanding Solution Explorer
- Comments in C#
- Debug Project
- Understanding Execution Process

Assemblies in .Net

- What is Assembly?
- Types of Assembly?
- How to make Private Assembly
- How to make Shared Assembly
- What is DLL HALL Problem?
- What is SN Key?
- What is GAC?
- How to Deploy Assembly in Cache
- What is MSIL?
- What is DLL & EXE?
- How make DLL& EXE.
- Use of Ilasm.exe (IL Assembler) & Use of Ildasm.exe (IL Disassembler).

Object Oriented Programming System (OOPS)

- What is OOPS?
- What is Class & Object?
- Difference b/w Class, struct, interface and enum
- Types of Variable

- Static Variable
- Const Variable
- Read Only Variable
- Instance & Static Members
- Inheritance & Types of Inheritance
- What is Interface?
- Encapsulation
- Abstraction
- Polymorphism
- Types of Polymorphism
 - Static Polymorphism
 - Dynamic Polymorphism
 - Concept of Method Overloading
 - Concept of Method Overriding
 - Concept of Early Binding
 - Concept of Late Binding
 - Concept of Up Casting
- Operator Overloading?
- What is Constructor?
- Types of Constructor
 - Default Constructor
 - Parameterized Constructor
 - Copy Constructor
 - Private Constructor
 - Static Constructor
 - Concept of This Keyword in Constructor
- Concept of Base Keyword in Constructor
 - Concept of Base Keyword in Constructor
 - Abstract Class & Abstract Method
 - Static Class & Static Method
 - Sealed Class & Sealed Method
 - Partial Class & Partial Method
- Different types of Parameter
 - Input Type
 - Output Type
 - Ref Type
 - Params Type
 - Dynamic Type

C# LANGUAGE FUNDAMENTALS

Introductions of C#

- What is C#?
- Namespaces in C#?
- Create namespace in C#
- Data types in C#
- Value type
- Reference type
- Null able type
- Heap
- Stack
- Looping in C#
 - For, While, DOWHILE
 - Foreach
- Conditional statement
 - Switch case
 - If, if-else, Nested if
 - GoTo
 - Break

- Continue
- Conversion Types
 - Implicit {Boxing}
 - Explicit {UnBoxing}

Array

- What is Array?
- Types of Array
 - Simple Array
 - Multi Array
 - Jagged Array

File Handling

- Introductions of File Handling
- Working with Files and Directories
- Working with Directories
- Working with Files Using the File and FileInfo Classes
- Working with Directories Using the DirectoryInfo and DirectoryInfoInfo Classes

Exception Handling

- Introductions of Exception Handling
- Role of Exception Handling
- What is Error, bug and exceptions?
- Try, catch & Finally block
- System Level & Application Level Exception
- Handle Multiple Exception
- Throw Exception

Software Engineering Models and Concept (Project Based)

- What is Software Development Life Cycle?
- Phases of a SDLC
- Project initiation and planning
- Feasibility study
- System design
- Coding
- Testing
- Implementation
- Maintenance

Collections

- Introductions of Collections
- Types of collections
- Generic
 - List
 - Dictionary
 - Stack
 - Queue
- Non Generic
 - ArrayList
 - Hashtable
 - Stack
 - Queue

Delegate

- Introductions of Delegate
- Types of delegate
- SingleCast
- MultiCast
- Generic delegate

Events

- Introductions of Events
- Understanding Events and Event Handler
- Types of Event
- System Define Event
- User Define Event
- Event Life Cycle
- Binding Events
- Working with Event Handler

Reflection

- Introductions of Reflection
- Reflection Namespace
- Reflection Classes
- Access Assembly through Reflection
- Member Info
- Method Info
- Property Info
- Constructor Info
- Browsing Members
- Runtime Information

Threading

- Introductions of Threading
- Threading Namespace
- Understanding Thread LifeCycle
- Default Threading
- Multi Threading
- Priority in threading Member Info

Introductions of Properties

- set
- get

Indexer

- Define Indexer
- Advantages of Indexer

Business Requirement Specification (Project Based)

- Objective of Project
- DFD
- UML Diagram
- Class Diagram
- ER Diagram

The SQL Server Management

- What is SQL?
- What is Database?
- Create Statement
- Create database
- Create table
- Use Identity
- Select Statement
- Insert statement
- Update statement
- Delete statement
- Drop statement
- Truncate statement
- Difference between delete, drop & truncate
- Alter Query

- Clauses
- Group By
- Order By
- Basic Queries
- Stored Procedure
- Use Input and Output Type parameter in Stored Procedure
- Function
- Types of Functions
- Trigger
- Cursor
- Union & Union All
- Transaction
- Joins
- Indexes
- Views
- Constraints
- Tracing sql query with SqlProfiler

System Requirement Database Structure (Project Based)

- Database Table Structure
- Database Design
- DDL
- DML
- Stored Procedure
- Database Security

ADO .NET 10

- What is ADO.NET?
- Difference between ADO & ADO.NET?
- Architecture of ADO.NET
- Disconnected mode Architecture
 - Using SqlDataAdapter Class
 - Using DataSet Class
 - SqlCommandBuilder Class
- Connected Mode Architecture
 - Using SqlConnection Class
 - Using SqlCommand Class
 - Using SqlDataReader Class
 - Understanding ExecuteNonQuery method
 - Understanding ExecuteScalar method
 - Understanding ExecuteReader method
- Working with DataTable class
- Creating PrimaryKey Column on VirtualTable
- Using Constraints Class
 - ForeignKeyConstraints Class
 - UniqueConstraints Class
- Store table in datatable
- Apply Insert,update,delete operations on VirtualTable
- Show, next,first,last,all by datatable
- Executing Stored Procedure
- Executing Function
- What is Sql Injection
- Applying SqlInjection

ASP.NET 4.6 Framework

- Asp.Net Introduction
 - Evolution of Web Development
 - ASP .NET different versions
 - Understanding protocol and domain
 - Understanding static & dynamic page

- Server-side programming
- Client-side programming
- HTML and HTML Forms
- Creating a simple html page
- Developing ASP.NET Applications
 - Creating Websites
 - Creating a New Web Application
 - Page Life Cycle
 - Understanding Events of Page Life Cycle
 - Websites and Web Projects
 - Adding Web Forms
 - Migrating a Website from a Previous Version
 - Difference b/w inline and code behind concept
 - Asp.Net special directory
 - What is Application Directories
 - Different types of Application Directories
 - Understanding application label and page label variable
 - Need of Global class
 - What is Configuration file?
 - Need of Configuration file
 - Difference b/t app.config & web.con file
 - Nested Configuration
- State Management
 - Need of state management technique
 - Types of state management
 - Understanding Server side and Client side state management
 - ViewState
 - HiddenField
 - Cookies
 - Cache
 - QueryString
 - Session
 - Session Tracking
 - Session Configuration
 - Session mode
 - Cookieless
 - Session Timeout
 - Session Mode
 - Application
 - Transferring Information between Pages
 - Transferring Information between Cross Pages
- Web Controls in ASP.Net
 - Types of web controls
 - Server Controls
 - Standard Controls
 - Data Controls
 - Validation Controls
 - Navigation Controls
 - Login Controls
 - Ajax Extensions
 - Ajax ToolKit
- Html Controls
- User Controls
- Data Controls
 - DataList
 - DetailsView
 - FormsView
 - GridView
 - ListView
 - Repeater

- DataGrid
- EntityDataSource
- Object DataSource
- LinqDataSource
- XmlDataSource
- Working with Templates of Data Controls
- Working with events of Data Controls
- CSS
 - Understanding CSS
 - Types of CSS
 - Inline CSS
 - Internal CSS
 - External CSS
 - Selectors in CSS
- Themes & Skins
- Working with Image gallery
- Working with ImageSlide
- Master Page
- Nested Master Page
- Page Tracing
- Mail & Messaging
- Caching Techniques
 - Understanding Caching
 - Types of Caching
 - Output Caching
 - Data Caching
- Web Security
 - Need of security
 - Types of security
 - Forms Authentication
 - Windows Authentication
 - Confidentiality with SSL
 - Password Format
 - Types of password format
 - MD5
 - SHA1
 - Clear
- Performance tuning
- Ajax
- Understanding Gmail,Facebook and Twitter API's
- Deploying ASP.NET Applications
 - ASP.NET Applications and the Web Server
 - How Web Servers Work
 - Understanding Virtual Directory
 - Web Application URLs
 - Web Farms
- Internet Information Services (IIS)
 - Installing IIS
 - Registering the ASP.NET File Mappings
 - Verifying That ASP.NET Is Correctly Installed
- Managing Websites with IIS Manager
 - Creating a Virtual Directory
 - Configuring a Virtual Directory
- Deploying a Simple Site
 - Web Applications and Components
 - Other Configuration Steps
 - Code Compilation
 - Verifying That ASP.NET Is Correctly Installed
- Deploying a Visual Studio IDE
 - Creating a Virtual Directory for a New Project

- Copying a Website
- Publishing a Website
- Verifying That ASP.NET Is Correctly Installed

Technical Design & Development (Project Based)

- Working with Project
- Programming Language: C# (Asp.Net)
- Designing Tools
- HTML
- Using CSS
- Using Ajax
- Using JavaScript

ADVANCE .NET MVC

Language Integrated Query (LINQ)

- Introduction to LINQ
 - What is LINQ
 - Need of LINQ
 - How LINQ Works
 - Using Linq via Method based and Query based syntax
- Standard Linq Operators
 - Sorting Data
 - Filtering Data
 - Joining Data
 - Partitioning Data
- Linq Provider
 - LINQ to Object
 - LINQ to XML
 - LINQ to SQL
- Understanding Lazy Loading and Eager Loading
- Difference B/w Lazy and Eager Loading
- Using Stored Procedure in LINQ
- Working with Single table Inheritance
- Using of SQLMetal

Entity Framework

- Overview of the Entity Framework
- Difference b/w Linq to Sql and Entity Framework
- Using Schema First Approach
- Using Model First Approach
- Using Code First Approach
- Using Stored Procedure in Code First Approach
- Using Sql Profiler with Stored Procedure
- Creating/Managing one to many and many to one relations
- Using Table, Column and Key attributes
- Associations & Foreign Keys

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Windows Communication Foundation (WCF)

- IntroductionToWCF
- What is Distributed Application
- What is WCF
- Evaluation of WCF
- Understanding WCF Architecture
- WCF comparison with WebServices
- WCF comparison with Remoting
- Benefits of WCF Service
- Understanding WCF Templates
 - WCF Service Library
 - WCF Service Application
 - WCF Workflow Service Application

Endpoints in WCF

- What is EndPoint in WCF
- End points settings in app. Config & web.config file
- ServiceMetaData HTTP_Get enabled
- IMetaDataExchange Contract/Endpoint for Http and Tcp
- What is Address-Binding-Contract (ABC)
- **Address**
 - What is Address
 - Understanding importance of address
 - Difference between HTTP & HTTPS address
 - Use of TCP and MSMQ address
 - What is Named Pipe address
 - Understanding IIS address
- **Binding**
 - Understanding WCF Bindings
 - Types of bindings
 - Basic Binding
 - Web Binding
 - WS Binding
 - WS Dual Binding
 - TCP Binding
 - IPC Binding
 - MSMQ Binding
- **Contract**
 - What is the of contract
 - Types of Contract
 - Service Contract
 - Operation Contract
 - Data Contract
 - Fault Contract
 - Message Contract

Developing WCF Service Application

- Hosting WCF Service in IIS/ASP.NET Development Server
- Hosting WCF Service in Managed Application(Self Hosting)
- Hosting WCF Service in Window Service
- WCF service durable service
- Use of WCF service Request-Replay
- Use of WCF service One-Way
- Use of WCF Callback service

Understand WCF Service instancing behavior

- Single(Singleton)
- PerCall
- PerSession

Understand Concurrency in WCF Service

- Single
- Multiple
- Reentrant

Restful WCF Service

- Understand Restful service in WCF
- Use of Restful service
- How to make Restful service in WCF
- Use of XML/JSON in Restful service

Implementing Security in WCF Service

- Understanding security terms
- Authentication
- Authorization
- Confidentiality
- Integrity

Security

- Message security
- Transport security
- TransportWithMessage security

ASP.NET MVC

- Introduction to ASP.NET MVC
- Brief history of ASP.NET MVC
- Understanding ASP.NET MVC Design Pattern
- Setup & Installation process
- Compare ASP.Net Web Forms with ASP.NET MVC
- Life cycle of ASP.NET MVC
- Key Benefits of ASP.NET MVC
- Understanding ASP.NET MVC project templates

View Engine

- What is View Engine
- Role of View Engine
- Types of View Engine
- Compare ASP View & Razor View Engine
- Understanding Razor syntax
- Accessing model data in Razor views
- Working with Razor Layouts
- Understanding Razor Expressions

Models

- What is MVC
- Understanding scaffolding template
- Scaffolding template with Entity Framework

- Defining a data model
- Understanding Model Binding
- Working with explicit model binding
- Responding to the edit post request

Views

- Purpose of Views
- Understanding View Conventions
- Types of View
- Understanding ViewBag, TempData, ViewData and ViewDataDictionary
- Creating strongly-typed views
- Adding a View
- Using Razor syntax in View
- Code Block in View
- Working with Partial View
- Introduction of Layout/Master page
- Working with Layout

Controllers and Actions

- What is the Controller
- Use of Controller
- What is Action and Action Results
- Action Filters
- Authorize Filters
- Result Filters
- Built In Filters
- Processing Input and Output Action

Membership, Authorization And Security

- Session and application state
- Using the Authorize Attribute to Login
- Securing Controller Action
- Authorize Attribute with Forms Authentication
- Windows Authentication
- Using Role wise Login
- Managing users and roles
- Configuring OAuth And OpenID Providers
- Login via OAuth and OpenID
- Security Implications of External Logins

URL Routing

- Introducing URL Routing
- Routing Approaches
- Defining Attribute and Traditional Routes
- Understanding Route Parameters
- A Details look at URL Generation
- Creating and Registering a Simple Route
- Ambient Route Values
- Using Static URL Segments
- Constraining Routes
- Bypassing the Routing System

Forms And Helper Methods

- Using Form Helper Methods
- The Action and the Methods
- Using GET or POST Method
- Using Template Helper Methods
- Using Model Metadata
- Making Helpers Do your Bidding Inside HTML Helpers
- Setting up the Edit Forms
- Using Strongly Typed Helpers

- Helpers and Model Metadata
- Helpers and Model State
- Html.Hidden
- Html.Password
- Html.RadioButton
- Html.CheckBox
- Html.DropDownList
- Html.Partial and Html.RenderPartial
- Html.Action and Html.RenderAction

Data Annotations And Validation

- Using Validation Annotations
- Custom Error Messages and Localization
- Using Range validator Attribute
- Regular Expression validator Attribute
- Required validator Attribute
- String Length validator Attribute
- Custom Validation and Annotation
- Using display format

Additional Techniques

- View scaffold templates
- Model Validation
- Global filters
- Model binding
- Bundling and Display Modes

Using Ajax, jQuery with ASP.NET MVC

- Overview of JQuery
- Unobtrusive Ajax and the 'this' context
- Using Ajax action links
- Using Ajax Helpers
- Autocomplete with jQuery UI
- JSON & Client-Side Template
- Bootstrap Plug-in

Using the ASP.NET Web API

- Overview of the ASP.NET Web API
- Building servers and clients
- Adding routes to your web API
- Incoming Action Parameters
- Validation
- Understanding IHttpController
- Enabling Dependency Injection
- Session Management in Web API
- Securing a Web API
- Single and Multiple Registered Services in API

Angular

Introduction to TypeScript

- Compiling TypeScript
- Why Use TypeScript
- Let and Const
- Lambda/Arrow Functions
- Basic Types
- Type Assertion
- Type Definitions
- Classes and Interfaces
- Constructor

Environment Setup

- Node / NPM
- Angular CLI
- Application File Structure
- Code Editors

Introduction to Angular

- What is Angular?
- Advantages Of Angular
- Disadvantages Of Angular
- Key Features of Angular
- Comparison Between Angular with Other Frameworks.

Modules

- Why use Modules
- NgModule
- Declarations
- Providers
- Imports
- Bootstrapping
- The Core Module
- Shared Modules
- LazyLoading

Components

- Introduction to Components
- Component Architecture Patterns
- Decorator Metadata
- State &Behaviour

Templates

- Inline vs External
- Template Expressions
- Data Bindings
- *ngIf else, *ngFor and *ngSwitch
- Built-in Structural Directives
- Built-in Attribute Directives

Custom Directives

- Create your own Structural Directive
- Create your own Attribute Directive

Pipes

- Built-in Pipes
- Custom Pipes

Services

- Introduction to Services
- Building a Service

Lifecycle Hooks

- Component LifeCycle
- All lifecycle Hooks

Routing

- The Component Router
- Defining Routes
- Navigation
- Route Params
- Child Routes
- Primary Route and Named Route
- Multiple routerOutlet

Advanced Routing

- Route Guard

Template-driven Forms

- Introduction to forms
- Template-driven forms
- Validation

Model-driven Forms

- Introduction to Reactive forms
- FormGroup&FormControl
- Validators
- Custom Validation

Asynchronous Operations

- Introduction to Async
- Observables
- Observables vs Promise
- HTTP Request / Response

Communication Between Component

- @Input()
- @Output()
- @ViewChild()
- @ViewChildren()
- Shared Service

Angular Testing

- Introduction to Testing
- Unit Testing

Technical Design & Development (Project Based)

- Working with Project
- Programming Language: C# (MVC Razor)
- Designing Tools
- CSHTML
- Using CSS
- Using Ajax
- Using JavaScript

WPF

- Introduction to WPF
- Understanding WPF Controls
- Understanding XAML
- Creating Custom Controls
- Using Panels/Layout
 - Introduction to WPF Layout
 - StackPanel
 - Grid Panel
 - Dock Panel
 - Canvas Panel
 - Border
 - Wrap Panel
- Data Binding
 - Types of Data Binding
 - Debug DataBinding Issues
 - Data Validation Rules
 - Value Converters
 - Data Viewing, Sorting and Filtering
- Using Triggers
- Styling
 - Themes
 - Styles
- 2D & 3D Graphics
 - Draw exactly on physical device pixels
 - Geometry Transformer
 - How to get a Bitmap from a Visual
 - DrawRoundedRectangle