Syllabus (Backend Development with .NET)

In this module, we'll understand the features and functionalities of the .NET platform, and compare the .NET Framework with the modern .NET platform. Also, we will explore basic syntax and key features of C# in the context of .NET, and identify common libraries and packages used in .NET development. _Skill you will gain:_ functionalities of the .NET Framework, differences between .NET Core and .NET Framework, common libraries and packages used in .NET development, serialization/ deserialization and its importance in .NET, middleware and its role in ASP.NET Core, create a simple web API with ASP.NET Core, integrate OpenAPI (Swagger) with ASP.NET Core, API project with Microsoft Copilot

Backend development with .NET: Introduction Backend development, Tools for Backend development, AI tool: MS Copilot, introduction .NET and Its Architecture, Evolution of the .NET platform, Cross-platform of .NET, Modern .NET platform, Hands-On coding with C#, Nuget and Package Management, implementation .NET libraries, benefits of using .NET core,

1. Concept of Dependency Injection (DI), introduction of SOLID principles, Introduction of Achitectures
2. Error Handling and Logging in ASP.NET Core,
3. Introduction Serialization & Deserialization, Serialization techniques in .NET, Implementing Serialization, Serializing Objects in .NET, Deserialization in .NET, Deserialization techniques in .NET, Implementing Deserialization, performance impact of Serialization , Security risk in serialization, securing serialization and deserialization process
4. ntroduction to Middleware in .NET Core , Concept of Middleware, Middleware pipeline, Built-in Middleware components, Custom Middleware, implementing Middleware Components, Designing and Securing Middleware components,

Getting started with API: Building Web APIs with .NET core, Features of API development, setting up a Web API project, implementing basic API endpoints, creating simple Web API, introduction Routing, Routing Techniques, Routing and Attribute Routing, CRUD APIs, configure Middleware for API

1. Introduction to OpenAPI and Swagger, integrating Swagger with .NET core, OpenAPI integration, Generate API clients with Swagger, Customizing API client generation

Introduction to MS Copilot: benefits of using Copilot, Generating code snippets with copilot, enhancing API code, identifying bugs with copilot, debugging API code with copilot.