

● C# ASP.NET Developer Roadmap

└─ ● Basics

- └─ ● C# Fundamentals
 - └─ Data Types and Variables
 - └─ Control Flow (Loops, Conditions)
 - └─ Functions and Methods
 - └─ Object-Oriented Programming (OOP)
 - └─ Collections (List, Dictionary, etc.)
 - └─ Exception Handling
 - └─ LINQ (Language Integrated Query)
- └─ ● .NET Basics
 - └─ .NET Runtime and CLR
 - └─ NuGet Package Manager
 - └─ Assemblies and DLLs
 - └─ Garbage Collection

└─ ● Version Control

- └─ ● Git
 - └─ Basic Commands (clone, commit, push, pull)
 - └─ Branching and Merging
 - └─ GitHub / GitLab

└─ ● Package Managers

- └─ ● NuGet

└─ ● Web Development with ASP.NET Core

- └─ ● ASP.NET Core Basics
 - └─ Middleware & Request Pipeline
 - └─ Routing & Endpoints
 - └─ Dependency Injection
 - └─ Controllers & Actions
 - └─ Model Binding & Validation
- └─ ● Razor Pages & MVC
 - └─ Views, Partial Views, Layouts
 - └─ View Components
 - └─ Tag Helpers & View Models
- └─ ● Blazor (Optional)
 - └─ Blazor Server vs WebAssembly
 - └─ Components & State Management

└─ ● APIs and Microservices

- └─ ● RESTful APIs
 - └─ Controllers & Routing
 - └─ HTTP Methods & Status Codes
 - └─ Model Validation
 - └─ API Versioning
 - └─ Swagger / OpenAPI
- └─ ● Authentication & Authorization
 - └─ JWT (JSON Web Tokens)
 - └─ OAuth2 & OpenID Connect
 - └─ IdentityServer
- └─ ● gRPC & SignalR (Real-time Communication)
- └─ ● Microservices Architecture

- | | | — API Gateway
- | | | — Service Discovery
- | | | — Event-Driven Architecture

| — ● Databases & ORM

- | | — ● SQL Server, PostgreSQL, MySQL
- | | — ● Entity Framework Core
- | | | — Code First vs Database First
- | | | — Migrations & Seeding
- | | | — Querying Data with LINQ
- | | | — Transactions
- | | | — Performance Optimization

| — ● Testing

- | | — ● Unit Testing (xUnit, MSTest, NUnit)
- | | — ● Integration Testing
- | | — ● API Testing (Postman, RestSharp)
- | | — ● Mocking (Moq, FakeItEasy)

| — ● Performance Optimization

- | | — ● Caching (MemoryCache, Redis)
- | | — ● Async/Await & Multithreading
- | | — ● Connection Pooling
- | | — ● Minimizing Memory Leaks

| — ● Cloud & Deployment

- | | — ● Hosting (Azure, AWS, Google Cloud)
- | | — ● CI/CD Pipelines (GitHub Actions, Azure DevOps)
- | | — ● Docker & Kubernetes
- | | — ● Serverless with Azure Functions

| — ● Security Best Practices

- | | — ● Data Protection (Encryption, Hashing)
- | | — ● Secure APIs (Rate Limiting, CORS)
- | | — ● OWASP Top 10 Threats

| — ● Advanced Topics

- | | — ● Clean Architecture
- | | — ● CQRS & MediatR Pattern
- | | — ● Event-Driven Systems (RabbitMQ, Kafka)
- | | — ● GraphQL with ASP.NET

| — ● Soft Skills

- | | — ● Communication & Documentation
- | | — ● Code Reviews & Pair Programming
- | | — ● Debugging & Problem-Solving

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#DotNet #CSharp #AspNetCore