

ASP.NET 6 REST API Following CLEAN ARCHITECTURE & DDD

Course outline

Module 1: Introduction to ASP.NET 6 REST API

Module 1: Introduction to ASP.NET 6 REST API is a course designed to teach developers how to create and maintain RESTful web services using the ASP.NET 6 framework. This course covers topics such as the basics of RESTful web services, the principles of Clean Architecture and Domain-Driven Design (DDD), and how to use the ASP.NET 6 framework to create and maintain RESTful web services. This course is ideal for developers who want to learn how to create and maintain RESTful web services using the ASP.NET 6 framework.

Lessons

- Overview of ASP.NET 6 REST API
- Understanding the Benefits of Using ASP.NET 6 REST API
- Designing a RESTful API with ASP.NET 6
- Implementing Authentication and Authorization with ASP.NET 6
- Working with Data in ASP.NET 6 REST API
- Building a Secure REST API with ASP.NET 6
- Testing and Debugging ASP.NET 6 REST API
- Deploying and Managing ASP.NET 6 REST API
- Integrating ASP.NET 6 REST API with Other Services
- . Best Practices for Developing with ASP.NET 6 REST API

After completing this module, students will be able to:

- Understand the fundamentals of ASP.NET 6 REST API and its application in developing web applications.
- Implement the principles of Clean Architecture and Domain-Driven Design (DDD) in the development of ASP.NET 6 REST API applications.
- Utilize the ASP.NET 6 REST API framework to create robust and secure web applications.
- Develop and deploy ASP.NET 6 REST API applications with confidence.

Module 2: Designing a RESTful API

Module 2 of the CLEAN ARCHITECTURE & DDD course focuses on designing a RESTful API module for ASP.NET 6 REST API. This module covers topics such as designing a RESTful API architecture, creating a RESTful API controller, and implementing API security. It also covers best practices for designing and developing a RESTful API, as well as how to use the ASP.NET 6 REST API to create a

secure and efficient API.

Lessons

- Introduction to RESTful API Design
- Understanding the Principles of Clean Architecture
- Exploring Domain-Driven Design (DDD)
- Designing a RESTful API with ASP.NET 6
- Implementing Security and Authentication
- Creating and Managing Resources
- Working with Data and Serialization
- Handling Errors and Exceptions
- Testing and Debugging RESTful APIs
- . Deploying and Managing a RESTful API

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain Driven Design (DDD) and how to apply them to the design of a RESTful API.
- Develop a RESTful API using ASP.NET Core 6 that adheres to Clean Architecture and DDD principles.
- Utilize best practices for designing and implementing a RESTful API.
- Implement authentication and authorization for a RESTful API using ASP.NET Core 6.

Module 3: Implementing a RESTful API

Module 3 of the ASP.NET 6 REST API Following CLEAN ARCHITECTURE & DDD course focuses on implementing a RESTful API for ASP.NET 6. This module covers topics such as designing and building a RESTful API, using the latest technologies and best practices, and applying Domain-Driven Design (DDD) principles. Additionally, students will learn how to use the Clean Architecture pattern to create a maintainable and extensible API.

Lessons

- Overview of RESTful API Design Principles
- Understanding the Benefits of Clean Architecture
- Implementing Domain-Driven Design (DDD)
- Designing a RESTful API with ASP.NET 6
- Creating Controllers and Actions for a RESTful API
- Implementing Authentication and Authorization
- Securing a RESTful API with OAuth 2.0
- Testing and Debugging a RESTful API
- Deploying a RESTful API with ASP.NET 6
- . Optimizing Performance of a RESTful API

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain-Driven Design (DDD) and how to apply them to ASP.NET 6 REST API development.
- Design and implement a RESTful API using ASP.NET 6 and the latest web technologies.
- Utilize best practices for API design, including versioning, authentication, and authorization.
- Implement automated testing and debugging techniques to ensure the API is secure and reliable.

Module 4: Securing a RESTful API

Module 4 of the CLEAN ARCHITECTURE & DDD course for ASP.NET 6 REST API focuses on securing a RESTful API. It covers topics such as authentication, authorization, and data protection, as well as best practices for implementing security measures. The module also provides an overview of the different security protocols available and how to use them to protect your API.

Lessons

- Introduction to Clean Architecture & Domain-Driven Design
- Implementing Security in a RESTful API
- Authentication & Authorization in a RESTful API
- Implementing OAuth2 in a RESTful API
- Securing Data in a RESTful API
- Implementing Encryption in a RESTful API
- Implementing Rate Limiting in a RESTful API
- Implementing Caching in a RESTful API
- Implementing Logging & Monitoring in a RESTful API
- . Best Practices for Securing a RESTful API

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain-Driven Design (DDD) and how to apply them to secure a RESTful API.
- Implement authentication and authorization using OAuth2 and JWT tokens.
- Implement secure coding practices to protect against common web application vulnerabilities.
- Utilize best practices for logging and monitoring API usage.

Module 5: Testing a RESTful API

Module 5 of the CLEAN ARCHITECTURE & DDD course focuses on testing a RESTful API for ASP.NET 6 REST API. This module covers topics such as setting up a test environment, writing unit tests, integration tests, and end-to-end tests, and using mocking frameworks to mock external dependencies. It also covers best practices for testing RESTful APIs, such as using the right HTTP verbs, status codes, and response formats.

Lessons

- Overview of RESTful API Testing
- Understanding the Basics of RESTful API Testing
- Setting up the Test Environment

- Writing Test Cases for RESTful APIs
- Automating RESTful API Tests
- Testing Security and Performance of RESTful APIs
- Troubleshooting RESTful API Tests
- Best Practices for RESTful API Testing
- Integrating RESTful API Tests into CI/CD Pipelines
- Using Test Management Tools for RESTful API Testing

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain Driven Design (DDD) and how they apply to RESTful API development.
- Design and implement a RESTful API using ASP.NET Core 6.
- Utilize best practices for testing a RESTful API, including unit, integration, and end-to-end testing.
- Implement automated testing for a RESTful API using tools such as Postman, Swagger, and xUnit.

Module 6: Versioning a RESTful API

Module 6 of the CLEAN ARCHITECTURE & DDD course focuses on versioning a RESTful API for ASP.NET 6 REST API. This module covers topics such as versioning strategies, versioning in ASP.NET Core, and how to version a RESTful API. It also provides guidance on how to use versioning to ensure backward compatibility and how to handle breaking changes.

Lessons

- Introduction to Versioning a RESTful API
- Understanding the Benefits of Versioning
- Implementing Versioning in ASP.NET 6 REST API
- Strategies for Versioning a RESTful API
- Versioning with Query Parameters
- Versioning with Custom Headers
- Versioning with URI Paths
- Versioning with Media Types
- Versioning with Hypermedia
- Versioning with Content Negotiation
- Versioning with API Gateways
- Versioning with API Documentation
- Versioning with API Versioning Tools
- Versioning with API Versioning Best Practices
- Versioning with API Versioning in a Microservices Architecture
- Versioning with API Versioning in a Domain-Driven Design
- Versioning with API Versioning in a Clean Architecture
- Versioning with API Versioning in a Serverless Architecture
- Versioning with API Versioning in a Cloud-Native Architecture
- Versioning with API Versioning in a DevOps Environment

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain-Driven Design (DDD) and how to apply them to a RESTful API.
- Design and implement a RESTful API using ASP.NET Core 6.
- Utilize versioning strategies to ensure backward compatibility of the API.
- Implement automated tests to ensure the API is functioning correctly.

Module 7: Performance Optimization of a RESTful API

Module 7 of the CLEAN ARCHITECTURE & DDD course focuses on performance optimization of a RESTful API for ASP.NET 6. This module covers topics such as caching, asynchronous programming, and other techniques to improve the performance of the API. It also provides guidance on how to use the latest features of ASP.NET 6 to optimize the API.

Lessons

- Understanding the Basics of Performance Optimization
- Analyzing Performance Bottlenecks in a RESTful API
- Implementing Performance Optimization Strategies
- Applying Caching Techniques to Improve Performance
- Leveraging Asynchronous Programming for Performance Optimization
- Utilizing Data Sharding for Performance Optimization
- Optimizing Database Queries for Performance
- Implementing Load Balancing for Performance Optimization
- Utilizing Cloud Computing for Performance Optimization
- . Monitoring Performance and Troubleshooting Issues

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain-Driven Design (DDD) and how to apply them to the development of a RESTful API.
- Utilize best practices for performance optimization of a RESTful API, such as caching, asynchronous programming, and data compression.
- Implement strategies for monitoring and logging API performance.
- Identify and troubleshoot common performance issues in a RESTful API.

Module 8: Deployment of a RESTful API

Module 8 of the CLEAN ARCHITECTURE & DDD course covers the deployment of a RESTful API module for ASP.NET 6 REST API. This module will teach students how to deploy their API to a production environment, as well as how to configure and manage the API. Additionally, students will learn how to use the ASP.NET Core Identity framework to secure their API and how to use the Swagger UI to document their API.

Lessons

- Overview of Clean Architecture & Domain-Driven Design
- Designing a RESTful API with Clean Architecture & DDD

- Implementing a RESTful API with ASP.NET 6
- Testing & Debugging a RESTful API with ASP.NET 6
- Securing a RESTful API with ASP.NET 6
- Deploying a RESTful API with ASP.NET 6
- Monitoring & Optimizing a RESTful API with ASP.NET 6
- Troubleshooting & Debugging a RESTful API with ASP.NET 6
- Best Practices for Developing a RESTful API with ASP.NET 6
- . Advanced Topics in Developing a RESTful API with ASP.NET 6

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain-Driven Design (DDD) and how to apply them to the development of a RESTful API.
- Utilize the ASP.NET Core 6 framework to create a RESTful API.
- Implement best practices for API design, including versioning, authentication, and authorization.
- Deploy the API to a production environment and monitor its performance.

Module 9: Integrating a RESTful API with a Database

Module 9 of the ASP.NET 6 REST API Following CLEAN ARCHITECTURE & DDD course focuses on integrating a RESTful API with a database. This module covers topics such as setting up a database, creating a data access layer, and using Entity Framework Core to interact with the database. Additionally, the module covers how to use the repository pattern to create a data access layer that is decoupled from the database. Finally, the module covers how to use the repository pattern to create a data access layer that is decoupled from the database.

Lessons

- Overview of Clean Architecture & Domain-Driven Design
- Designing a RESTful API with ASP.NET 6
- Implementing a Database Layer for the RESTful API
- Integrating the Database Layer with the RESTful API
- Testing the Database Layer and RESTful API Integration
- Securing the Database Layer and RESTful API
- Optimizing the Database Layer and RESTful API
- Deploying the Database Layer and RESTful API
- Troubleshooting and Debugging the Database Layer and RESTful API

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain Driven Design (DDD) and how to apply them to ASP.NET 6 REST API development.
- Design and implement a RESTful API that is secure, scalable, and maintainable.
- Integrate a RESTful API with a database using Entity Framework Core.
- Utilize best practices for testing and debugging RESTful APIs.

Module 10: Integrating a RESTful API with a Third-Party Service

Module 10 of the ASP.NET 6 REST API Following CLEAN ARCHITECTURE & DDD course focuses on integrating a RESTful API with a third-party service. This module covers topics such as setting up the integration, configuring the API, and testing the integration. It also covers best practices for integrating a RESTful API with a third-party service.

Lessons

- Understanding the Basics of RESTful API Design
- Implementing Authentication and Authorization for a RESTful API
- Designing a RESTful API Architecture
- Creating a RESTful API with ASP.NET 6
- Integrating a RESTful API with a Third-Party Service
- Implementing Caching Strategies for a RESTful API
- Utilizing Logging and Monitoring for a RESTful API
- Securing a RESTful API with OAuth 2.0
- Optimizing Performance for a RESTful API
- . Testing and Debugging a RESTful API

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain-Driven Design (DDD) and how to apply them to ASP.NET 6 REST API development.
- Design and implement a RESTful API that is secure, scalable, and maintainable.
- Integrate a RESTful API with a third-party service such as a payment gateway or a social media platform.
- Utilize best practices for testing and debugging a RESTful API.

Module 11: Advanced Topics in RESTful API Design and Development

Module 11 of the ASP.NET 6 REST API Following CLEAN ARCHITECTURE & DDD course covers advanced topics in RESTful API design and development. It covers topics such as API versioning, authentication and authorization, caching, and performance optimization. It also covers best practices for designing and developing RESTful APIs, as well as how to use the latest tools and technologies to create robust and secure APIs.

Lessons

- Designing RESTful APIs with ASP.NET 6
- Implementing Domain-Driven Design with ASP.NET 6
- Understanding the Benefits of Clean Architecture
- Utilizing CQRS and Event Sourcing with ASP.NET 6
- Securing RESTful APIs with ASP.NET 6
- Optimizing Performance of ASP.NET 6 REST APIs
- Integrating Third-Party APIs with ASP.NET 6
- Testing and Debugging ASP.NET 6 REST APIs

- Deploying and Managing ASP.NET 6 REST APIs
- . Troubleshooting and Debugging ASP.NET 6 REST APIs

After completing this module, students will be able to:

- Understand the principles of Clean Architecture and Domain-Driven Design (DDD) and how to apply them to RESTful API design and development.
- Develop a RESTful API using ASP.NET Core 6 and the latest version of Entity Framework Core.
- Implement advanced features such as authentication, authorization, caching, logging, and monitoring.
- Utilize best practices for API versioning, documentation, and testing.