

Working with Types

- Common Type System
- Value vs. Reference Types
- Using Nullable Types
- Using Inferred Types
- Working with Dynamic Data

Working with Text

- Using Strings and `StringBuilder`
- Measuring Performance Using Stopwatch
- Working with Data from Other Cultures
- Using Pattern Matching and Regular Expressions

Working with Delegates

- Understanding Delegates
- Single-cast vs. Multi-cast Delegates
- Defining and Using Delegates
- Working with Synchronous and Asynchronous Delegates
- Understanding the Relationship Between Delegates and Events
- Defining and Raising Custom Events
- Handling Custom Events

Working with XML Data

- Understanding XML and XML Schemas
- Using XML with DataSets
- Using `XmlReader` and `XmlWriter`
- Manipulating XML Data Using `XmlDocument`
- Querying XML Data Using XPath
- Working with `XPathDocument`

Working with Threads

- Overview of Threading
- Creating Threads

Object-Oriented Programming

- Defining and Using Classes
- Understanding Partial Classes
- Using Inheritance
- Abstract Classes vs Sealed Classes
- Understanding `System.Object` Methods
- Understanding .NET Interfaces
- Working with Interfaces

Collections and Generics

- Understanding .NET Collections
- Ordered vs. Unordered Collections
- Managing Data with .NET Collections
- Defining Generic Methods
- Building and Using Generic Classes
- Defining Extension Methods

Managing Data with ADO.NET

- ADO.NET Object Model
- Connected vs. Disconnected Access
- Working with Data in Databases
- Calling Stored Procedures
- Working with Transactions
- Managing Connection Pooling
- Using the ADO.NET Provider Factory
- Working with Untyped DataSets
- Working with Typed DataSets
- Managing DataViews

Working with LINQ

- Understanding LINQ
- Building LINQ Queries
- LINQ and Extension Methods
- Defining Data Layers Using LINQ
- Using LINQ to Objects
- Using LINQ to SQL
- Using LINQ to DataSets
- Using LINQ to XML

Working with the ThreadPool

- Understanding Thread Pooling
- Managing the ThreadPool

- Passing Data to Threads
- Returning Data from Threads
- Managing Threads
- Problems with Threads
- Synchronizing Threads
- Debugging Threads
- Using Async and Await
- Creating Threads Using the `ThreadPool` Class
- Working with the Task Class
- Managing Tasks

Working with the Parallel Task Library

- Overview of Parallel Programming
- Using the `Parallel` Class
- Making PLINQ Queries
- Using Concurrent Collections

Assemblies

- Understanding .NET Assemblies
- Private vs. Shared Assemblies
- Where is the Global Assembly Cache (GAC)?
- Building and Using Private Assemblies
- Defining Strong Names
- Building, Installing and Using Shared Assemblies
- Configuring Assemblies
- Targeting Multiple Versions of .NET

Working with Attributes

- Understanding Attributes
- Using .NET Attributes
- Designing Custom Attributes
- Using Custom Attributes

Using Reflection

- Understanding Reflection
- Extracting Type Information
- Using Reflection for Late Binding

Windows Communication Foundation (WCF)

- Understanding WCF
- Defining Service and Data Contracts
- Building a Service
- Hosting a Service
- Managing Endpoints
- Exposing Metadata
- Calling a WCF Service
- **ENTITY FRAMEWORK**
- **MEF**
- **WINDOWS SERVICES**
- **WIN FORMS**
- **SQL SERVER**

Managing Site Appearance

- CSS Styles
- Themes and Skins
- Creating a Theme
- Adding Skins to Themes
- Using CSS with Themes
- Assigning Themes
- Applying Themes Dynamically

Personalizing Web Sites

- Configuring the Profile
- Creating Profile Groups
- Working with Profile
- Working with Custom Data Types
- Supporting Anonymous Users
- Migrating Anonymous Profiles

Building Custom Controls

- Types of Custom Controls
- User Controls
- Subclassed Controls
- Composite Controls

Building Dashboards with Web Parts

- ASP.NET Web Parts
- Designing Portal Sites
- Using the `WebPartManager`
- Building Web Parts
- Using User Controls as Web Parts
- Using Panels as Web Parts
- Sharing Data Between Web Parts

Working with the HTTP Runtime

- Understanding the HTTP Pipeline
- HTTP Handlers vs Modules
- Creating Synchronous and Asynchronous HTTP Handlers
- Configuring HTTP Handler
- Working with HTTP Applications
- Creating HTTP Modules
- Configuring HTTP Modules

WCF Web Services

- What is WCF?
- Building WCF Web Services
- Calling ASMX Web Services from Server-Side Code
- Building AJAX-Enabled Web Services

Using ASP.NET AJAX

- What is AJAX?
- ASP.NET AJAX
- Using the ASP.NET AJAX Server Controls
- Building Flicker-Free Pages Using the `UpdatePanel`
- Reporting Progress using the `UpdateProgress` Control
- Using Timers
- Using ASP.NET AJAX to Call Web Services
- Using the ASP.NET AJAX Control Toolkit
 - Installing the Toolkit
 - Using Extenders

Using jQuery with ASP.NET

- What is jQuery
- Choosing the Location for jQuery
- Overview of jQuery
- Modifying the DOM with jQuery
- Managing Effects with jQuery
- Performing Validation with jQuery

Implementing Asynchronous Page Processing

- When to use Asynchronous Page Processing
- Designing a Page for Asynchronous Processing
- Using Async with the Page Directive
- Starting the Asynchronous Processes
- Handling the Asynchronous Callback
- Configuring Server-Side Asynchronous Processing
- Managing Application Scalability

Building Secure ASP.NET Applications

- Security Basics
- Configuring Authentication
 - Using Windows Authentication
 - Using Forms Authentication
 - Configuring Authorization
 - Authorizing via `web.config`
 - Authorizing by User or Role
 - Dynamic Authorization
- Using the ASP.NET Login Controls
- Configuring ASP.NET Membership and Role
- Using the Membership and Role APIs
- Working with Encrypted Configuration Sections

Debugging and Tracing ASP.NET Web Sites

- Handling Exceptions
- Global Error handling
- Custom Error Pages
- Debugging Client Script
- Debugging with the Page Inspector
- Configuring Tracing
- Tracing Pages
- Tracing the Entire Web Site
- Using Health Monitoring

Designing ASP.NET Web Sites that Work with Different Cultures

- What is Culture?
- Detecting the Culture
- Working with Data Using `CultureInfo`
- Building Culture-Neutral Pages
- Creating Local Resources
- Creating Global Resources
- Using the `Localize` Control

Building Ultra-Fast ASP.NET Web Sites

- Understanding Client Performance
 - Downloading Less
 - Managing JavaScript
 - Using CSS
- Understanding Server Performance
 - Working with `ViewState`
 - Cookies and Web Storage
 - Using Page Output Caching
 - Using Partial Page Caching
 - Using Data Caching
 - Working with SQL Caching

VB.NET Course Overview

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MVC

Quick Review of ASP.NET MVC

- What is the MVC Design Pattern?
- Structure of an ASP.NET MVC Web Application
- Creating an ASP.NET MVC Application Using Visual Studio
- Building Controllers to Handle HTTP Requests
- Designing Views Using Razor
- Using Layouts
- Coding Models
- Understanding Default Routing

Responsive Applications Using Bootstrap

- What is a Responsive Application?
- What is Bootstrap?
- Normalization Across Browsers
- Bootstrap is Easy to Use: The Single Responsibility Design

Creating Views Using HTML Helpers

- What are HTML Helpers?
- Understanding the Built-in HTML Helpers
- Working with Inline Helpers
- Working with Custom Helpers

Using jQuery with MVC

- What is jQuery?
- Adding jQuery to an MVC Layout and/or Page
- Understanding jQuery Selectors

- Pattern
- Mobile First Design
- Understanding `Bootstrap.css` and `Bootstrap.js`
- Including Bootstrap in a Layout and/or View
- Understanding Bootstrap Typography
- Understanding Bootstrap's Grid System
- Principles for Designing a View
- Working with Forms and Bootstrap

Using Ajax to Build Interactive MVC Applications

- What is Ajax?
- Working with Partial Views
- Making Asynchronous Calls Using jQuery
- Working with JSON Data

MVC and Routing

- What is the Default Routing Algorithm?
- Custom Routes
- Why Use Custom Routes?
- Understanding `RouteConfig`
- Registering Convention-Based Routes
- Adding Constraints with Convention-Based Routes
- Using Attribute Routing
- Adding Constraints with Attribute Routing

Creating the Service Layer Using Web API

- What is Web API?
- Exposing Services and Data
- Examples of Popular Web APIs (Spotify, ...)
- Types of Clients that Can Work with Web API

- Using jQuery to Modify the DOM
- Using jQuery to POST a Form

Using jQuery UI Widgets with MVC

- What is jQuery UI?
- Including jQuery UI in an MVC Layout or View
- jQuery UI Widgets
 - Working with Tabs
 - Working with DatePicker
 - Working with Accordion
 - Working with Menu
 - Working with AutoComplete
 - Working with Dialog
 - Working with Tooltips
- Using jQuery UI Themes
- jQuery UI Effects and Interactions

Working with the Entity Framework

- What is the Entity Framework?
- Entity Framework Strategies
- Using Database First
 - Generating the Context and Entity Classes
 - Writing Basic Queries
 - Performing Joins
 - Interacting with Stored Procedures
 - Making Database Updates
- Code First
 - Designing the Data Context
 - Building the Entities
 - Configuring Relationships
 - Seeding Tables
 - Writing Basic Queries
 - Performing Joins
 - Interacting with Stored Procedures
 - Making Database Updates

Building Single Page Applications with ASP.NET MVC, Web API and AngularJS

- What is the Architecture of a Single-Page Application?
- What is AngularJS?

- Creating a Web API Service
- Working with Web API Controllers
- Understanding Web API Action Results
- Working with Data
- Filtering Requests
- Routing and Web API
- Creating Web API Help Pages
- Creating REST Services with Web API
- Configuring Web API
- Securing a Web API
- Using a Web API with MVC
- Understanding the AngularJS Architecture
- Including AngularJS within the Page
- Building AngularJS Controllers
- Creating an AngularJS Template to Define a View
- Using CSS3 Properties to Perform Animation Effects

Working with NuGet

- What is NuGet?
- What Types of Packages are Available?
- Installing NuGet Packages
- Popular NuGet Packages
- Scaffolding
- Logging
- JavaScript Libraries

W C F Course Overview

Introduction to WCF

- WCF Web Services Architecture
- Addresses, Bindings and Contracts
- WCF Service Libraries
- WCF Test Host and Test Client
- `ChannelFactory` Class
- Configuring WCF Clients
- Standard Endpoints

Selecting Binding Options

- Binding Selection
- HTTP Bindings
- TCP and Named Pipe Bindings
- MSMQ Binding
- `BasicHttpBinding` Class

Service Addresses

- Address Types
 - Endpoint Address
 - Base Address
 - MEX (Message Exchange) Address
- Metadata Exchange
- Address Formats

Managing a Service Instance

- Configuring Behaviors
- Service Instance Models
 - Per-Call
 - Per-Session
 - Singleton
- Threading Considerations
- Consuming WCF Application Services with .NET Applications
- Consuming WCF Application Services on foreign platforms

Defining Service Contracts

- Service and Operation Contracts
- Creating Contracts at the Class and Interface Level
- Using `ServiceContractAttribute`
- Types of Service Contracts
 - Oneway
 - Request-Reply
 - Duplex
- Callbacks
- Asynchronous Proxies
- WSDL Files
- Contract Inheritance and Overloading
- Implementing Message Exchange Patterns
- Versioning

Endpoints

- Endpoints Explained
- Working with Endpoints
- Configuring Endpoints
- Using Multiple Endpoints

Securing WCF Applications

- Security Issues with Services
- Types of Security
 - Transfer Security
 - Transport Security
 - Message Security
- Configuring Security on Client and Server
- Managing Certificates
- Configuring Client Certificates
- Sending Credentials

Defining Data Contracts

- Using `DataContractAttribute`
- Mapping Data to Schema
- Returning Arrays
- Returning Generic Collections
- Data Serialization
- Versioning

Fault Handling

- `FaultException` class
- `FaultCode` class
- `FaultContract` class
- Client Exception Handling
- Including Exception Details

WCF Routing Configuration

- WCF Routing Service
- Hosting the Service
- Consuming the Service
- Service Contract and Implementation
- Routing Contracts
- Message Filters
- Common Routing Scenarios
 - Load Balancing
 - Content Based Routing
 - Service Partitioning
 - Protocol Bridging

W P F Course Overview

WPF Applications

- WPF Applications
- Types of WPF Applications
- Structure of WPF Applications
- Using the WPF Designer
- Setting Properties
- Handling Events
- Using the `MessageBox` Class
- Passing Command-Line Arguments

Working with XAML

- XAML vs. BAML
- Understanding XAML Markup
- XAML Elements
- XAML Namespaces
- Creating Objects using XAML
- Working with Resources
- Handling Events in XAML
- Working with Resources

- Handling Application Lifetime Events

- Defining and Using Styles

WPF User Interface Basics

- WPF Control Hierarchy
- Common Properties, Methods and Events
- Dependency Properties
- Configuring a Window's Properties
- Adding Controls
- Controlling the UI's Appearance
 - Managing Size
 - Managing Position
 - Managing Alignment
 - Managing Visibility
 - Using Fonts
- Working with Transformations
 - Scale Transformations
 - Rotation Transformations
 - Skew Transformations

Using XAML Layout Elements

- Overview of Layout Elements
- Using the Canvas
- Using the StackPanel
- Using the WrapPanel
- Using the Grid
- Using the UniformGrid
- Using the DockPanel
- Using the ViewBox
- Adding Scrolling Capabilities

Using WPF Controls

- Working with WPF Controls
- Using Text Controls
- Using Button Controls
- Using Selection Controls
- Using List Controls
- Using Container Controls
- Working with Routed Events

Working with Styles, Triggers and Control Templates

- Using Styles
- Working with Triggers and Multi-Triggers
- Using Control Templates

Working with WPF Windows

- Understanding Modal vs Modeless
- Displaying a Window Modally
- Retrieving Data from Modal Windows
- Creating Owned Windows
- Displaying a Window Modelessly
- Working with Data in Modeless Windows
- Using Common Dialogs
- Creating Irregularly Shaped Windows

Working with Menus, Toolbars and Status Bars

- Working with Menus
- Working with Toolbars
- Working with Status Bars
- Working with the Ribbon

Working with Multimedia

- Working with Sound
- Working with Images
- Working with Video

Graphics and Animations

- Working with Shapes
- Working with Brushes
 - Using Solid Brushes
 - Using Gradient Brushes

- Building Simple Animations

Working with Data Binding

- Overview of Data Binding
- Binding to Control Properties
- Binding to Data Sources
 - Binding to a List
 - Binding to an ADO.NET Object
 - Binding to an Object
 - Binding to XML
- Sorting and Filtering Data
- Using Value Converters
- Working with Change Notifications

Commands and MVVM

- Understanding Commands
- Creating Commands
- Associating Command with a Command Source
- Binding Command to Command Handlers
- The MVVM Design Pattern

Deploying WPF Applications

- Understanding Deployment Options
- Configuring an Application for Deployment
- Using XCOPY Deployment
- Using Installers
- Using Click-Once Deployment

ECMA Script 6 and TypeScript

1. JavaScript Primer

- Variables, Types and Objects
- Operators, Conditionals and Loops
- Working with Functions
- DOM Manipulation
- Handling Events

2. JavaScript Objects

- JavaScript Objects
- Constructor
- Prototypal Inheritance
- Working with Properties
- Creating a JavaScript Factory

3. Function Techniques

- Immediately Invoked Functions
- Using call(), bind(), and apply() to change Context
- Async: Callbacks vs. Promises
- Working with Array Functions

4. JavaScript Patterns

- Pattern Enablers
- Prototyping
- Object Literals
- Namespaces
- Closures
- Digging into Closures
- Key Patterns
- Prototype Pattern

- Revealing Module Pattern
- Revealing Prototype Pattern

5. Data Binding and Templates

- Why DOM code is Tedious
- Using Client-Side Templates
- Benefits of Data Binding
- Client-Side Data Binding Options:
- Handlebars
- KnockoutJS
- AngularJS

6. Getting Started with ECMAScript 6

- ECMAScript 6 tools that let you use it today!
- Key ECMAScript Features
- Defining Classes
- Destructuring
- Arrow Functions
- Maps and Sets
- Template Strings
- Default and Rest Parameters

7. Getting Started with TypeScript

- Introduction to TypeScript
- TypeScript Keywords and Hierarchy
- Classes, Functions and Interfaces
- Working with Modules