

ASP.NET Core Backend Developer Roadmap

Beginner Level - Foundation

Topics:

- C# Basics: Variables, Data Types, Control Flow, Methods
- OOP: Inheritance, Interfaces, Encapsulation, Polymorphism
- Collections: List, Dictionary, LINQ basics
- Error Handling: try/catch, custom exceptions

Tutorials:

- Microsoft Learn - C# fundamentals
- FreeCodeCamp - C# for beginners (YouTube)

Mini Projects:

- Console-based Student Record Manager
- Simple Banking System using OOP

Intermediate Level - Web API Development

Topics:

- ASP.NET Core basics: Controllers, Routing, Middleware
- Web API: CRUD, ActionResult, Status Codes
- Model Binding, Validation
- In-Memory Repositories, Dependency Injection
- Entity Framework Core: Code First, Migrations, CRUD

Tutorials:

- Microsoft Docs - Build Web API with ASP.NET Core
- YouTube - ASP.NET Core Web API full course

Mini Projects:

- To-Do List Web API
- Student Management Web API using EF Core

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Advanced Level - Enterprise Features

Topics:

- API Versioning, Filters, Pagination
- Authentication & Authorization (JWT)
- Async Programming, Dependency Injection Deep Dive
- Logging (Serilog), Global Error Handling

Tutorials:

- Auth with JWT in ASP.NET Core - Code Maze
- Async/Await in C# - Microsoft Learn

Mini Projects:

- JWT Secured Notes API
- Book Store API with Repository Pattern

Pro Level - Production Ready Systems

Topics:

- Design Patterns (Repository, UoW, Singleton)
- Unit Testing, Mocking, Integration Tests
- SignalR for real-time features
- Clean Architecture, CQRS, API Gateway

Tutorials:

- Clean Architecture in ASP.NET Core - Jason Taylor
- Unit Testing with xUnit and Moq

Mini Projects:

- Real-time Chat App using SignalR
- E-commerce Backend with Clean Architecture