



Microsoft Azure AI Fundamentals: Natural Language Processing





Agenda

- Natural Language Processing concepts
- Natural Language Processing capabilities in Azure

Learning Objectives

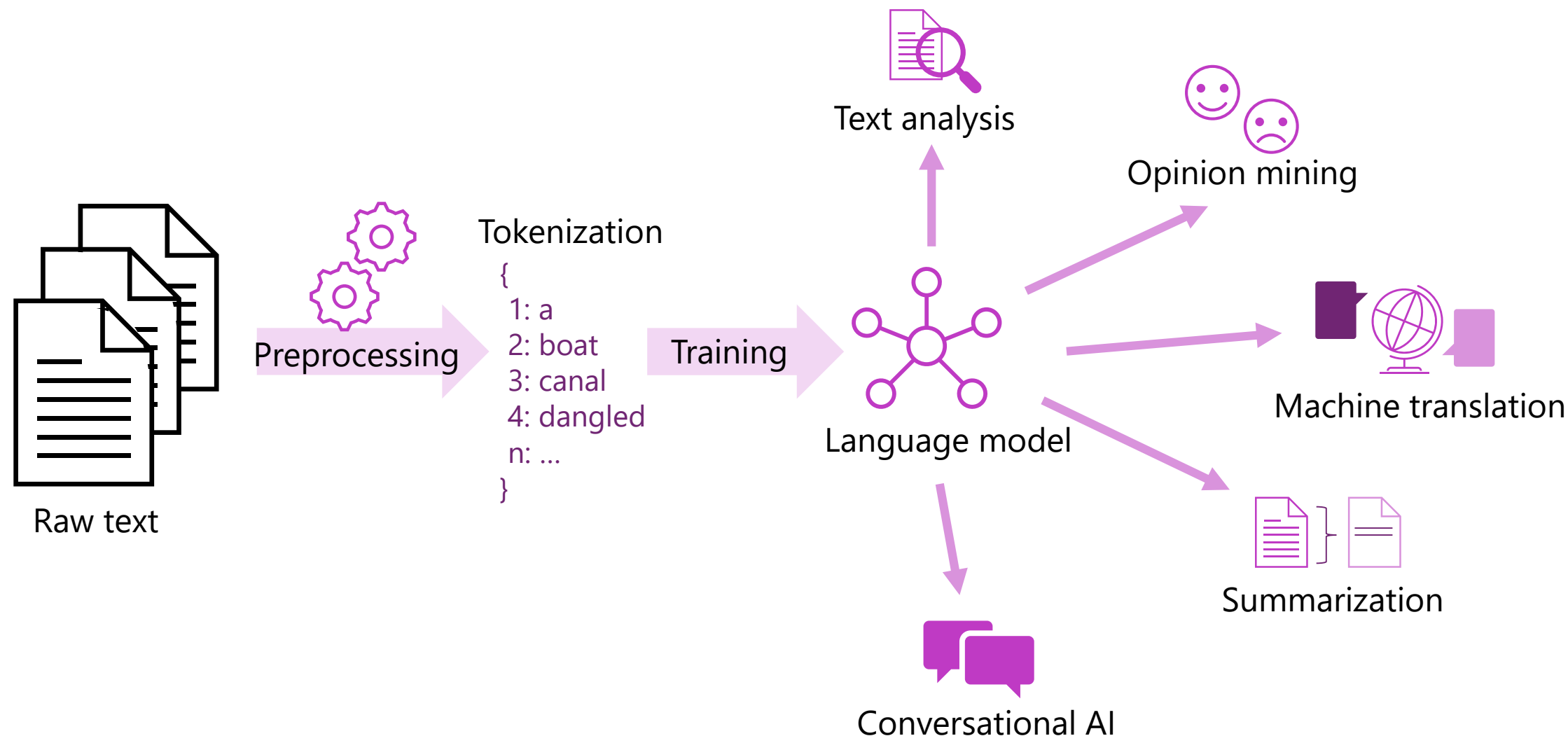
After completing this module, you will be able to:

- 1** Recognize when Natural Language processing and conversational AI can be used.
- 2** Identify Azure AI services that include natural language processing.
- 3** Use text analysis for yourself.

Natural Language Processing Concepts



What is natural language processing?





Natural language processing and conversational AI in Azure



Language

- Language detection
- Key phrase extraction
- Named entity detection
- Sentiment analysis and opinion mining
- Personal information detection
- Summarization
- Question answering
- Conversational language understanding
- ...



Speech

- Text to speech
- Speech to text
- Speech translation
- Speaker identification
- Language identification
- ...



Translator

- Text translation
- Document translation
- Custom translation
- ...

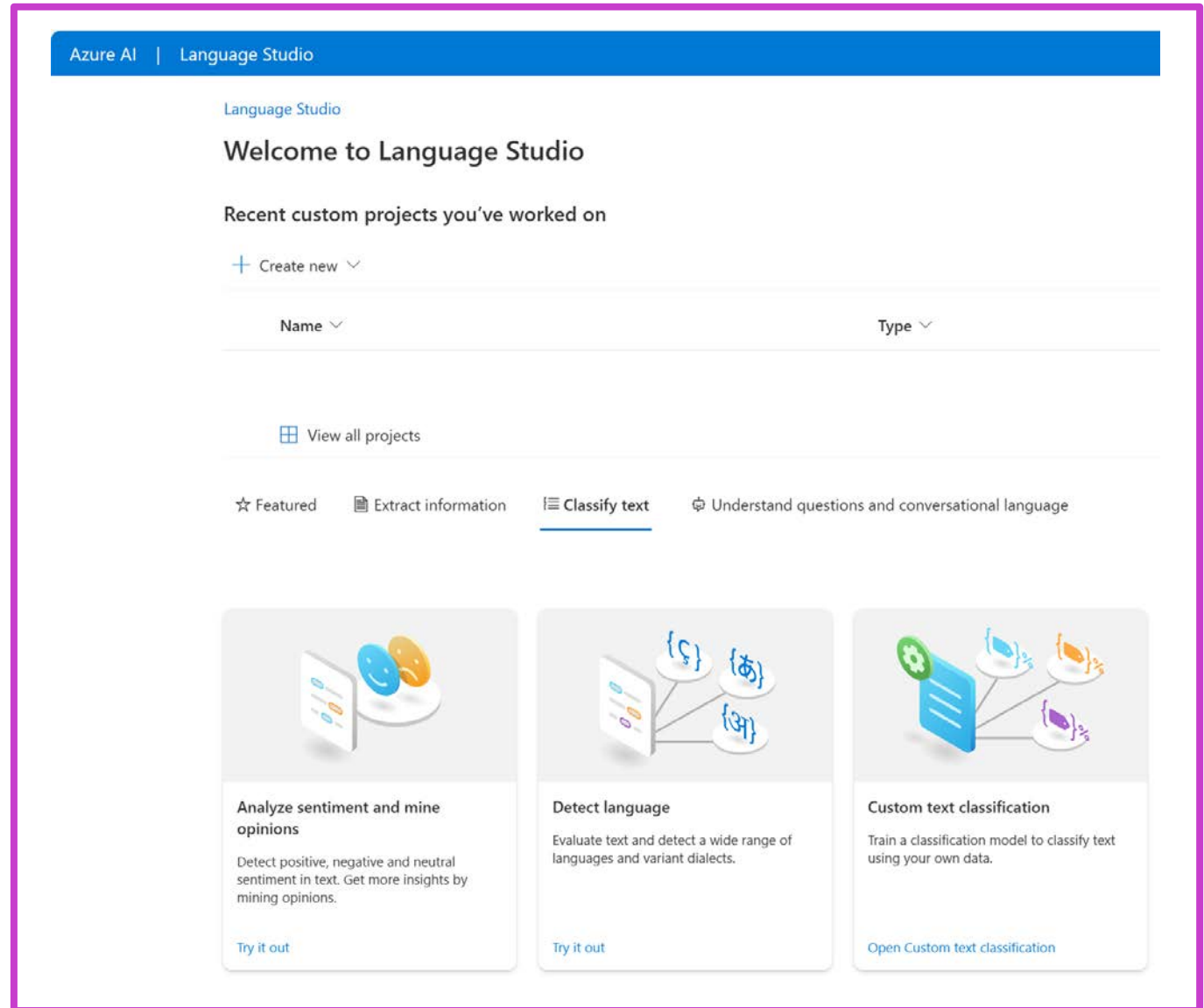
Natural Language Processing capabilities in Azure



Analyzing text

I had a wonderful vacation in France.

- **Predominant Language:** English
- **Sentiment:** .88 (positive)
- **Key Phrases:** “wonderful vacation”
- **Entities:** France



The screenshot displays the Azure AI Language Studio web interface. At the top, a blue header bar contains the text "Azure AI | Language Studio". Below this, the page is titled "Language Studio" and "Welcome to Language Studio". A section titled "Recent custom projects you've worked on" includes a "+ Create new" button and a table with columns "Name" and "Type". Below the table is a "View all projects" link. A navigation bar features four options: "Featured", "Extract information", "Classify text" (which is underlined), and "Understand questions and conversational language". The main content area contains three cards: 1. "Analyze sentiment and mine opinions" with a smiley face icon, describing sentiment detection and opinion mining, with a "Try it out" link. 2. "Detect language" with a language code icon, describing language and dialect detection, with a "Try it out" link. 3. "Custom text classification" with a gear and document icon, describing training a model for custom classification, with a link to "Open Custom text classification".

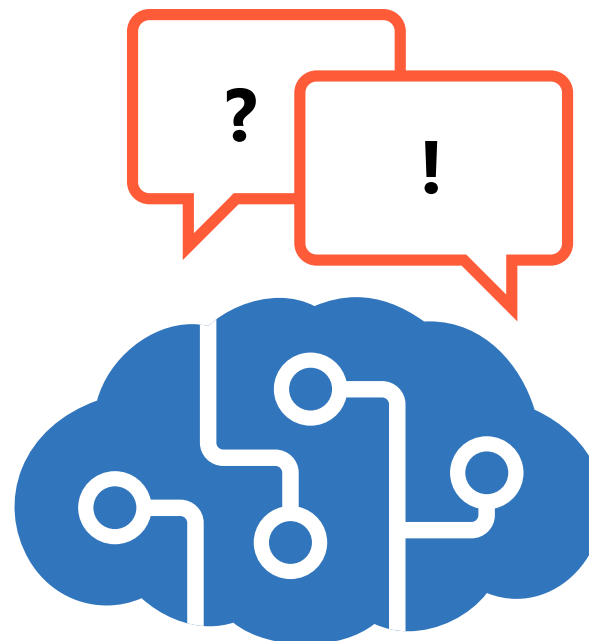


Question answering

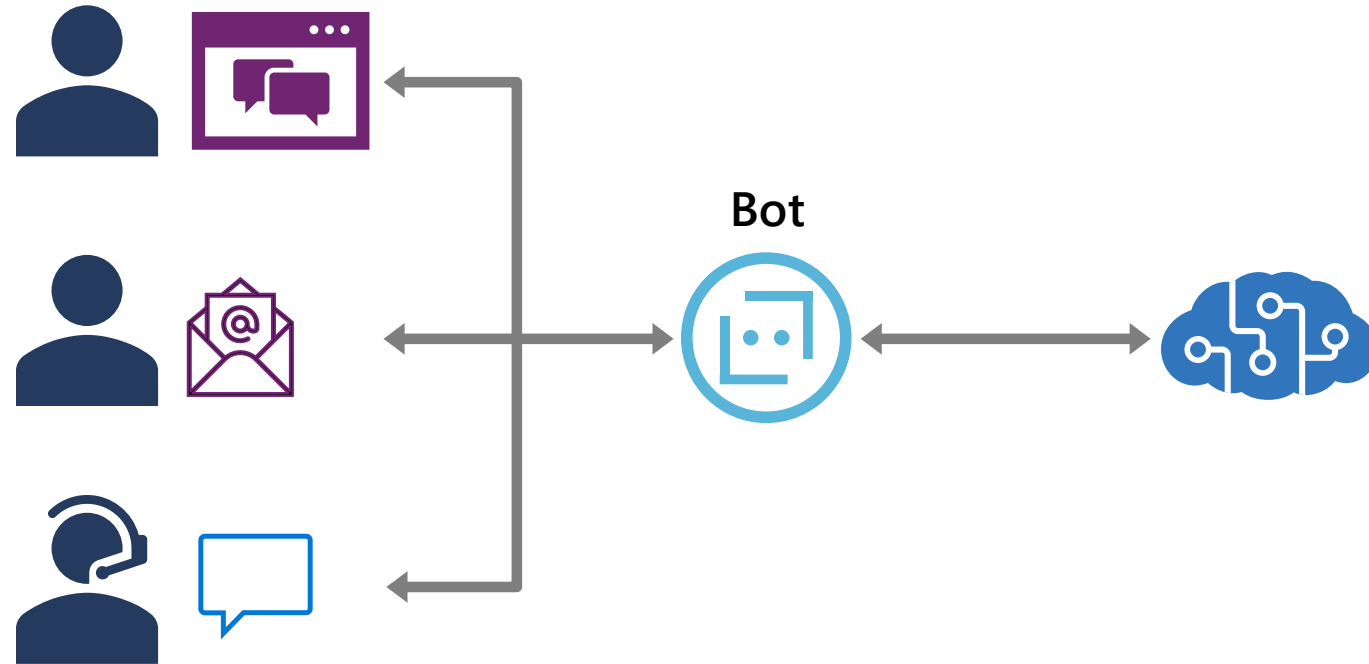
Define a *knowledge* base of question and answer pairs:

- By entering questions and answers
- From an existing FAQ document
- By using built-in *chit-chat*

Consume the knowledge base from client apps, including bots.



Azure bot service



- Cloud-based platform for developing and managing bots
- Integration with **AI Language** and other services
- Connectivity through multiple channels



Demo: Use Question Answering model with Language Studio

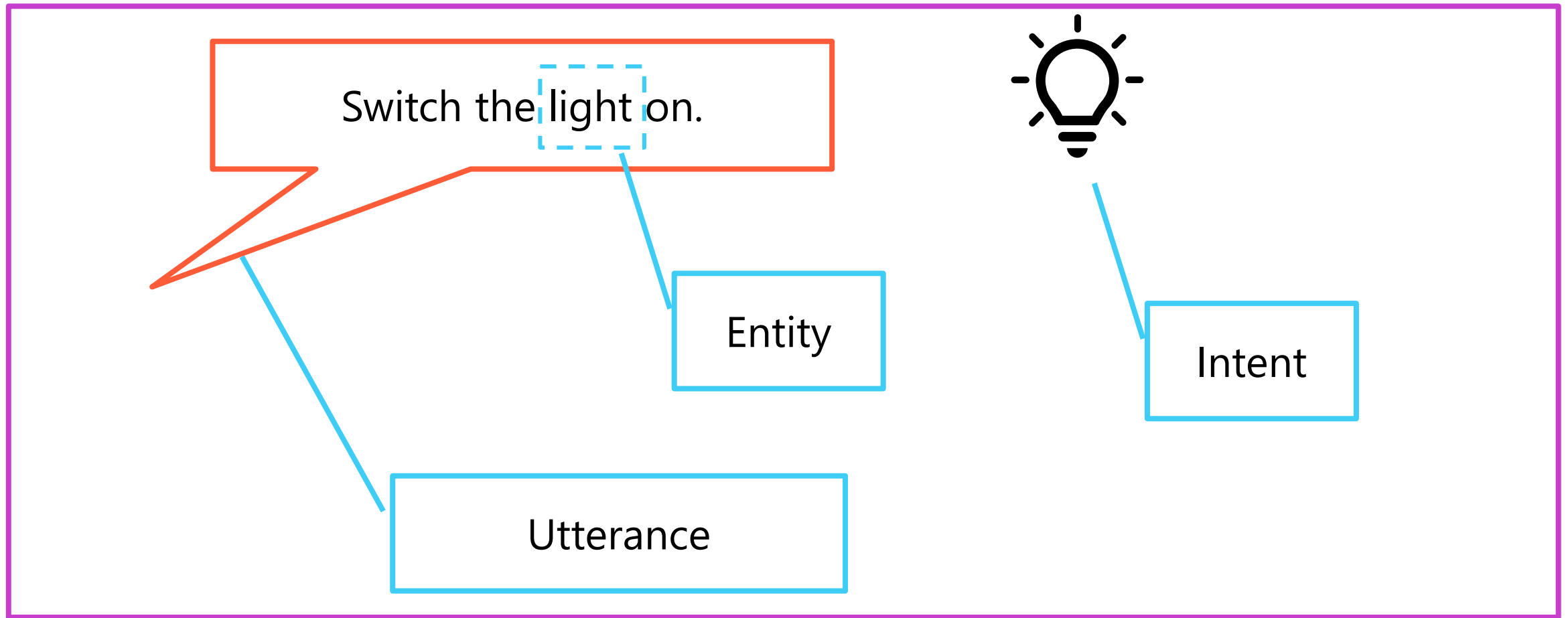


In this demo, you'll see **Azure AI Language's** question answering capabilities in action.

1. Follow along on the exercise page at: <https://aka.ms/ai900-question-answering>



Conversational language understanding



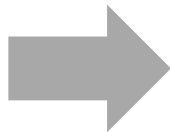
Demo: Use Conversational Language Understanding with Language Studio



In this demo, you'll see **Azure AI Language's** conversational language understanding capabilities in action.

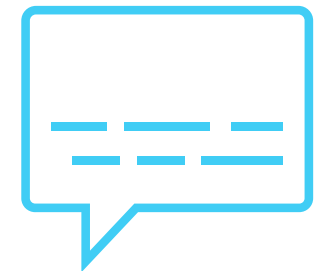
1. Follow along on the exercise page at: <https://aka.ms/ai900-language-understanding>

Speech recognition and synthesis



Use the *speech-to-text* capabilities of the **Speech** service to transcribe audible speech to text

Use the *text-to-speech* capabilities of the **Speech** service to generate audible speech from text



Demo: Explore Speech Studio

In this demo, you'll see **Azure AI Speech's** capabilities in action.



1. Follow along on the exercise page at: <https://aka.ms/ai900-speech>

Exercise: Analyze text with Language Studio



In this exercise, you will use the **Azure AI Language** service to analyze text.

1. Use the hosted environment and Azure credentials provided for this exercise.
2. The instructions are also available on Learn: <https://aka.ms/ai900-text-analysis>



Knowledge check

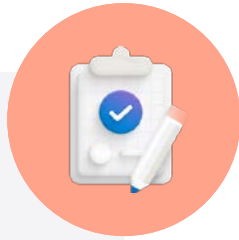


- 1** What are some capabilities included in the Azure AI Language service?
 - ☐ Translation and bot deployment
 - ☐ Speech recognition
 - ☒ Text analysis, custom question answering, conversational language understanding

- 2** You want to use the Azure AI Language service to determine the key talking points in a text document. Which feature of the service should you use?
 - ☐ Sentiment analysis
 - ☒ Key phrase extraction
 - ☐ Entity detection

- 3** You want to create a knowledge base for bots. What service would you use?
 - ☐ Conversational Language Understanding with the Azure AI Language service
 - ☒ Question Answering with the Azure AI Language service
 - ☐ Azure AI Document Intelligence

Summary



Natural Language Processing Concepts

- What is Natural Language Processing?
- What is Conversational AI?
- Natural Language Processing and conversational AI in Azure

Natural Language Processing capabilities in Azure

- Analyzing text
- Speech recognition and synthesis
- Conversational language understanding
- Question answering
- Azure Bot service



References

Read more about:

- Fundamentals of Text Analysis with the Language Service
- Fundamentals of Question Answering with the Language Service
- Fundamentals of Conversational Language Understanding
- Fundamentals of Azure AI Speech

Through the content on Learn: [Microsoft Azure AI Fundamentals: Natural Language Processing - Training | Microsoft Learn](#)



