

# AI-102T00 Designing and Implementing an Azure AI Solution

Duration  
4 Days

Delivery Methods  
VILT, Private Group



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# or Python as the programming language.

## Who Should Attend

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# or Python and have knowledge on using REST-based APIs to build computer vision, language analysis, knowledge mining, intelligent search, and conversational AI solutions on Azure.

## Agenda

### 1 - PREPARE TO DEVELOP AI SOLUTIONS ON AZURE

- Define artificial intelligence
- Understand AI-related terms
- Understand considerations for AI Engineers
- Understand considerations for responsible AI

- Understand capabilities of Azure Machine Learning
- Understand capabilities of Azure AI Services
- Understand capabilities of the Azure Bot Service
- Understand capabilities of Azure Cognitive Search

## 2 - CREATE AND CONSUME AZURE AI SERVICES

- Provision an Azure AI Services resource
- Identify endpoints and keys
- Use a REST API
- Use an SDK

## 3 - SECURE AZURE AI SERVICES

- Consider authentication
- Implement network security

## 4 - MONITOR AZURE AI SERVICES

- Monitor cost
- Create alerts
- View metrics
- Manage diagnostic logging

## 5 - DEPLOY AZURE AI SERVICES IN CONTAINERS

- Understand containers
- Use Azure AI Services containers

## 6 - EXTRACT INSIGHTS FROM TEXT WITH THE LANGUAGE SERVICE

- Provision a Language resource
- Detect language
- Extract key phrases
- Analyze sentiment
- Extract entities
- Extract linked entities

## 7 - TRANSLATE TEXT WITH THE TRANSLATOR SERVICE

- Provision a Translator resource
- Specify translation options
- Define custom translations

## 8 - CREATE SPEECH-ENABLED APPS WITH THE SPEECH SERVICE

- Provision an Azure resource for speech
- Use the Speech to text API
- Use the text to speech API
- Configure audio format and voices

- Use Speech Synthesis Markup Language

## 9 - TRANSLATE SPEECH WITH THE SPEECH SERVICE

- Provision an Azure resource for speech translation
- Translate speech to text
- Synthesize translations

## 10 - BUILD A LANGUAGE UNDERSTANDING MODEL

- Understand resources for building a language understanding model
- Define intents, utterances, and entities
- Use patterns to differentiate similar utterances
- Use pre-built entity components
- Train, test, publish, and review a Language Understanding model

## 11 - PUBLISH AND USE A LANGUAGE UNDERSTANDING APP

- Understand capabilities of the Language service
- Process predictions
- Use a container

## 12 - BUILD A QUESTION ANSWERING SOLUTION

- Understand question answering
- Compare question answering to language understanding
- Create a knowledge base
- Implement multi-turn conversation
- Test and publish a knowledge base
- Use a knowledge base
- Improve question answering performance
- Create a question answering bot

## 13 - CREATE A BOT WITH THE BOT FRAMEWORK SDK

- Introduce principles of bot design
- Get started with the Bot Framework SDK
- Implement activity handlers and dialogs
- Deploy a bot

## 14 - CREATE A BOT WITH THE BOT FRAMEWORK COMPOSER

- Understand ways to build a bot
- Get started with the Bot Framework Composer
- Understand dialogs
- Understand adaptive flow
- Design the user experience

## 15 - ANALYZE IMAGES

- Provision a Computer Vision resource
- Analyze an image
- Generate a smart-cropped thumbnail

## 16 - ANALYZE VIDEO

- Understand Video Analyzer for Media capabilities
- Extract custom insights
- Use Video Analyzer widgets and APIs

## 17 - CLASSIFY IMAGES

- Provision Azure resources for custom vision
- Understand image classification
- Train an image classifier

## 18 - DETECT OBJECTS IN IMAGES

- Understand object detection
- Train an object detector
- Consider options for labeling images

## 19 - DETECT, ANALYZE, AND RECOGNIZE FACES

- Identify options for face detection analysis and identification
- Understand considerations for face analysis
- Detect faces with the computer vision service
- Understand capabilities of the face service
- Compare and match detected faces
- Implement facial recognition

## 20 - READ TEXT IN IMAGES AND DOCUMENTS WITH THE AZURE AI VISION SERVICE

- Explore Computer Vision options for reading text
- Use the Read API

## 21 - EXTRACT DATA FROM FORMS WITH AZURE DOCUMENT INTELLIGENCE

- What is Azure Document Intelligence?
- Get started with Azure Document Intelligence
- Understand prebuilt models
- Train custom models
- Use Azure Document Intelligence models
- Use the Azure Document Intelligence Studio

## 22 - CREATE AN AZURE COGNITIVE SEARCH SOLUTION

- Azure resources

- Search components
- Understand the indexing process
- Search an index
- Apply filtering and sorting
- Enhance the index

### **23 - CREATE A CUSTOM SKILL FOR AZURE COGNITIVE SEARCH**

- Create a custom skill
- Add a custom skill to a skillset

### **24 - CREATE A KNOWLEDGE STORE WITH AZURE COGNITIVE SEARCH**

- Define projections
- Define a knowledge store