
Designing and Implementing an Azure AI Solution

Duration: 4 Days **Course Code: M-AI102**

Overview:

AI-102 Designing and Implementing an Azure AI Solution is intended for software developers wanting to build AI infused applications that leverage Azure Cognitive Services, Azure Cognitive Search, and Microsoft Bot Framework. The course will use C#, Python, or JavaScript as the programming language.

Target Audience:

Software engineers concerned with building, managing and deploying AI solutions that leverage Azure Cognitive Services, Azure Cognitive Search, and Microsoft Bot Framework. They are familiar with C#, Python, or JavaScript and have knowledge on using REST-based APIs to build computer vision, language analysis, knowledge mining, intelligent search, and conversational AI solutions on Azure.

Objectives:

- **After completing this course you should be able to:**
 - Describe considerations for creating AI-enabled applications
 - Identify Azure services for AI application development
 - Provision and consume cognitive services in Azure
 - Manage cognitive services security
 - Monitor cognitive services
 - Use a cognitive services container
 - Use the Text Analytics cognitive service to analyze text
 - Use the Translator cognitive service to translate text
 - Use the Speech cognitive service to recognize and synthesize speech
 - Use the Speech cognitive service to translate speech
 - Create a Language Understanding app
 - Create a client application for Language Understanding
 - Integrate Language Understanding and Speech
 - Use QnA Maker to create a knowledge base
 - Use a QnA knowledge base in an app or bot
 - Use the Bot Framework SDK to create a bot
 - Use the Bot Framework Composer to create a bot
 - Use the Computer Vision service to analyze images
 - Use Video Indexer to analyze videos
 - Use the Custom Vision service to implement image classification
 - Use the Custom Vision service to implement object detection
 - Detect faces with the Computer Vision service
 - Detect, analyze, and recognize faces with the Face service
 - Use the Computer Vision service to read text in images and documents
 - Use the Form Recognizer service to extract data from digital forms
 - Create an intelligent search solution with Azure Cognitive Search
 - Implement a custom skill in an Azure Cognitive Search enrichment pipeline
 - Use Azure Cognitive Search to create a knowledge store
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Prerequisites:

Attendees should meet the following prerequisites:

- Knowledge of Microsoft Azure and ability to navigate the Azure portal
- Knowledge of either C#, Python.

Testing and Certification

Recommended as preparation for the following exams:

- **AI-102** - Designing and Implementing a Microsoft Azure AI Solution - Part of the requirements for the Microsoft Certified Azure AI Engineer Associate Certification.

- Familiarity with JSON and REST programming semantics
 - M-AI900 - Microsoft Azure AI Fundamentals
 - M-AZ900 - Microsoft Azure Fundamentals (Includes Labs)
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Content:

Module 1: Introduction to AI on Azure

Artificial Intelligence (AI) is increasingly at the core of modern apps and services. In this module, you'll learn about some common AI capabilities that you can leverage in your apps, and how those capabilities are implemented in Microsoft Azure. You'll also learn about some considerations for designing and implementing AI solutions responsibly.

- Introduction to Artificial Intelligence
- Artificial Intelligence in Azure

Module 2: Developing AI Apps with Cognitive Services

Cognitive Services are the core building blocks for integrating AI capabilities into your apps. In this module, you'll learn how to provision, secure, monitor, and deploy cognitive services.

- Getting Started with Cognitive Services
- Using Cognitive Services for Enterprise Applications
- Lab: Get Started with Cognitive Services
- Lab: Get Started with Cognitive Services
- Lab: Monitor Cognitive Services
- Lab: Use a Cognitive Services Container

Module 3: Getting Started with Natural Language Processing

Natural Language processing (NLP) is a branch of artificial intelligence that deals with extracting insights from written or spoken language. In this module, you'll learn how to use cognitive services to analyze and translate text.

- Analyzing Text
- Translating Text
- Lab: Analyze Text
- Lab: Translate Text

Module 4: Building Speech-Enabled Applications

Many modern apps and services accept spoken input and can respond by synthesizing text. In this module, you'll continue your exploration of natural language processing capabilities by learning how to build speech-enabled applications.

- Speech Recognition and Synthesis
- Speech Translation
- Lab: Recognize and Synthesize Speech
- Lab: Translate Speech

Module 5: Creating Language Understanding Solutions

To build an application that can intelligently understand and respond to natural language input, you must define and train a model for language understanding. In this module, you'll learn how to use the Language Understanding service to create an app that can identify user intent from natural language input.

- Creating a Language Understanding App
- Publishing and Using a Language Understanding App
- Using Language Understanding with Speech
- Lab: Create a Language Understanding App
- Lab: Create a Language Understanding Client Application
- Use the Speech and Language Understanding Services

Module 6: Building a QnA Solution

One of the most common kinds of interaction between users and AI software agents is for users to submit questions in natural language, and for the AI agent to respond intelligently with an appropriate answer. In this module, you'll explore how the QnA Maker service enables the development of this kind of solution.

- Creating a QnA Knowledge Base
- Publishing and Using a QnA Knowledge Base
- Lab: Create a QnA Solution

Module 7: Conversational AI and the Azure Bot Service

Bots are the basis for an increasingly common kind of AI application in which users engage in conversations with AI agents, often as they would with a human agent. In this module, you'll explore the Microsoft Bot Framework and the Azure Bot Service, which together provide a platform for creating and delivering conversational experiences.

- Bot Basics
- Implementing a Conversational Bot
- Lab: Create a Bot with the Bot Framework SDK
- Lab: Create a Bot with a Bot Framework Composer

Module 8: Getting Started with Computer

While there are many scenarios where pre-defined general computer vision capabilities can be useful, sometimes you need to train a custom model with your own visual data. In this module, you'll explore the Custom Vision service, and how to use it to create custom image classification and object detection models.

- Image Classification
- Object Detection
- Lab: Classify Images with Custom Vision
- Lab: Detect Objects in Images with Custom Vision

Module 10: Detecting, Analyzing, and Recognizing Faces

Facial detection, analysis, and recognition are common computer vision scenarios. In this module, you'll explore the user of cognitive services to identify human faces.

- Detecting Faces with the Computer Vision Service
- Using the Face Service
- Lab: Detect, Analyze and Recognize Faces

Module 11: Reading Text in Images and Documents

Optical character recognition (OCR) is another common computer vision scenario, in which software extracts text from images or documents. In this module, you'll explore cognitive services that can be used to detect and read text in images, documents, and forms.

- Reading text with the Computer Vision Service
- Extracting Information from Forms with the Form Recognizer service
- Lab: Read Text in Images
- Lab: Extract Data from Forms

Module 12: Creating a Knowledge Mining Solution

Ultimately, many AI scenarios involve intelligently searching for information based on user queries. AI-powered knowledge mining is an increasingly important way to build intelligent search solutions that use AI to extract insights from large repositories of digital data and enable users to find and analyze those insights.

- Implementing an Intelligent Search

- Analyzing Images
- Analyzing Videos
- Lab: Analyse Images with Computer Vision
- Lab: Analyze Images with Video Indexer

Module 9: Developing Custom Vision Solutions

- Solution
- Developing Custom Skills for an Enrichment Pipeline
- Creating a Knowledge Store
- Lab: Create and Azure Cognitive Search Solution
- Create a Custom Skill for Azure Cognitive Search
- Create a Knowledge Store with Azure Cognitive Search

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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