



# .NET Core with AIML Angular & Azure DevOps

## INTENSIVE / INTERNSHIP PROGRAM

20+ Hands-on  
LIVE PROJECTS

6 Hours Training  
Aptitude / Softskills  
100% Placement  
Guarantee

Resume Building / Mock Interviews  
Industry Ready Curriculum  
1000+ Interview Questions  
100% Guaranteed Internship  
@ Ramanasoft or Client

# 100% PLACEMENT ASSISTANCE

📍 #302, Nilgiri Block, Beside Metro Station, Ameerpet, HYD.-500016

## TRAINING

- ⇒ Real Time Training
- ⇒ Live Project/Use Cases
- ⇒ LMS Access for 6 Months
- ⇒ Resume Preparation
- ⇒ Doubts Clarification
- ⇒ 1 Mock Interview
- ⇒ Interview Questions & Readiness Preparation
- ⇒ Placement Referral Support
- ⇒ Course Completion Certificate

**Duration:** Max of 4 months  
Daily 1.5-3 hrs

**Timings:**

Morning 07:00AM-09:00AM | Evening 06:00PM-09:00PM

## JOIP

- ⇒ Full Day Training
- ⇒ Real Time Training
- ⇒ Live Project / Usecases
- ⇒ LMS Access for 8 Months
- ⇒ Soft Skills & Aptitude Classes
- ⇒ Resume Preparation
- ⇒ Doubts Clarification
- ⇒ Weekly 1 Mock Interview
- ⇒ Interview Questions Preparation
- ⇒ Monthly Placement Screening Tests
- ⇒ Assignments / Mock Tests
- ⇒ Interview Readiness Sessions
- ⇒ Mega Drive Selection Mandatory For Placements
- ⇒ Pay After Placement
- ⇒ Placement Assistance
- ⇒ Course Completion Certificate

**Duration:** Max of 6 months - Daily 1.5-3 hrs

**Timings:** 08:00AM-06:00PM

## I&I-100% PLACEMENT ASSISTANCE

- ⇒ Full Day Training + Internship from Day 1
- ⇒ Real Time Training
- ⇒ Internship @IT Company-Ramana Soft
- ⇒ Live Project/ Client Projects Implementation
- ⇒ LMS Access Upto 1 Year
- ⇒ Resume Preparation
- ⇒ Doubts Clarification
- ⇒ Weekly 1 Mock Interview
- ⇒ Assignments/Mock tests
- ⇒ Soft Skills & Aptitude Classes
- ⇒ Monthly Placement Screening Test
- ⇒ Interview Questions & Readiness Preparation
- ⇒ Pay After Placement
- ⇒ No Mega Drive Selection
- ⇒ Personalised Assistance for Complex Tasks
- ⇒ 100% Placement Assistance - Until you're Hired
- ⇒ Internship Completion Certificate-6 Months from Ramana Soft or Client
- ⇒ Course Completion Certificate - Quality Thought

⇒ Max Of 6 Months | 8 Hrs Per Day | ⇒ 1<sup>st</sup> & 2<sup>nd</sup> Month Internship - 2 Hrs | ⇒ Training Duration: 4 Months  
 ⇒ 3<sup>rd</sup> & 4<sup>th</sup> Month Internship- 4 Hrs | ⇒ Internship Duration: 6 Months | ⇒ 5<sup>th</sup> & 6<sup>th</sup> Month Internship- 8 Hrs

## QSIP-100% PLACEMENT ASSISTANCE

- ⇒ Full Day Training Paid Internship from Day 1
- ⇒ Real Time - Industry Training
- ⇒ Internship @IT Company-Ramana Soft
- ⇒ Live Projects / Client Projects Implementation
- ⇒ LMS Access Upto 1 Year
- ⇒ Resume Preparation
- ⇒ Doubts Clarification
- ⇒ Weekly 1 Mock Interview
- ⇒ Assignments/MockTests
- ⇒ Soft Skills & Aptitude Classes
- ⇒ Monthly Placement Screening Test
- ⇒ Personalized Support from a Dedicated Placement Officer
- ⇒ Interview Questions & Readiness Sessions
- ⇒ No Mega Drive Selection
- ⇒ Personalised Assistance for Complex Tasks
- ⇒ Eligibility Criteria 2020-2025 Passed Outs Only
- ⇒ Only Freshers Internship
- ⇒ HR Approval Mandatory
- ⇒ Ramana Soft Interview Mandatory
- ⇒ 100% Placement Assistance - Until you're Hired
- ⇒ Internship Completion Certificate-6 Months from Ramana Soft or Client
- ⇒ Course Completion Certificate - Quality Thought

### 180 Days Paid Internship Program Overview

⇒ Max Of 6 Months | 8 Hrs Per Day | ⇒ 1<sup>st</sup> & 2<sup>nd</sup> Month Internship - 2 Hrs | ⇒ Training Duration: 4 Months  
 ⇒ 3<sup>rd</sup> & 4<sup>th</sup> Month Internship- 4 Hrs | ⇒ Internship Duration: 6 Months | ⇒ 5<sup>th</sup> & 6<sup>th</sup> Month Internship- 8 Hrs

## Offered Programs



### TRAINING ( Online / Offline)

1. Any Graduate
2. By Realtime Experts
3. Live Project
4. Resume Preparation
5. Course Completion Certificate
6. 1 to 2Hr. per a Day (4Months)
7. Online / Offline
8. Backup videos for 6months

**Price - 30K**



### (JOIP) INTENSIVE

1. Any Graduate
2. By Realtime Experts
3. Weekly Mock Interviews
4. Resume Preparation
5. Up to 4 Live Projects
6. 6 - 8 Hrs Daily Training 4Months
7. Offline / Online
8. Training Completion Certificate
9. Backup videos for 6mnths
10. Placement Assistance for 12months

**Price  
35400 + 35400 (Placement)**



### I&I ( Intensive & Internship)

1. Any Graduate
2. Must attend Mock Test
3. By Realtime Experts
4. 4Hrs.-Training & 4Hrs.- Internship
5. Live Project work assign by IT Staff
6. Online / Offline
7. Internship Completion Certificate
8. 8-10Hrs Daily
9. Backup videos for 12mnths
10. Placement Assistance for 12months

**Price - 75K + 35400 (Placement)**

## .NET

- ⇒ History of .NET Platform
- ⇒ .NET Framework, .NET Core and Mono
- ⇒ .NET 5: One .NET Vision
- ⇒ .NET Standard Library
- ⇒ .NET 4.x vs. .NET Core/.NET 5 Architecture
- ⇒ .NET Architecture Components:  
CLI, BCL, CLR, CTS, CLS
- ⇒ .NET Compilation: IL/MSIL, JIT/RyuJIT
- ⇒ Assembly and Garbage Collector

## .NET CLI and Visual Studio

- ⇒ Introduction to .NET CLI
- ⇒ .NET CLI Commands
- ⇒ Creating Project using CLI
- ⇒ Running code using CLI
- ⇒ VS Code for .NET Core development
  - ▶ Introduction to .NET Core
  - ▶ .NET Core – Overview
  - ▶ Characteristics of .NET Core
  - ▶ The .NET Core Platform
  - ▶ .NET CORE architecture and Advantages
  - ▶ Build and run Cross platform apps
  - ▶ .NET Core – Environment Setup
  - ▶ .NET Core – Code Execution
  - ▶ IoC Container & Middleware
  - ▶ NET Core – Modularity

## C# Programming Language

### C# Programming Language

- ⇒ Introduction to C#
- ⇒ History of C# Version
- ⇒ C# Advantages

### Creating Your First C# Program

- ⇒ Structure of a C# Program
- ⇒ Basic Input / Output Operations
- ⇒ Compiling, Running, and Debugging

## Data Type

- ⇒ Understanding Data Type
- ⇒ Types of Data Type –  
Value Type & Reference Type

## Variable & Typecasting

- ⇒ Naming a variable
- ⇒ Boxing and Unboxing
- ⇒ Data Conversions – Implicit & Explicit
- ⇒ Safe Type Casting with IS and AS Operator

## Operators

- ⇒ Different Types of Operators
- ⇒ Operators' precedence

## Conditional Statements

- ⇒ Introduction to conditional statement
- ⇒ If statements
- ⇒ If-else statement
- ⇒ If-else-if ladder
- ⇒ Switch statement

## Loops

- ⇒ Introduction to loop
- ⇒ do...while loop
- ⇒ while loop
- ⇒ for loop
- ⇒ foreach loop

## Jump Statements

- ⇒ break statement
- ⇒ continue statement
- ⇒ goto statement
- ⇒ return statement
- ⇒ throw statement

## Arrays

- ⇒ Introduction to Array
- ⇒ One Dimensional Array
- ⇒ Multi-Dimensional Array
- ⇒ Jagged Array

## Strings

- ⇒ Introduction to strings
- ⇒ Mutable strings
- ⇒ Immutable strings
- ⇒ Strings methods

## Introduction to Object-Oriented Programming

- ⇒ Object-Oriented Programming
- ⇒ Classes and Objects
- ⇒ Inheritance
- ⇒ Polymorphism
- ⇒ Abstraction
- ⇒ Encapsulation

## Class and Objects

- ⇒ Creating a class
- ⇒ Access Modifiers
- ⇒ Instance members
- ⇒ Creating an object

## Constructor and Destructor

- ⇒ Introduction to Constructor
- ⇒ Types of Constructor
- ⇒ Default Constructor
- ⇒ Parameterised Constructor
- ⇒ Introduction to Destructor

## Inheritance

- ⇒ Introduction to Inheritance
- ⇒ Types of inheritance
- ⇒ Advantage of Inheritance
- ⇒ Single Level Inheritance
- ⇒ Multi-Level Inheritance
- ⇒ Multiple Inheritance
- ⇒ Hybrid Inheritance

## Methods

- ⇒ Introduction to Methods
- ⇒ Method Parameters
- ⇒ Value, Out, Ref, Params & Optional Parameters
- ⇒ Methods Overloading
- ⇒ Methods Overriding
- ⇒ Method Hiding

## Property

- ⇒ Introduction to Property
- ⇒ Uses of Property
- ⇒ Types of Property
- ⇒ Read-Write Property
- ⇒ Read Only Property
- ⇒ Write Only Property

## Enum

- ⇒ Introduction to Enum
- ⇒ Creating Enum
- ⇒ Using Enum

## Exception Handling

- ⇒ Understanding Exceptions
- ⇒ Try, Catch and Finally block
- ⇒ Throw exception
- ⇒ Handling Exception
- ⇒ Custom Exception

## Attributes

- ⇒ Introduction to attributes
- ⇒ Creating attributes

## Abstract Class

- ⇒ Introduction to Abstract Class
- ⇒ Creating Abstract class
- ⇒ Need of Abstract class
- ⇒ Advantages of abstract class

## Interface

- ⇒ Introduction to Interface
- ⇒ Creating Interface
- ⇒ Need of Interface
- ⇒ Abstract class vs. Interface

## Static Class

- ⇒ Introduction to static class
- ⇒ Creating static class and static methods
- ⇒ Need of static class
- ⇒ Normal class vs. Static class

## Partial Class

- ⇒ Introduction to partial class
- ⇒ Creating partial class
- ⇒ Need of partial class

## Anonymous Type, Dynamic Type

- ⇒ Introduction to Anonymous Type
- ⇒ Using Anonymous Type
- ⇒ Introduction to Dynamic
- ⇒ Using Dynamic Type

## Anonymous Method & Lambda Expression

- ⇒ Introduction to Anonymous Method
- ⇒ Using Anonymous Method
- ⇒ Introduction to Lambda Expression
- ⇒ Types of Lambda Expression

## Delegates

- ⇒ Introduction to delegates
- ⇒ Types of delegates
- ⇒ Single Delegate
- ⇒ Multicast Delegate

## Collections

- ⇒ Introduction to .NET Collections
- ⇒ Relations between Collection Interfaces and Classes

## Collection classes

- ⇒ ArrayList
- ⇒ SortedList
- ⇒ Dictionary
- ⇒ Hashtable
- ⇒ Stack
- ⇒ Queue

## Generics

- ⇒ Understanding .NET Generics
- ⇒ Generics Advantages
- ⇒ Collections vs. Generics
- ⇒ Extension Methods

## Generics Collection Classes

- ⇒ List<T>
- ⇒ SortedList<TKey, TValue>
- ⇒ Dictionary<TKey, TValue>
- ⇒ HashSet<T>
- ⇒ Stack<T>
- ⇒ Queue<T>

## Automated Testing with MSTest and NUnit

- ⇒ Using Asserts to Pass or Fail Tests
- ⇒ Controlling and Customizing Test Execution
- ⇒ Creating Data Driven Tests
- ⇒ Reducing Code Duplication and Increasing Test Readability
- ⇒ Writing Your First NUnit Test
- ⇒ Understanding NUnit Tests
- ⇒ Asserting on Different Types of Results
- ⇒ Controlling Test Execution
- ⇒ Creating Data Driven Tests and Reducing Test Code Duplication

# ASP.NET

## Introduction to ASP

- ⇒ Basic Of HTML and JavaScript
- ⇒ Introduction to ASP
- ⇒ Web Forms
- ⇒ Using Web Controls
- ⇒ Masterpages and UserControl
- ⇒ Applying Themes and Styles to Controls
- ⇒ ASP.NET State Management
- ⇒ ASP Intrinsic Objects
- ⇒ ASP.NET Web Application
- ⇒ Data Access Controls
- ⇒ Caching
- ⇒ Configuration
- ⇒ Trace Functionality
- ⇒ Security
- ⇒ Globalization and Localization
- ⇒ AJAX.NET

## Introduction to Entity Framework (EF)

- ⇒ Overview of ORM (Object-Relational Mapping)
- ⇒ Understanding Entity Framework (EF vs. EF Core)
- ⇒ Code First vs. Database First Approach
- ⇒ CRUD Operations with EF Core
- ⇒ Relationships in EF Core (One-to-Many, Many-to-Many)
- ⇒ Migrations and Database Seeding

## ASP.NET Core MVC

- ⇒ Differences Between MVC and MVC Core
- ⇒ Setting Up an ASP.NET Core MVC Project
- ⇒ Middleware and Dependency Injection
- ⇒ Advanced Routing and Attribute Routing
- ⇒ Security, Authentication & Authorization in ASP.NET Core
- ⇒ Implementing Unit Tests in MVC Core Applications

## Web API Development

- ⇒ Introduction to RESTful APIs
- ⇒ Setting Up Web API in ASP.NET Core
- ⇒ Request and Response Handling
- ⇒ Working with JSON and XML Data Formats
- ⇒ Implementing Authentication (JWT, Oauth)
- ⇒ API Versioning and Documentation (Swagger)
- ⇒ Performance Optimization and Caching in APIs

## Micro Services Architecture

- ⇒ Overview of Microservices and Their Advantages
- ⇒ Designing and Developing Microservices in C#
- ⇒ Service Communication using REST and gRPC
- ⇒ Implementing API Gateway for Microservices
- ⇒ Containerization with Docker & Kubernetes
- ⇒ Securing Microservices with Identity Server
- ⇒ Logging, Monitoring, and Distributed Tracing

## ASP.NET MVC

- ⇒ Introduction to MVC
- ⇒ First MVC Application
- ⇒ The MVC Pattern
- ⇒ Exploring Controller's
- ⇒ Exploring Razor Views
- ⇒ HTML Helpers
- ⇒ Model Binders
- ⇒ Annotations and Validations
- ⇒ CRUD Operations using Entity Framework
- ⇒ Caching in ASP.NET MVC
- ⇒ Exception Handling in ASP.NET MVC
- ⇒ Working with Areas
- ⇒ Ajax and Client Scripting
- ⇒ Security
- ⇒ New Features of ASP.NET MVC
- ⇒ Project Explanation

# LINQ

## C# Language Extensions (Prerequisite)

- ⇒ Type Inference
- ⇒ Object Initialize'r
- ⇒ Anonymous Types
- ⇒ Extension Methods
- ⇒ Partial Method

## LINQ Architecture & Providers

- ⇒ Understanding the LINQ Framework
- ⇒ LINQ Providers

## LINQ to Objects

- ⇒ IEnumerable and IQueryable interfaces
- ⇒ System.Linq namespace
- ⇒ Query Expressions
- ⇒ Lambda Expression
- ⇒ Using Custom Class Collection

## LINQ to SQL

- ⇒ Defining the Data Model classes
- ⇒ Using Mapping attributes
- ⇒ Using the Data Context class
- ⇒ Defining Relationships using Associations
- ⇒ Creating a customized Data Context class
- ⇒ LINQ to SQL Designer (DBML File)
- ⇒ Performing Add/Edit/Delete/View Operations
- ⇒ Tracking changes to entities
- ⇒ Submitting changes
- ⇒ Concurrency error handling issues
- ⇒ Join Query
- ⇒ Validating Entities
- ⇒ Transaction Handling
- ⇒ Executing Stored Procedures

## LINQ to XML

- ⇒ Understanding the LINQ to XML Class hierarchy
- ⇒ Create an XML document
- ⇒ Loading existing XML document
- ⇒ Querying XML using LINQ to XML
- ⇒ Manipulating XML document using LINQ
  - ▶ Adding nodes
  - ▶ Modifying nodes
  - ▶ Deleting nodes

## LINQ to Dataset

- ⇒ Querying DataSets
- ⇒ Querying typed DataSets
- ⇒ Using LINQ over DataSet with Table Adapter

# SQL Server

## Overview of Database Concepts

### Basic Database Concepts

- ⇒ Concepts of Data, Metadata, Files
- ⇒ Concepts of DBMS
- ⇒ Database Models
- ⇒ File Management Systems
- ⇒ Relational Database Systems
- ⇒ Procedural & Non procedural approaches
- ⇒ Database Design
- ⇒ E.F.Codd's Rules

### Introduction to SQL Server

- ⇒ Features of SQL Server
- ⇒ Different Editions of SQL Server
- ⇒ Components of SQL Server
- ⇒ Services of SQL Server
- ⇒ Comparison of SQL Server with Oracle

### Database Design

- ⇒ Logical & Physical database design
- ⇒ Relational database design
- ⇒ Creating databases

## Management Studio

- ⇒ Basics of SQL
- ⇒ Data types, expressions, operators
- ⇒ Working with Queries & Clauses
- ⇒ Creating Databases
- ⇒ Creating Tables, Stored Procedures
- ⇒ Working with Indexes & Views

## Sub queries

- ⇒ Nested sub queries
- ⇒ Correlated sub queries
- ⇒ Derived tables

## Implementation of Data integrity

- ⇒ Entity integrity
- ⇒ Domain integrity
- ⇒ Referential integrity
- ⇒ Types of constraints

## Data Definition Language(DDL)

- ⇒ Creation of table
- ⇒ Modifying the structure of a table
- ⇒ Dropping a table
- ⇒ Working with different options

## Data Manipulation Language(DML)

- ⇒ Creation of table
- ⇒ Modifying the structure of a table
- ⇒ Dropping a table
- ⇒ Working with different options

## Data Manipulation Language(DML)

- ⇒ Inserting, updating & deleting operations
- ⇒ Operators, Built-in functions, Grouping
- ⇒ Working with multiple tables

## Joins

- ⇒ Introduction to Joins
- ⇒ Inner join
- ⇒ Outer join
- ⇒ Cross joins

## Working with Indexes

- ⇒ Introduction to indexes
- ⇒ Creating, dropping indexes
- ⇒ Complex indexes
- ⇒ Clustered & non clustered indexes

## Implementing Views

- ⇒ Introduction & advantages of views
- ⇒ Creating views
- ⇒ Altering, dropping views

## Data Control Language(DCL)

- ⇒ Creating Users and Roles
- ⇒ Granting & Revoking of Roles & Privileges

## Transaction Control Language (TCL)

- ⇒ Introduction
- ⇒ Transactions process & types of transactions (Implicit, Explicit)
- ⇒ Working with Locks and Types of locks

## Transact-SQL (T-SQL)

- ⇒ Introduction
- ⇒ Data types
- ⇒ Statements
- ⇒ Batch Execution

## Working with Cursors

- ⇒ Creating Cursors
- ⇒ Cursors vs. Select
- ⇒ Types of cursors, locks on cursors
- ⇒ Advantages of cursors

## Implementing stored procedures

- ⇒ Introduction to stored procedures
- ⇒ Creating, executing, modifying, dropping sp's
- ⇒ Executing extended sp's

## Implementing User Defined Functions

- ⇒ Introduction
- ⇒ Creating, executing, altering, dropping UDF's
- ⇒ Deterministic, non-deterministic functions
- ⇒ Scalar, multi-statement, built-in functions

## Implementing Triggers

- ⇒ Introduction to Triggers
- ⇒ Constraints vs Triggers
- ⇒ Creating, altering, dropping triggers
- ⇒ for/after/instead of triggers

## Normalization

- ⇒ First Normal Form
- ⇒ Second Normal Form
- ⇒ Third Normal Form

# DevOps

## Introduction to DevOps

- ⇒ What is DevOps
- ⇒ Evolution of DevOps
- ⇒ Agile Methodology
- ⇒ Why DevOps
- ⇒ Agile vs DevOps
- ⇒ DevOps Principles
- ⇒ DevOps Lifecycle
- ⇒ DevOps Tools
- ⇒ Benefits of DevOps
- ⇒ Continuous Integration & Delivery pipeline

## Git

- ⇒ 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

# Web Basics - HTML, CSS, JavaScript, Es6 & TypeScript

## JavaScript

- ⇒ Introduction to JavaScript
- ⇒ Data Types, Literals, Variables & Constants
- ⇒ Control Flow, Expression & Operators
- ⇒ Functions & Variable Scope
- ⇒ JavaScript Object & Object-Oriented Programming
- ⇒ Exceptions & Error Handling
- ⇒ Iterators & Generators

## HTML

- ⇒ HTML-Introduction
- ⇒ HTML-Basic Formatting Tags
- ⇒ HTML-Grouping Using Div Span
- ⇒ HTML-Lists
- ⇒ HTML-Images
- ⇒ HTML-Hyperlink
- ⇒ HTML-Table
- ⇒ HTML-Form
- ⇒ HTML-Headers
- ⇒ New Form Elements
- ⇒ Understand the new HTML form elements such as date, number, range, email, search and
- ⇒ Datalist
- ⇒ Understand audio, video, article tags

## CSS 3

- ⇒ CSS-Introduction
- ⇒ Syntax
- ⇒ Selectors
- ⇒ Color Background Cursor
- ⇒ Text Fonts
- ⇒ Box Model
- ⇒ Display Positioning
- ⇒ CSS Floats
- ⇒ CSS Floats

## Introducing TypeScript

- ⇒ TypeScript Syntax
- ⇒ Programming Editors
- ⇒ The Type System – Defining Variables
- ⇒ The Type System – Defining Arrays
- ⇒ Type in Functions
- ⇒ Type Inference
- ⇒ Defining Classes
- ⇒ Class Methods
- ⇒ Visibility Control
- ⇒ Class Constructors
- ⇒ Class Constructors – Alternate Form
- ⇒ Interfaces

## Working with ES6 Modules

- ⇒ var vs let
- ⇒ Arrow Functions
- ⇒ Arrow Function Compact Syntax
- ⇒ Template Strings
- ⇒ Generics in Class ,
- ⇒ Generics in Function

# Angular 18

## Introducing Angular

- ⇒ What is Angular?
- ⇒ Central Features of the Angular Framework
- ⇒ Appropriate Use Cases
- ⇒ Building Blocks of an Angular Application
- ⇒ Basic Architecture of an Angular Application
- ⇒ Installing and Using Angular
- ⇒ Anatomy of an Angular Application
- ⇒ Running the Application
- ⇒ Building and Deploying the Application

## Components & Templates

- ⇒ Creating a Component Using Angular CLI
- ⇒ The Component Class
- ⇒ The @Component Decorator
- ⇒ Registering a Component to Its Module
- ⇒ Component Template
- ⇒ Using a Component
- ⇒ Component Hierarchy

- ⇒ Component Lifecycle Hooks
- ⇒ Template Location
- ⇒ The Mustache {{ }} Syntax
- ⇒ Setting DOM Element Properties
- ⇒ Setting Element Body Text
- ⇒ Event Binding
- ⇒ Expression Event Handler
- ⇒ Attribute Directives
- ⇒ Structural Directives
- ⇒ Looping Using ngFor
- ⇒ Grouping Elements
- ⇒ Template Reference Variable
- ⇒ @Output() - Child Component
- ⇒ @Output() - Parent Component
- ⇒ Full Two Way Binding
- ⇒ Setting up Two Way Data Binding in Parent

## Template Driven & Reactive Forms

- ⇒ Template Driven Forms
- ⇒ Importing Forms Module
- ⇒ Two Way Data Binding
- ⇒ Form Validation
- ⇒ Angular Validators
- ⇒ Displaying Validation State Using Classes
- ⇒ Additional Input Types
- ⇒ Reactive Forms Overview
- ⇒ Import ReactiveFormsModule
- ⇒ Getting Input Values
- ⇒ Setting Form Values
- ⇒ Validation
- ⇒ Using a Custom Validator
- ⇒ Sub FormGroups - Component Class
- ⇒ Sub FormGroups - HTML Template

## Services & Dependency Injection

- ⇒ The Service Class
- ⇒ What is Dependency Injection?
- ⇒ Injecting a Service Instance
- ⇒ Injectors
- ⇒ Dependency Injection in Other Artifacts
- ⇒ Providing an Alternate Implementation

## Pipes & Data Formatting

- ⇒ Built-In Pipes
- ⇒ Using Pipes in HTML Template
- ⇒ Chaining Pipes
- ⇒ Using a Pipe with ngFor
- ⇒ A Filter Pipe

## Angular Routing & Angular Modules

- ⇒ The Router Component
- ⇒ The Angular Router API
- ⇒ Creating a Router Enabled Application
- ⇒ Passing Route Parameters
- ⇒ Anatomy of a Module Class
- ⇒ @NgModule Properties
- ⇒ Using One Module from Another

## HTTP Client

- ⇒ The Angular HTTP Client
- ⇒ Importing HttpClientModule
- ⇒ Service Using HttpClient
- ⇒ Making a GET Request
- ⇒ Observable Object
- ⇒ Error Handling & Customizing the Error Object
- ⇒ Returning an HttpResponse Object
- ⇒ Creating New Observables
- ⇒ Observable Operators
- ⇒ The map and filter Operators

## Observables & RxJS Library

- ⇒ Observables Overview
- ⇒ Observables in Angular
- ⇒ Introduction to RxJS library
- ⇒ Angular Authentication with JSON Web Tokens (JWT)

# AZURE

## Fundamentals

- ⇒ DevOps Principles
- ⇒ Agile and Scrum
- ⇒ Cloud Computing

## Version Control & Code Management

- ⇒ Git
- ⇒ Azure Repos

## Continuous Integration and Continuous Delivery (CI/CD)

- ⇒ Azure Pipelines: Designing and implementing CI/CD pipelines for automated builds, testing, & deployment.
- ⇒ Build Automation
- ⇒ Release Management: Managing deployments, releases & environments.

## Azure DevOps Tools

- ⇒ Azure Boards
- ⇒ Azure Test Plans
- ⇒ Azure Artifacts

## Infrastructure as Code & Automation

- ⇒ Infrastructure as Code (IaC)
- ⇒ Configuration Management
- ⇒ Automation Tools: Using tools like Terraform to manage infrastructure.

## Testing & Quality

- ⇒ Unit Testing
- ⇒ Code Coverage
- ⇒ Testing Strategies

## Security & Compliance

- ⇒ Security Practices: Implementing security measures within Azure DevOps.

## Collaboration & Communication

- ⇒ Communication: Using various communication channels within Azure DevOps.
- ⇒ Collaboration: Facilitating teamwork and knowledge sharing.

## Advanced Topics

- ⇒ Containerization (Docker): Understanding and using Docker for containerized applications.
- ⇒ Orchestration (Kubernetes):

## Core Tools for AI & ML in .NET

Here's a breakdown of key tools and their primary purposes

Tool	Purpose	Best For
ML.NET	Native machine learning framework in .NET	Classification, regression, clustering, anomaly detection, recommendations
Azure Cognitive Services	Pre-trained AI APIs for various tasks	Vision (image analysis), speech (recognition, synthesis), language (NLP), decision-making
ONNX Runtime for .NET	High-performance inference engine for ONNX models	Running TensorFlow, PyTorch, and other framework models in .NET
TensorFlow.NET	.NET bindings for TensorFlow	Building and training custom deep learning models directly in .NET

### Learning Roadmap

This roadmap is designed to guide you from foundational concepts to advanced implementations

#### Foundational .NET & AI/ML Concepts

**Review C# and .NET Fundamentals:** Ensure a strong grasp of C# language features, .NET Core/5+, and common development patterns.

**Introduction to AI & ML:** Understand core concepts like supervised vs. unsupervised learning, common algorithms (regression, classification, clustering), and the ML lifecycle.

**Data Preparation and Feature Engineering:** Learn techniques for cleaning, transforming, and preparing data for ML models.

#### Getting Started with ML.NET

**Install ML.NET:** Set up your development environment with the necessary NuGet packages.

**Build Your First ML.NET App:** Create a simple application for tasks like sentiment analysis or predicting housing prices.

**Explore ML.NET APIs:** Dive deeper into data loading, transformation, training, and evaluation using ML.NET's extensive API.

**Model Building and Tuning:** Learn how to experiment with different algorithms, hyperparameters, and pipelines to optimize model performance.

## Leveraging Azure Cognitive Services

**Understand Cognitive Services:** Explore the different categories of services (Vision, Speech, Language, Decision).

**Integrate Cognitive Services:** Learn how to consume these services via their REST APIs or SDKs in your .NET applications.

**Scenario-Based Integration:** Implement real-world scenarios, such as adding image recognition to a web app or enabling speech-to-text for a customer service tool.

## Deep Learning with ONNX and TensorFlow.NET

**Introduction to Deep Learning:** Grasp the basics of neural networks, convolutional neural networks (CNNs), and recurrent neural networks (RNNs).

**Working with ONNX Runtime:** Learn how to import pre-trained deep learning models (from TensorFlow, PyTorch, etc.) into ONNX format and run them efficiently in .NET.

**Custom Deep Learning with TensorFlow.NET:** For advanced users, explore building and training custom deep learning models using TensorFlow.NET.

## Advanced Topics and Deployment

**Model Deployment:** Strategies for deploying your ML models, including integration with ASP.NET Core applications or Azure services.

**Performance Optimization:** Techniques for improving the speed and efficiency of your AI/ML applications.

**Ethical AI Considerations:** Understand the importance of fairness, transparency, and bias in AI systems.

## Key Benefits

**Leverage Existing Skills:** Utilize your C# and .NET expertise.

**Integrated Development:** Build intelligent applications within a familiar and robust development environment.

**Scalability:** Benefit from the scalability and performance of the .NET platform and Azure services. This roadmap provides a comprehensive path for .NET developers to integrate powerful AI and ML capabilities into their applications. Would you like to dive deeper into any specific tool or phase of this roadmap?



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