

# Full-Stack .NET Developer Roadmap (Project-Driven)

## Stage 1 — .NET Fundamentals (Console Apps)

### *Project: Personal Expense Tracker (Console App)*

- Learn C# syntax, OOP, LINQ, and EF basics
- Use File I/O or SQLite for persistence
- Practice LINQ filtering, summing, grouping

## Stage 2 — ASP.NET Core API Basics

### *Project: Task Management API*

- Create RESTful CRUD APIs
- Use EF Core with PostgreSQL
- Implement proper HTTP response codes

## Stage 3 — Authentication & Authorization

### *Project: User Management + JWT Auth System*

- Implement JWT login, registration
- Use BCrypt for password hashing
- Add role-based access control

## Stage 4 — Frontend Integration (Full-Stack App #1)

### *Project: Task Manager Web App*

- Build React or Angular frontend
- Integrate with ASP.NET Core API
- Implement JWT authentication frontend flow

## Stage 5 — Advanced Database & Query Skills

### *Project: Blog Platform API*

- Learn EF Core relationships (1:N, N:N)
- Write raw SQL joins, subqueries
- Implement pagination and filtering

## Stage 6 — Clean Architecture & Domain-Driven Design

### *Project: E-Commerce Backend*

- Learn Clean Architecture principles
- Use CQRS, MediatR, AutoMapper
- Apply Repository + Unit of Work patterns

## Stage 7 — Full-Stack App #2

### *Project: E-Commerce Web App*

- Combine backend and frontend
- Add role-based admin features
- Use Redux or NgRx for state management

## Stage 8 — Advanced Topics

### *Project: Event Booking Platform*

- Learn SignalR (real-time updates)
- Implement payments (Stripe)
- Use Redis caching, deploy with Docker

## Stage 9 — Deployment & DevOps

### *Goal: Deploy to Azure using CI/CD*

- Containerize apps using Docker
- Set up GitHub Actions pipelines
- Host API + DB on Azure

## Stage 10 — Capstone Project

### *Project: TeamCollab (SaaS App)*

- Multi-tenancy, real-time chat (SignalR)
- JWT + refresh tokens
- Stripe subscriptions, Clean Architecture