Microservices with .NET and ASP.NET Core

Create independently deployable, highly scalable, and resilient services using the free and open-source .NET platform.

Prerequisites

- Familiarity with command-line based applications.
- Familiarity with basic Docker concepts and Azure Development.
- Experience writing C# at the beginner level

Duration: 2 days

Module 1: Overview of microservice with .NET

- Introduction
- What are microservices?
- Exercise - Build a Dockerfile for your microservice
- Microservices orchestration
- Exercise - Create a Docker Compose file

Module 2: Create and deploy a cloud-native ASP.NET Core microservice

- Introduction
- Exercise - Set up the environment
- Review the solution architecture
- Exercise - Review the code and verify deployment
- Review the coupon service design
- Exercise - Add the coupon service
- Exercise - Deploy changes to AKS

Module 3: Implement resiliency in a cloud-native ASP.NET Core microservice

- Introduction
- Exercise - Set up the environment
- Review resiliency concepts
- Exercise - Verify deployment and test the app
- Exercise - Implement code-based resiliency
- Exercise - Implement infrastructure-based resiliency

Module 4: Instrument a cloud-native ASP.NET Core microservice

- Introduction
- Exercise - Set up the environment
- Review logging and monitoring concepts
- Exercise - Implement Application Insights
- Exercise - Monitor Application Insights
- Exercise - Implement Azure Monitor for Containers

Module 5: Implement feature flags in a cloud-native ASP.NET Core microservices app

- Introduction
- Exercise - Set up the environment
- Review app configuration concepts
- Exercise - Implement the Feature Management library
- Exercise - Implement the Azure App Configuration service

Module 6: Use managed data stores in a cloud-native ASP.NET Core microservices app

- Introduction
- Exercise - Set up the environment
- Review managed data stores in Azure
- Exercise - Verify deployment and test the app
- Exercise - Implement Azure Cache for Redis
- Exercise - Implement Azure Cosmos DB

Module 7: Understand API gateways in a cloud-native ASP.NET Core microservices app

- Introduction
- Exercise - Set up the environment
- Exercise - Verify deployment and test the app
- Understand API gateways and Backends for Frontends
- Implement a new Backend for Frontend15 min
- Understand Kubernetes ingress controller concepts
- Exercise - Implement a load balancer with Azure Application Gateway