Develop AI cloud solutions on Azure (AI-200T00)

Duration: 5 days
Audience: Professionnel TI

Who is this training for?

This course is designed for developers who build backend and AI driven applications on Azure and need practical skills in containerized compute, data services for AI, event driven workflows, and application security and monitoring.

Training objectives

By the end of this course, students will be able to:

- Develop containerized applications on Azure using Azure Container Registry, Azure App Service, and Azure Container Apps, including deployment, scaling, and operational management.
- Deploy, configure, monitor, and troubleshoot applications running on Azure Kubernetes Service (AKS), including workload verification, app configuration, and telemetry analysis.
- Build AI enabled solutions using Azure Cosmos DB for NoSQL by designing queries, implementing vector search, and optimizing query performance.
- Develop AI solutions using Azure Database for PostgreSQL, including querying, vector search, indexing, performance tuning, and scaling strategies.
- Enhance AI applications with Azure Managed Redis by implementing data operations, event streaming, coordination patterns, and vector storage.
- Integrate backend services for AI workloads using Azure Service Bus, Azure Event Grid, and Azure Functions to build queue based, event driven, and serverless AI workflows.
- Manage application secrets and configuration settings using Azure Key Vault and Azure App Configuration to secure and standardize AI application deployments.
- Instrument, observe, and troubleshoot applications on Azure using OpenTelemetry, logs, metrics, and distributed tracing to ensure reliability and performance.
- Apply Azure AI Cloud Developer best practices across the development lifecycle, including containerization, security, monitoring, and integration with Azure services.

Summary

This course teaches developers how to create, monitor, and troubleshoot AI solutions on Microsoft Azure. Students will learn how to implement Azure compute and containerization patterns to host applications, build serverless APIs with Azure Functions, and integrate services using event driven and message based architectures such as Azure Service Bus and Event Grid. The course also covers working with Azure data services that support AI workloads, including designing and querying solutions with Cosmos DB for NoSQL, Azure Database for PostgreSQL with pgvector, and Azure Managed Redis for caching, streaming, and vector search. By the end of the course, developers will be able to connect services, orchestrate AI workflows, and build secure, scalable, and observable AI driven applications on Azure.

Course outline

Learning Path 1 — Implement container application hosting on Azure

- Module 1 — Store and manage containers in Azure Container Registry
- Module 2 — Deploy containers to Azure App Service

Learning Path 2 — Deploy and manage apps on Azure Container Apps

- Module 1 — Deploy containers to Azure Container Apps
- Module 2 — Manage containers in Azure Container Apps
- Module 3 — Scale containers in Azure Container Apps

Learning Path 3 — Deploy and monitor apps on Azure Kubernetes Service

- Module 1 — Deploy and verify apps on Azure Kubernetes Service
- Module 2 — Configure apps on Azure Kubernetes Service

Module 3 — Monitor and troubleshoot apps on Azure Kubernetes Service

Learning Path 4 — Develop AI solutions with Azure Cosmos DB for NoSQL

- Module 1 — Build queries for Azure Cosmos DB for NoSQL
- Module 2 — Implement vector search with Azure Cosmos DB for NoSQL
- Module 3 — Optimize query performance for Azure Cosmos DB for NoSQL

Learning Path 5 — Develop AI solutions with Azure Database for PostgreSQL

- Module 1 — Build and query with Azure Database for PostgreSQL
- Module 2 — Implement vector search with Azure Database for PostgreSQL
- Module 3 — Optimize performance, indexing, and scaling for Azure Database for PostgreSQL

Learning Path 6 — Enhance AI solutions with Azure Managed Redis

- Module 1 — Implement data operations in Azure Managed Redis
- Module 2 — Stream and coordinate events in Azure Managed Redis
- Module 3 — Implement vector storage in Azure Managed Redis

Learning Path 7 — Integrate backend services for AI solutions

- Module 1 — Queue and process AI operations with Azure Service Bus
- Module 2 — Develop event driven AI workflows with Azure Event Grid
- Module 3 — Build serverless AI backends with Azure Functions

Learning Path 8 — Manage application secrets and configuration for AI solutions

- Module 1 — Manage app secrets with Azure Key Vault
- Module 2 — Manage application settings with Azure App Configuration

Learning Path 9 — Observe and troubleshoot apps on Azure

- Module 1 — Instrument an app with OpenTelemetry
- Module 2 — Analyze app telemetry with logs and metrics

Approach and methodology

Practical and structured approach combining focused theory with guided hands on labs. Participants progressively build cloud based AI solutions on Azure through real world, scenario driven exercises that promote immediate application of learning.

They learn how to containerize applications, deploy and manage workloads across Azure Container Apps and Azure Kubernetes Service, and integrate backend services using Azure Service Bus, Event Grid, and Azure Functions. The course emphasizes building AI enabled applications using Azure Cosmos DB for NoSQL, Azure Database for PostgreSQL, and Azure Managed Redis, including vector search, performance optimization, and scalable data access patterns.

Participants also gain experience securing applications with Azure Key Vault and Azure App Configuration, and instrumenting workloads using OpenTelemetry, logs, metrics, and distributed tracing to ensure reliability and observability across the entire solution.

Led by a Microsoft certified trainer (MCT), the course encourages interactivity and the development of practical, transferable skills that enable students to confidently design, build, secure, integrate, and monitor modern AI cloud applications on Azure.

Prerequisites

Students should have the following knowledge and experience before attending this course:

Successful students in this course have at least 1–2 years of professional development experience and some experience with Microsoft Azure.

In addition, students should have experience programming in Python. If you are new to AI development, Azure, or cloud computing, consider the following foundational knowledge:

- At least two years of experience in Python.
- Fundamental proficiency in Azure (Microsoft Certified: Azure Fundamentals).
- Fundamental proficiency in AI (Microsoft Certified: Azure AI Fundamentals).
- Fundamental proficiency in Azure Data (Microsoft Certified: Azure Data Fundamentals).
- Fundamental proficiency in app containerization concepts and practices.