Modernize Apps and Databases

Course Overview
Duration - 16 Hours | Level - Intermediate

Learn to leverage the power of Microsoft Azure's Apps, Data and AI solutions to modernize and build intelligent apps focusing on internal business critical applications and external customer facing apps. In this workshop you will learn more about the impactful application of generative AI, which harnesses massive data that will be huge for businesses. You will also learn to make use of Azure Data services and cloud-native app building features provided by Azure Kubernetes Services, Cosmos DB and GitHub.

Course Modules

Day 1 - Agentic DevOps and Build AI Apps on Azure using Azure App Service

Module 1: Introduction to AI Apps and agents

Introduction to AI Apps and agents

Introduction to Copilot for Azure

Module 2: Build and deploy AI apps on Azure

Build AI-powered applications with Azure App Service

Azure Container Apps

Serverless GPU integration with AI Foundry Models (preview)

Azure Kubernetes Service (AKS)

Module 3: AI Development and Agentic DevOps with GitHub

Understand the GitHub models

AI-Powered Coding with GitHub Copilot and agents

Understand Agentic DevOps

Introduction to Azure SRE Agent (Preview)

Hands On Labs

Use case 1 - Incorporate Quarkus Todo applications into Container Apps and integrate them with a relational database

Use case 2 - Building a Fruits list Quarkus web app with Azure App Service on Linux and PostgreSQL

Use case 3 - Containerizing a flightbooking app and deploying to Azure

Day 2 - Build Agentic AI apps and agents with Azure AI Foundry

Module 4: Agentic AI with Azure AI Foundry

What are Agents

Ways to build apps and agents

A deep dive into Azure AI Foundry

Design your apps with the best models from Azure AI Foundry

Use Azure AI services in Azure AI Foundry portal

Build agents using Azure AI Foundry Agent Service

Introduction to Azure AI Foundry SDK

Understand customization using prompt engineering, RAG and fine-tuning models

Hands On Labs

Use case 6 - Deploying chat app on Azure Container Apps with PostgreSQL Flexible Server

Use case 7 - Enabling semantic search in Azure Database for PostgreSQL flexible server to use Azure OpenAI to generate vector embeddings

Use case 8 - Building and deploying Contoso Real Estate chat app to support customers

Day 3 - Database options on Azure

Module 5: Build AI apps with Azure Database for PostgreSQL

Introduction to Azure Database for PostgreSQL

Architecture and high availability

Generative AI with Azure Database for PostgreSQL - Flexible Server

Accelerate delivery of GenAI with PostgreSQL capabilities in GitHub Copilot

Module 6: Build scalable and secure apps with Azure SQL Database

Introduction to Azure SQL Database

Build intelligent AI applications with Azure SQL Database

Secure your data on Azure SQL Database

Module 7: Develop AI-powered apps at any scale with Azure Cosmos DB

Introduction to Azure Cosmos DB

Global secondary index in Microsoft Azure Cosmos DB (Preview)

Get built-in vector search

Cosmos DB (NoSQL) in Fabric

Module 8: Fabric databases

What is Microsoft Fabric?

SQL database in Microsoft Fabric (Preview)

Hands On Labs

Use case 4 - Building a TODO List ASP.NET app, deploy it to Azure App Service connecting to SQL Database

Use case 5 - Deploying a data-driven Python Restaurant web app with the Azure Database for PostgreSQL

Day 4 - AI Security and Governance at Scale

Module 9: Secure and govern your AI Apps and agents

Build generative AI workloads with Well-Architected Framework

Manage app secrets with Azure Key Vault

Overview of Defender for App Service

Authentication and authorization with Entra ID

Responsible AI principles and Mitigation layers in Azure AI Foundry

Azure AI Content Safety

Azure AI Foundry Observability

Risk and Safety Evaluations

Continuous monitoring in production

AI Red Teaming Agent

Entra IDs for agents

Azure AI Foundry and Microsoft Purview integration

Hands On Labs

Use case 9 - Building a Chat bot experience using Azure Cosmos DB for MongoDB and Azure OpenAI Service

Use case 10 - Deploying chat application to answer questions from the user and tracks chat history across conversations

Use case 11 - Integrate generative AI capabilities with Azure Database for PostgreSQL Flexible Server to evaluate reviews of given AI listings