AI-102T00: Designing and Implementing a Microsoft Azure AI Solution

Course Duration: 40 Hours (5 Days)

Overview

The AI-102T00: Designing and implementing a Microsoft Azure AI Solution course is a comprehensive program designed to equip learners with the skills necessary to build, manage, and deploy AI solutions leveraging Microsoft Azure's powerful cloud-based services. The course covers a wide range of topics, from the fundamentals of AI and decision support solutions to more advanced areas like computer Vision, natural Language processing, and Conversational AI. Throughout the course, participants will engage with Cognitive Services, learning to select and implement the right services for various AI tasks such as Vision, Language, Speech, and decision support solutions. The curriculum includes hands-on labs and exercises that allow learners to apply what they've learned in real-world scenarios, creating and deploying AI solutions on Azure. By the end of the course, participants will have a solid understanding of how to create a Cognitive Services resource, manage security, and work with Containers. They will also be able to analyze images and text, extract facial information, develop Language understanding models, and build Intelligent bots, all within the Azure AI ecosystem. This course is an excellent choice for those looking to enhance their skills in AI development and gain practical experience with Azure's AI capabilities.

Audience Profile

The AI-102T00 course is designed for professionals seeking to implement AI solutions on Microsoft Azure using Cognitive Services.

- Software Engineers and Developers with an interest in AI
- AI and Machine Learning Engineers
- Data Scientists looking to apply AI in their models
- Cloud Solution Architects focusing on AI-based solutions
- IT Professionals aiming to expand their Azure skillset
- Technical Leads and Project Managers overseeing AI projects
- DevOps Engineers integrating AI into CI/CD pipelines
- Application Builders incorporating AI features into apps
- University Students and Researchers in computer science
- Professionals preparing for the Azure AI Engineer Associate certification

Course Syllabus

Module 1: - Introduction to AI and AI on Azure

- Introduction to AI
- Considerations for responsible AI
- Azure Machine Learning
- Introduction to azure ai services
- Azure AI services rest API and SDK
- Considerations of azure ai services security
- Monitor azure ai services
- Deploy azure ai services in containers
- Exercise: Get started with azure ai services
- Exercise: Manager azure ai service security
- Exercise: Monitor azure ai services
- Exercise: Use azure ai services container

Module 2: - Develop computer vision solutions with azure ai vision

- Azure AI Vision – Image Analysis
- Image analysis API and options
- Azure AI vision OCR
- Face detection, analysis and recognition
- Custom azure ai vision model for classification and object detection
- introduction to video indexer for video analysis
- Exercise: Explore features in Vision Studio
- Exercise: Analyze Images with Azure AI Vision
- Exercise: Read text in images
- Exercise: Detect and analyze faces
- Exercise: Classify Images with Azure AI Vision custom model
- Exercise: Analyze the video using video indexer

Module 3: - Develop natural language processing solutions

- Introduction to azure ai language service for language analysis
- Text translation using translator service
- Introduction to question and answering
- Creating a knowledge base
- Introduction to the language understanding
- Custom text classification
- Introduction to the speech service

- Introduction to speech synthesis markup language
- Translating speech to text
- Exercise: Analyze text
- Exercise: Translate text
- Exercise: Create a question and answering solution
- Exercise: Create a conversational language understanding app
- Exercise: Recognize and Synthesize Speech

Module 4: - Develop generative ai solutions with azure open AI service

- Introduction to generative ai
- Introduction to azure open-ai studio
- Various types of models in azure OpenAI
- Various Api's in azure OpenAI
- Testing models in azure OpenAI studio playground
- Integrating Azure OpenAI into your app
- Using the Azure OpenAI REST API: completion, chat completion
- Prompt engineering in azure OpenAI
- Implement Retrieval Augmented Generation (RAG) with Azure Open AI Service
- Exercise: Provision an Azure OpenAI resource in Azure
- Exercise: Get started with Azure OpenAI Service
- Exercise: Integrate Azure OpenAI into your app
- Exercise: Utilize prompt engineering in your app Exercise: Implement Retrieval Augmented Generation (RAG) with Azure OpenAI Service

Module 5: - Creating the knowledge mining solution

- Introduction to the azure ai search
- Core Components of an AI Search Solution
- How an Enrichment Pipeline Works
- Introduction to Custom Skills
- What is a Knowledge Store?
- Implementing a Knowledge Store
- Exercise – Create an Azure Cognitive Search Solution
- Exercise – Create a Custom Skill for Azure AI Search

Module 6: - Develop solutions with Azure AI Document Intelligence

- Introduction to Document Intelligence Service

- Prebuilt models in document intelligence service
- Custom models in document intelligence service
- Exercise – Use prebuilt Document Intelligence models
- Exercise – Extract Data from Form

Module 7: - Develop AI agents on Azure

- Get started with AI agent development on Azure
- Develop an AI agent with Azure AI Agent Service
- Integrate custom tools into your agent
- Develop an AI agent with Semantic Kernel
- Add plugins to Azure AI agent
- Orchestrate a multi-agent solution using Semantic Kernel
- Exercise - Develop a multi-agent solution
- Exercise - Develop an Azure AI agent with the Semantic Kernel SDK
- Exercise - Build an AI agent