Microsoft

AI-900

Natural Language Processing

NLP
Vision
Lang
Speech

LLM

GPT 3
4

openAI

Gemini
LLama

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AI-900 Agenda

1: AI Overview

2: Computer Vision

3: Natural Language Processing

4: Document Intelligence and Knowledge Mining

5: Generative AI LLM

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LP Agenda

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

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Natural Language Processing Concepts

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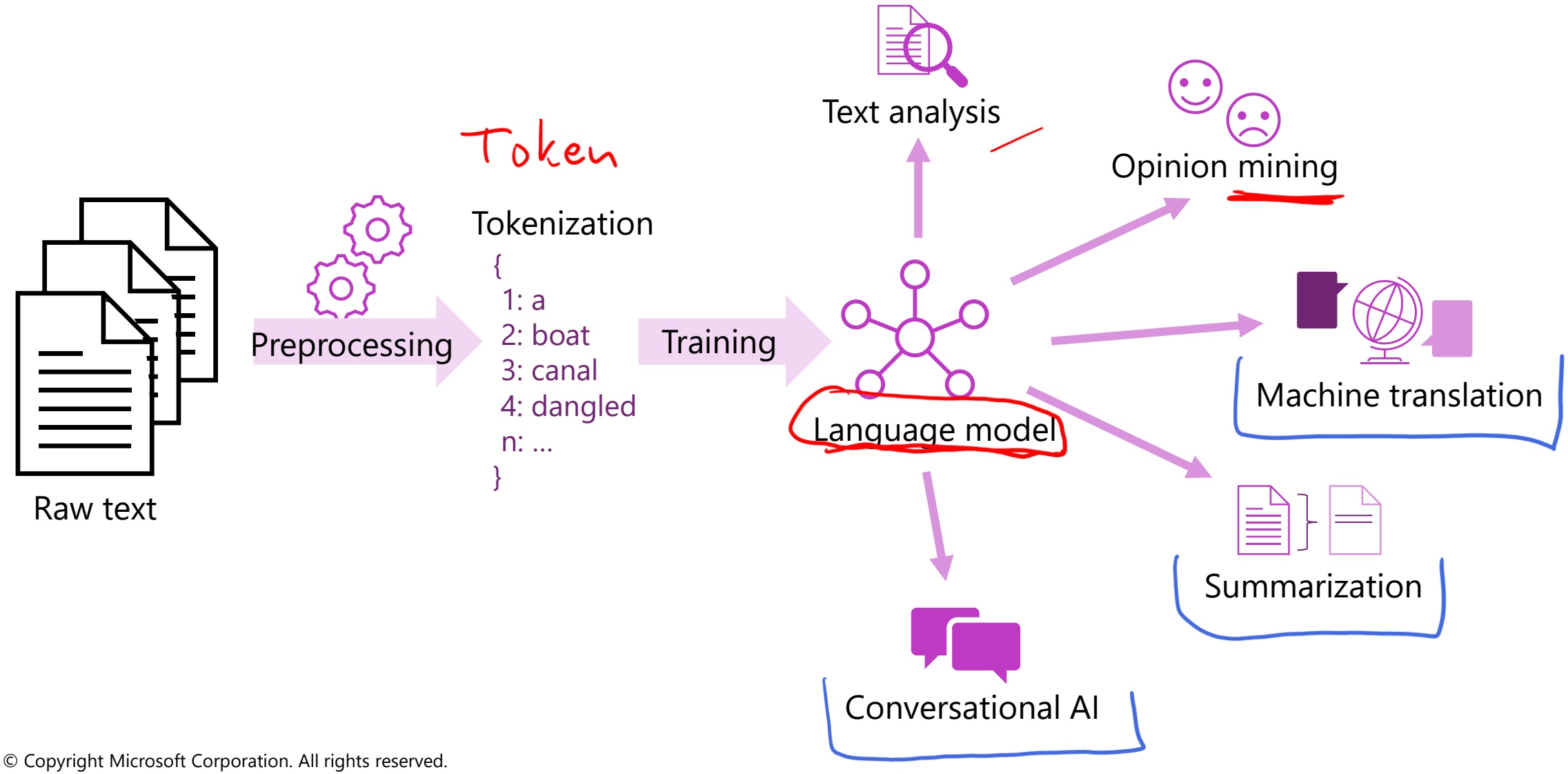
What is natural language processing?



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Natural language processing and conversational AI in Azure

Language	Speech	Translator
• Language detection • Key phrase extraction • Named entity detection • Sentiment analysis and opinion mining • Personal information detection • Summarization • Question answering • Conversational language understanding • …	• Text to speech • Speech to text • Speech translation • Speaker identification • Language identification • …	• Text translation • Document translation • Custom translation • …

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Natural Language Processing capabilities in Azure

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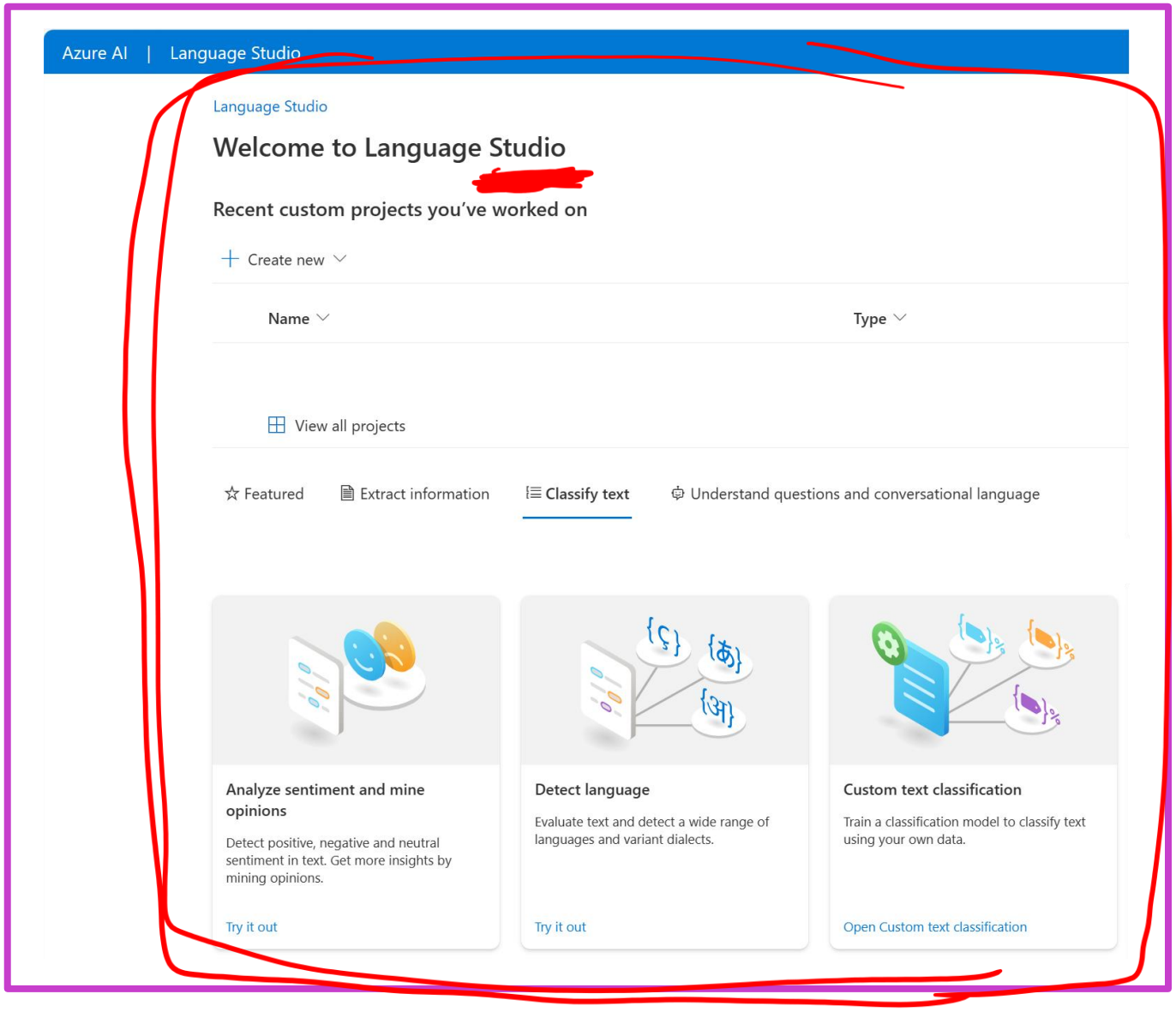
Analyzing text

I had a wonderful vacation in France.

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



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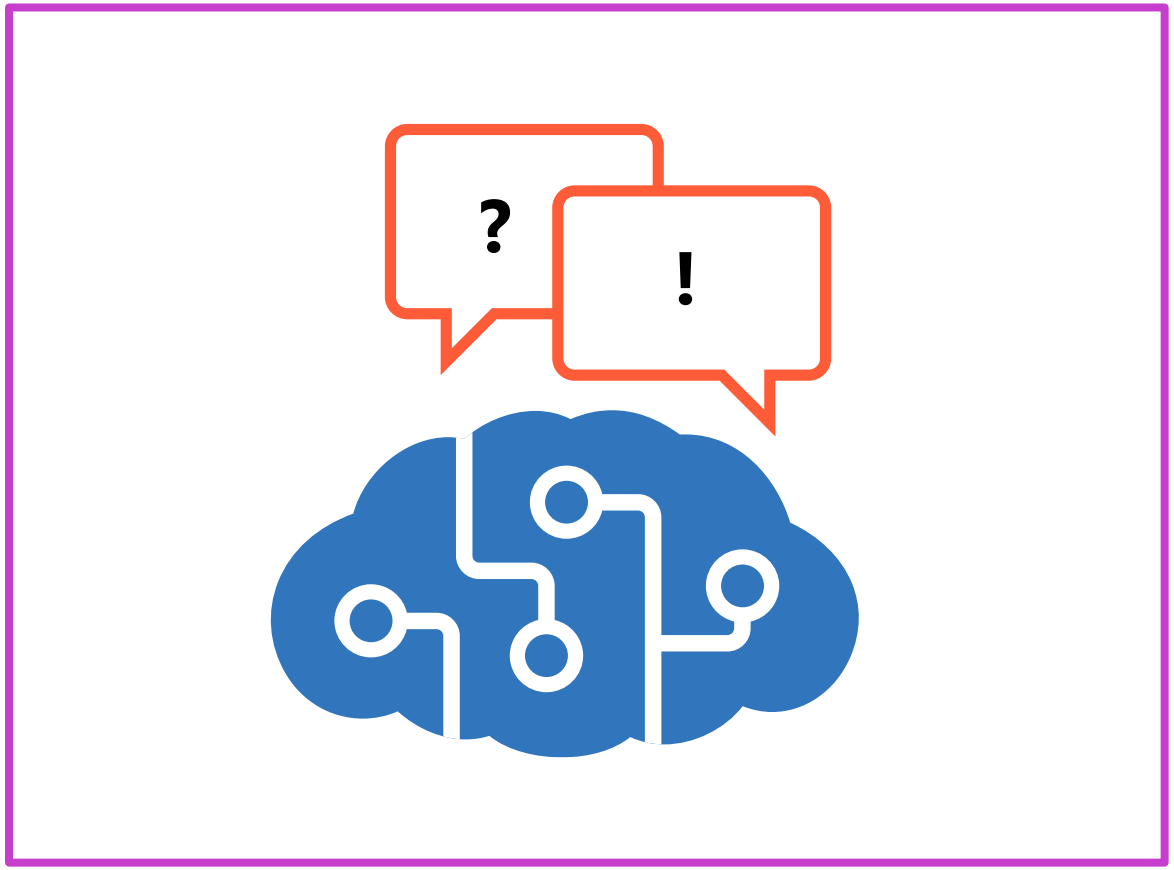
Question answering

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.



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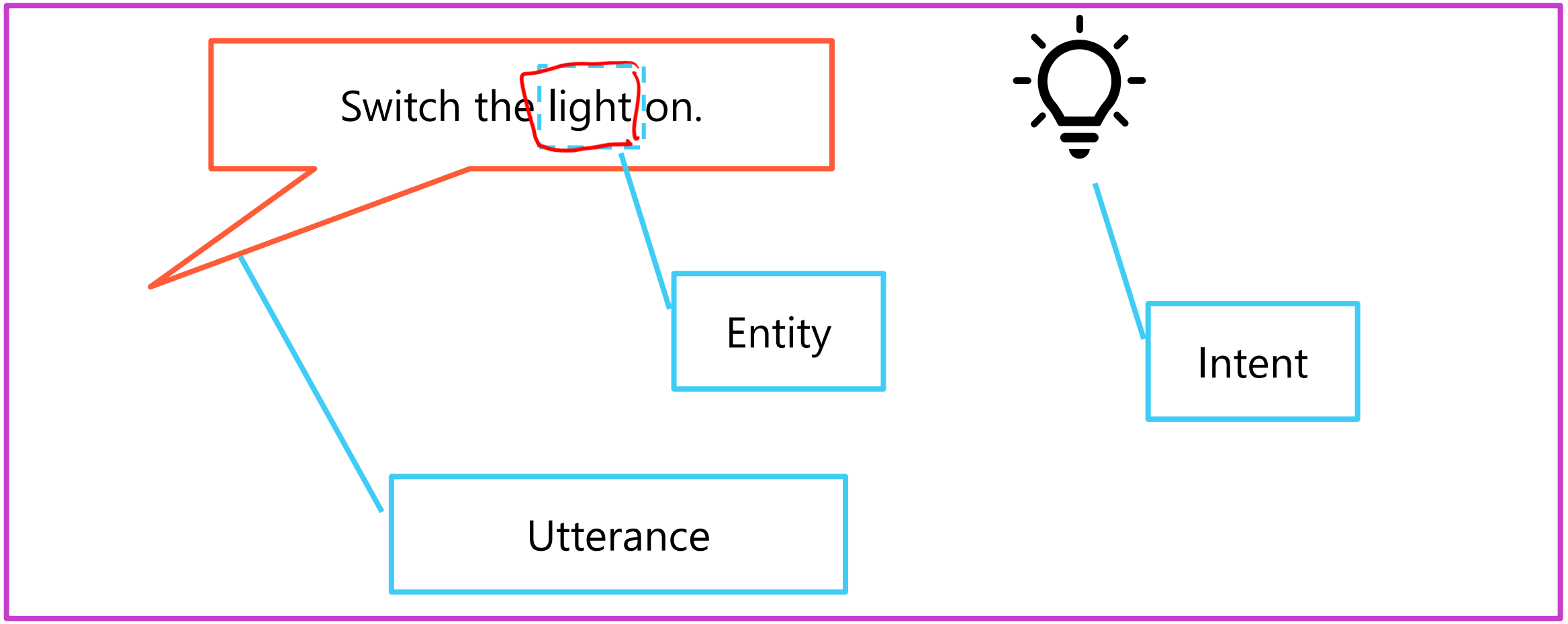
Conversational language understanding



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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

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Translation

Use the *text translation* capabilities of **Azure AI Translator** service to translate text from one language to others.

English → French
Have a good day → *Bonne journée*

Use the *speech translation* capabilities of **Azure AI Speech** service to generate translated speech.

Input audio (English) → Output audio (French)

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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**

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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

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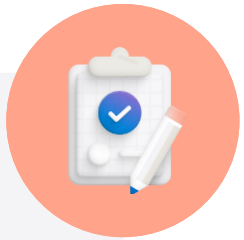
Summary



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

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