



Build a natural language processing solution with Azure AI Services

Course AI-3003: 1 day; Intermediate; Instructor-Led

Introduction

Natural language processing (NLP) solutions use language models to interpret the semantic meaning of written or spoken language. You can use the Language Understanding service to build language models for your applications.

Prerequisites

Before starting this learning path, you should already have:

- Familiarity with Azure and the Azure portal.
- Experience programming with C# or Python. If you have no previous programming experience, we recommend you complete the Take your first steps with C# or Take your first steps with Python learning path before starting this one.

Course Outline

Module 1: Analyze text with Azure AI Language

The Azure AI Language service enables you to create intelligent apps and services that extract semantic information from text.

In this module, you will learn to:

- Detect language from text
- Analyze text sentiment
- Extract key phrases, entities, and linked entities

Prerequisites

- Familiarity with Microsoft Azure and the Azure portal.
- Experience programming with C# or Python.

Lessons

- Provision an Azure AI Language resource
- Detect language
- Extract key phrases
- Analyze sentiment
- Extract entities
- Extract linked entities
- Exercise - Analyze text

Module 2: Create question answering solutions with Azure AI Language

The question answering capability of the Azure AI Language service makes it easy to build applications in which users ask questions using natural language and receive appropriate answers.

In this module, you will learn to:

- Understand question answering and how it compares to language understanding.
- Create, test, publish, and consume a knowledge base.
- Implement multi-turn conversation and active learning.
- Create a question answering bot to interact with using natural language.

Prerequisites

Before starting this module, you should already have:

- Familiarity with Azure and the Azure portal.

- Experience programming with C# or Python. If you have no previous programming experience, we recommend you complete the [Take your first steps with C#](#) or [Take your first steps with Python](#) learning path first.

Lessons

- Understand question answering
- Compare question answering to Azure AI Language understanding
- Create a knowledge base
- Implement multi-turn conversation
- Test and publish a knowledge base
- Use a knowledge base
- Improve question answering performance
- Exercise - Create a question answering solution

Module 3: Build a conversational language understanding model

The Azure AI Language conversational language understanding service (CLU) enables you to train a model that apps can use to extract meaning from natural language.

In this module, you will learn to:

- Understand question answering
- Compare question answering to Azure AI Language understanding
- Create a knowledge base
- Implement multi-turn conversation
- Test and publish a knowledge base
- Use a knowledge base
- Improve question answering performance
- Exercise - Create a question answering solution

Prerequisites

Before starting this module, you should already have:

- Familiarity with Azure and the Azure portal.
- Experience programming with C# or Python. If you have no previous programming experience, we recommend you complete the [Take your first steps with C#](#) or [Take your first steps with Python](#) learning path first.

Lessons

- Understand prebuilt capabilities of the Azure AI Language service
- Understand resources for building a conversational 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 conversational language understanding model
- Exercise - Build an Azure AI services conversational language understanding model

Module 4: Create a custom text classification solution

The Azure AI Language service enables processing of natural language to use in your own app. Learn how to build a custom text classification project.

In this module, you will learn to:

- Understand types of classification projects
- Build a custom text classification project
- Tag data, train, and deploy a model
- Submit classification tasks from your own app

Prerequisites

- The Azure portal

- Familiarity with Azure AI Services
- General programming techniques

Lessons

- Understand types of classification projects
- Understand how to build text classification projects
- Exercise - Classify text

Module 5: Custom named entity recognition

Build a custom entity recognition solution to extract entities from unstructured documents

In this module, you will learn to:

- Understand tagging entities in extraction projects
- Understand how to build entity recognition projects

Prerequisites

Before starting this module, you should be familiar with:

- The Azure portal
- General functionality of Azure AI Services
- General programming technique

Lessons

- Understand custom named entity recognition
- Label your data
- Train and evaluate your model
- Exercise - Extract custom entities

Module 6: Translate text with Azure AI Translator service

The Translator service enables you to create intelligent apps and services that can translate text between languages.

In this module, you will learn to:

- Provision a Translator resource
- Understand language detection, translation, and transliteration
- Specify translation options
- Define custom translations

Prerequisites

Before starting this module, you should be familiar with:

- Familiarity with Microsoft Azure and the Azure portal.
- Experience programming with C# or Python.

Lessons

- Provision an Azure AI Translator resource
- Understand language detection, translation, and transliteration
- Specify translation options
- Define custom translations
- Exercise - Translate text with the Azure AI Translator service

Module 7: Create speech-enabled apps with Azure AI services

The Azure AI Speech service enables you to build speech-enabled applications. This module focuses on using the speech-to-text and text to speech APIs, which enable you to create apps that are capable of speech recognition and speech synthesis.

In this module, you will learn to:

- Provision an Azure resource for the Azure AI Speech service

- Use the Azure AI Speech to text API to implement speech recognition
- Use the Text to speech API to implement speech synthesis
- Configure audio format and voices
- Use Speech Synthesis Markup Language (SSML)

Prerequisites

Before starting this module, you should be familiar with:

- Be familiar with Azure services and the Azure portal
- Have experience programming with C# or Python

Lessons

- Provision an Azure resource for speech
- Use the Azure AI Speech to Text API
- Use the text to speech API
- Configure audio format and voices
- Use Speech Synthesis Markup Language
- Exercise - Create a speech-enabled app

Module 8: Translate speech with the Azure AI Speech service

Translation of speech builds on speech recognition by recognizing and transcribing spoken input in a specified language, and returning translations of the transcription in one or more other languages.

In this module, you will learn to:

- Provision Azure resources for speech translation.
- Generate text translation from speech.
- Synthesize spoken translations.

Prerequisites

Before starting this module, you should be familiar with:

- Be familiar with Azure services and the Azure portal.
- Have experience programming with C# or Python.
- Have experience of using the Azure AI Speech service to transcribe speech to text.

Lessons

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