

ASP.NET Core Web API: EF Core & JWT Auth

Use C# and Build an ASP.NET Core Web API with Entity Framework Core, SQL Server, Authentication & Authorization | .NET 7

5 Days

DURATION

12

MODULES

81

TOPICS

COURSE OVERVIEW

This course covers building an ASP.NET Core Web API from scratch, creating domain models and configuring Entity Framework Core with SQL Server, and testing endpoints with Swagger and Postman. It covers creating controllers with CRUD action methods, applying asynchronous programming, the repository pattern and AutoMapper, and adding validations, filtering, sorting and pagination. It covers securing the API with authentication and role-based authorization using JWT tokens and ASP.NET Core Identity, along with image upload, logging and deployment to IIS with GitHub integration.

WHO THIS COURSE IS FOR

Backend Developers

API Developers

.NET Developers

Software Engineers

Web Developers

PREREQUISITES

- Hello world experience in ASP.NET Core
- Beginner knowledge about APIs and its usage
- 3-6 months experience working with ASP.NET Core and C#

What You Will Learn

What you'll learn

- Learn, Understand and Create ASPNET Core Web API From Scratch using .NET 7
- Building scalable REST APIs from scratch using ASPNET CORE and C#
- Learn and Apply Entity Framework Core to perform CRUD operations on a SQL Server database
- Use Entity Framework Core in a code first approach
- Understand and Apply the Repository Pattern in ASPNET Core Web API
- Use Domain Driven Design (DDD) approach to create domain first models and project
- Understand RESTful Principles and Apply them in ASPNET Core Web API
- Understand Best practices and Clean Coding Techniques, Know Shortcuts and Tips and Tricks
- Add Validations In ASPNET CORE Web API
- Use popular third-party libraries such as AUTOMAPPER
- Understand and Use Interfaces, Inheritance, Dependency Injection etc
- Understand and Implement Authentication and Role based Authorization to Authenticate and Authorize the ASPNET Core Database
- Create JWT tokens to Authenticate API
- Test ASPNET Core Web API using Swagger and Postman
- Use ASPNET Core Identity in ASPNET Core Web API to Authenticate and add Role based Authorization
- Learn Filtering, Sorting and Pagination in ASPNET Core Web API

COURSE SYLLABUS

12 Modules, 81 Topics

00

Introduction to Building ASP.NET Core Web APIs Using .NET (Optional)

TOPICS

- Introduction to building ASP.NET Core Web APIs using .NET
- Setting up development environment
- Download and Install Visual Studio 2022
- Install .NET SDK and .NET Runtime
- Install SQL Server Management Studio

01

Create New ASP.NET Core Web API & Domain Models

TOPICS

- Introduction
- Create New ASPNET Core Web API
- Understand ASP.NET Core Web API and File Structure
- Understand REST and HTTP Verbs
- Routing In ASP.NET Core Web API
- Running and Calling ASP.NET Core Web API
- Understanding Our Domain (Domain Driven Development)
- Create Domain Models
- Adding Entity Framework Core Packages
- Creating the DbContext Class
- Adding ConnectionString to The Database in Appsettings.Json
- Understanding Dependency Injection & Injecting DbContext into Our Application
- Run EF Core Migrations

02

Test ASPNET Core Web API Using Swagger and Postman

TOPICS

Setting up Swagger in ASP.NET Core · Customizing Swagger UI · Using Swagger with Postman · Generating client code from Swagger · API versioning with Swagger · Authentication and authorization with Swagger

03

Create New Controller - Regions Controller and CRUD Operations / Action Methods

TOPICS

- Introduction
- Create New Controller (Regions Controller)
- Get All Regions Action Method
- Get Region By Id Action Method
- DTOs and Domain Models
- Change Methods To Use DTOs
- Create Region Action Method
- Update Region Action Method
- Delete Region Action Method

04

Asynchronous Programming, Repository Pattern and AutoMapper

TOPICS

- Introduction
- Asynchronous Programming and Implement Async Await In our Methods
- Repository Pattern and Benefits
- Implement Repository Pattern in ASP.NET Core Web APIs
- Add Other Methods to Repository
- AutoMapper Introduction
- Implement AutoMapper

05

Functionality For Walks - Create, Read, Update, Delete For Walks

TOPICS

- Introduction
- Seeding Data Using Entity Framework Core
- Creating Walks Controller and Create New Walk Action Method
- Get All Walks Action Method
- Navigation Properties in Entity Framework Core
- Get Walk by Id Action Method
- Update Walk Action Method
- Delete Walk Action Method

06

Validations in ASP.NET Core Web API

TOPICS

Introduction To Model Validations · Adding Model Validations to Endpoints · Custom Validate Model Attribute

07

Filtering, Sorting, Pagination in ASP.NET Core Web API

TOPICS

Introduction · Seeding Data in SQL Server · Filtering · Sorting · Pagination

08

Securing Our ASP.NET Core API - Authentication and Authorization - JWT Tokens

TOPICS

- Introduction
- Authentication Flow
- Setting Up Authentication - Install Nuget Packages
- Testing Authentication Without JWT Token
- Setting Up Identity DbContext
- Seeding Roles
- Run EF Core Migrations to Create Identity Database
- Setting Up Identity
- Create Auth Controller and Register Action Method
- Create Login Action Method
- Create JWT Token in ASP.NET Core Web API
- Inject TokenRepository and Create Token
- Role Based Authorization
- Add Authorization to Swagger

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Image Upload in ASP.NET Core Web API

TOPICS

- Introduction
- Create Domain Model for Image Upload
- DbContext changes and Migrations for Image Upload
- New Controller and Action Method for Image Upload
- Image Upload Repository Implementaion
- Serving Static Files Through ASPNET Core Web API

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Advanced Functionality in ASP.NET Core Web APIs

TOPICS

- Introduction To Logging
- Add Logging to Console in ASP.NET Core Web API
- Add Logging to Text File in ASP.NET Core Web APIs

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Deployment

TOPICS

Publishing to IIS · Integration to GitHub

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

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