

Index

(45 DAYS COURSE)

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25 DAYS IMMERSIVE COURSE STRUCTURE .NET WITH AZURE LOT

.NET with Azure Curriculum

.NET Framework Fundamental

Program Duration: 6 Days.

Table of contents

.NET Framework Fundamental & Evolution

- Microsoft Visual Studio & Framework History & Background
- Introduction to .NET Framework
 - What is .NET Platform?
 - What is .NET Framework
 - .NET Framework, Languages, and Tools
 - .NET Framework Major Components
 - Common Language Runtime (CLR)
 - The CLS (Common Language Specification)
 - The CTS (Common Type System)
 - Understand the .NET Framework 4.6 stack
- Introduction to C#
 - Features of C#
 - C# Compilation and Execution
 - General Structure of a C# Program
 - Creating and Using a DLL
- Data Types and Arrays in C#
 - Data Types in C#
 - Value Types and Reference Types
 - Boxing and UnBoxing
 - Single Dimensional, Multi-Dimensional & Jagged arrays
 - Nullable Types
 - Implicitly Typed Local variables
 - Var vs dynamic
 - Is and as operator
 - Ref vs out keywords
 - The 'object' base class in .net
 - Equals() vs ==
 - String vs StringBuilder
 - Various String class methods
 - Default parameters, named parameters
 - Parse() vs TryParse() vs Convert Class methods
- Using Microsoft Visual Studio Community
 - Various Types of .NET Projects
 - Tracing, Debugging, Build
 - Compile Options
 - Using break points
 - Using break conditions
 - Using watch and output window
 - Creating multiple projects within one solution
 - Customizing Visual Studio Settings - Extensions, NUGet Package, Environmental Settings

- OOP with C#
 - Structures and enums
 - The architecture of a class in C#
 - Instance, Class & Reference variables
 - Access Modifier
 - Abstract Classes
 - Constructors, Destructors, The GC
 - .NET Base class library
 - Inheritance in C#
 - Method Overloading
 - Method Overriding
 - Operator Overloading
 - Method Hiding
 - Access modifiers : private, public, protected, internal, protected internal, new
 - Anonymous types
 - Abstract classes
 - Sealed classes
 - Creating Interfaces
 - Implementing Interface inheritance
 - Declaring properties within Interfaces
 - Namespaces
 - Creating and using Generic classes
 - Indexers & Properties
 - Auto Implemented properties
 - Static Classes
 - Property Accessors
 - Partial types
 - Extension methods
 - Object Initializer
- Evaluating Regular Expressions in C#
 - RegEx Class
 - Forming Regular Expression
 - Methods for Regular Expression
- Exception Handling
 - Exceptions in C#
 - Exception class hierarchy
 - Try block
 - Multiple catch blocks
 - Finally block
 - Purpose of throw keyword
 - Purpose of inner exception
 - Creating Custom Exception
- Garbage Collection in C#
 - Role of a Garbage Collector
 - Garbage Collection Algorithm
 - Finalize vs Dispose
- Collections & Generics
 - System.Collections Namespace
 - Collection Interfaces
 - Collection Classes
 - The collection API
 - Working with Generics
 - Collection Initializers
 - Iterators
 - Constraints

- File I/O and Serialization
 - Persisting object state to a stream
 - Various classes used for File handling
 - Using StreamReader, StreamWriter
 - Using BinaryReader, BinaryWriter
 - Using File, FileInfo, Directory, DirectoryInfo
 - Serialization modes: Binary, SOAP, XML
 - JSON serialization usingDataContractJsonSerializer
 - Performing various serializations,
 - Runtime serialization (Deep)
 - Marking a class serializable
 - Serialization and inherited classes
 - Customizing Serialization by Using attributes
 - Implementing ISerializable interface
- Threading, Parallel and Async programming with C#
 - Appdomain vs Process vs Thread
 - Process vs Thread
 - Creating and running a thread
 - Thread.Sleep() method
 - Parallelization Overview
 - Task Parallel Library
 - Threads Vs. Tasks
 - Parallel Extensions
 - Task Based Asynchronous Model
 - Async and Await
 - Using Locks
- C# New Features
 - Using Static
 - String Interpolation
 - Await in catch/finally
 - Exception filters
 - Pattern Matching
 - Tuples
 - Generalized async Return Types
- Utilizing Class Libraries & Console Project
 - The .NET Console Application Project Type
 - References and Importing Namespaces
 - Instancing Classes
- IOC Container
 - Dependency Injection - Only Concept and Simple Demo

.Net Core Basics

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Program Duration: 3 Days.

Understand .NET Core

- Understand .NET Core architecture and Advantages
- Understand .NET Core middleware & Configuration
- Understand and Use Dependency Injection in .NET Core
- Handle Errors in .NET Core

Git

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Program Duration: 1 Day.

- Getting Started with Git
 - Install the Git Tools
 - Clone an Existing Repository
 - Add Files to a Repository
 - Edit Files in a Git Repository
 - Create and Merge Branches
 - Rewrite History in a Git Repository
 - Resolve Merge Conflicts

RDBMS -SQL Server

Program Duration: 2.5 Days.

Table of contents

- Introduction to RDBMS
 - Introduction to databases
 - Data Models in Database
 - Properties of RDBMS
 - Normalization
 - CODD's Relational Database Rules
 - Data Integrity
 - T-SQL Language
- Working with Data Types, Tables & Data Integrity covering DDL, DML, DCL statements
 - Working with Data Types(Only Basics of Data Types)
 - Working with Schema
 - Working with Tables
 - Implementing Data Integrity
- Beginning with Transact-SQL
 - Transact-SQL
 - System Functions
 - Advanced T-SQL Queries`
 - Advanced T-SQL Statements
 - Other T-SQL Statements
 - Set Operators
 - Transact-SQL
 - System Functions
 - Advanced T-SQL Queries
 - Advanced T-SQL Statements
 - Other T-SQL Statements
- Working with Joins and Subqueries
 - What are Joins?
 - Types of joins
 - Subqueries
- Database Objects: Indexes and Views
 - Introduction to Index in SQL Server
 - Introduction to Views in SQL Server

- Stored Procedures
 - Stored Procedure
 - Implementing Stored Procedure
 - Exception handling using TRY-CATCH
 - Trigger & Cursors Basics

LINQ and Entity Framework Core

Program Duration: 2 Days.

Table of contents

- Language Integrated Query
 - Introduction, LINQ Syntax
 - Query Operators
 - Select, from, Where
 - ofType
 - OrderBy
 - ThenBy
 - GroupBy, into
 - Select
 - Select Many
 - Take, TakeWhile
 - First
 - FirstOrDefault
 - Single
 - SingleOrDefault
 - Aggregate functions Sum, Min, Max, Average, Count
 - Distinct
 - Intersect
 - Except
 - Join
 - LINQ projection
 - Deferred execution vs immediate execution
 - Let keyword
 - LINQ to Object
 - LINQ to DataTable
- Entity Framework Core
 - Overview of ORM Products
 - Entity Framework introduction
 - Using Database first Approach
 - Using Model First approach
 - Using Code First approach
 - Using LINQ to Entities to perform CRUD operations
 - SQL Query Logging
 - Migration & Database Update
 - Eager Loading Vs Explicit Loading Vs Lazy Loading
 - Raw SQL And Stored Procedures

ASP.NET Core WebAPI

Program Duration: 3 Days.

Table of contents

- Understand REST Service using .NET Core
- Understand Entity Framework Core
- Introduction to .Net Core WebAPI
 - Introduction to Web Service with Demo
 - Introduction to WCF Service with Demo
 - Introduction to Web API
 - Difference between Web Service, WCF Service and Web API
 - Web API features
 - HTTP Web Services
 - Web API Introduction
 - Middleware
 - Web API Routing
 - Configuring WebApi
 - Web API Parameter Biding
 - Action Return Type
 - WebApi Filters
 - Content Negotiation
 - Create CRUD WebApi
 - Consume WebApi
 - MSTest / XUnit
 - Basic Unit Test
 - Create CRUD WebApi
 - Working with swagger
 - Postman Utility
- Understand and Implement Repository, Unit of Work
- Publish WebApi on IIS

20 DAYS COURSE - CLOUD & AZURE

Cloud Computing & Azure Fundamentals

Program Duration: 6 Days.

Table of contents

- Cloud Computing & Microsoft Azure Fundamentals
- Microsoft Azure Portal Overview (Utilization, Cost)
- Overview of Cloud Computing (Benefit, Capex/Opex)
- Overview of Public and Private Cloud & Hybrid
- Core Azure Service
- Availability Zones, Availability Set, Resource Groups, Azure Resource Manager
- Security & Governance Overview
- Identity, Azure Active Directory, Users & Groups
- Subscriptions and Accounts, Azure Policy, Role-based Access Control (RBAC)
- Azure Portal and Cloud Shell & Azure PowerShell and CLI

Cloud Networking & Storage

Program Duration: 5 Days.

Table of contents

- Azure Virtual Machine
- Overview Virtual Networking
- Azure Load Balancer
- VPN Gateway, Azure Application Gateway, Azure CDN, Azure Traffic Manager
- Azure Storage Services
- Structured Data, Semi Structure Data, Unstructured Data
- Azure Database Services, Azure SQL Server

Azure PaaS Services

Program Duration: 6 Days.

Table of contents

- Azure App Service
 - Overview of Azure Web App
 - Overview of Azure Function App
 - Overview of Disconnected Architecture
 - Overview of Azure Service Bus
 - Overview of Azure Logic App
 - Overview of Azure Data Factory
 - Overview of Azure Analysis Service
 - Azure Function App + Azure Service Bus + Azure Logic App
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