

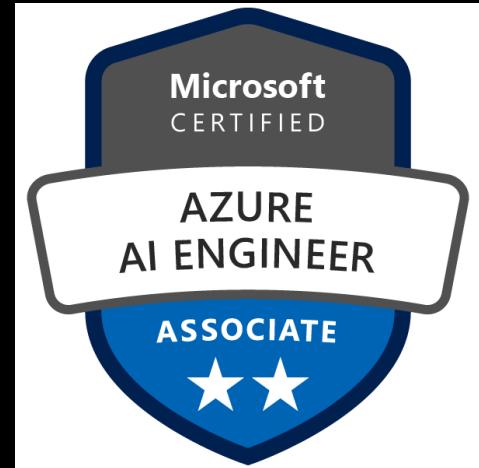
Challenge #4 // Part 4

Azure Cognitive Services

Bot Composer

IN THIS CHALLENGE:

17. Bot Composer Prep
18. Creating your First Bot
19. QnA Maker API
20. QnA Maker.ai
21. QnA Bot – The Code
22. OCR (javascript)
23. Text Analytics
24. Speech



This content is based on the main requirements for AI-102 Certification



Exam AI-102: Designing and Implementing a Microsoft Azure AI Solution

Candidates for Exam AI-102 should have subject matter expertise building, managing, and deploying AI solutions that leverage Azure Cognitive Services, Azure Cognitive Search, and Microsoft Bot Framework.

Candidates for this exam should be proficient in C#, Python, or JavaScript and should be able to use REST-based APIs and SDKs to build computer vision, natural language processing, knowledge mining, and conversational AI solutions on Azure. They should also understand the components that make up the Azure AI portfolio and the available data storage options. Plus, candidates need to understand and be able to apply responsible AI principles.



He can configure firewalls



See nobody cares,
we use cloud now

Before we start there are some important clarifications points:



- (1) Troubleshooting is REALLY important** – It is important for you to find the bugs in your code, env, IDE, etc.
- (2) The code IS JUST a code** – There are several ways to write a code and different languages. The examples here are just one way to do it.
- (3) This IS NOT a prep course** – The main goal here is to show the practical application of the Azure Resources with a focus on Enterprise AI solutions.
- (4) You won't be graded by the challenges** but, they are an important practical component in your learning experience.

Challenge #4.17

Bot Composer Prep

Bot

There are 3 different ways to prep your bot:

1 - Bot Framework Composer

2 - <https://www.qnamaker.ai/>

3 - Code

Install Bot Framework Composer x +

docs.microsoft.com/en-us/composer/install-composer

Microsoft | Docs Documentation Learn Q&A Code Samples

Search

Docs / Azure / Applied AI Services / Azure Bot Service / Bot Framework Composer / Installation / Install Composer

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Bot Framework Composer Documentation

> Overview

Installation

Install Composer

> Quickstart

> Tutorials

> Concepts

> Templates & Samples

> Develop

> Test

> Debug

> Provision

> Publish

> Glossary

> Resources

> Reference

Install Bot Framework Composer

05/19/2021 • 2 minutes to read • 5 contributors

APPLIES TO: Composer v1.x and v2.x

Get started with Bot Framework Composer by installing the desktop application for your operating system. For more advanced scenarios where you wish to customize the Composer application you can [build Composer from source](#).

[Download for Windows](#)

[Download for Mac OSX](#)

[Download for Linux](#)

Note

See [Supported OS versions](#) for a list of the supported OS versions.

Installation prerequisites

Node.js is a key pre-requisite for Composer, which you need to ensure is installed on your machine, for .NET based bots you'll also need the .NET Core SDK 3.1 or later. When you create a new project, Composer will warn you if these aren't installed.

- [Node.js](#). Use the latest LTS 14.x or 12.x release.
- [.NET Core SDK 3.1](#) or later.

Install Composer

[Download PDF](#)

<https://docs.microsoft.com/en-us/composer/install-composer>

Is this page helpful?

Yes No

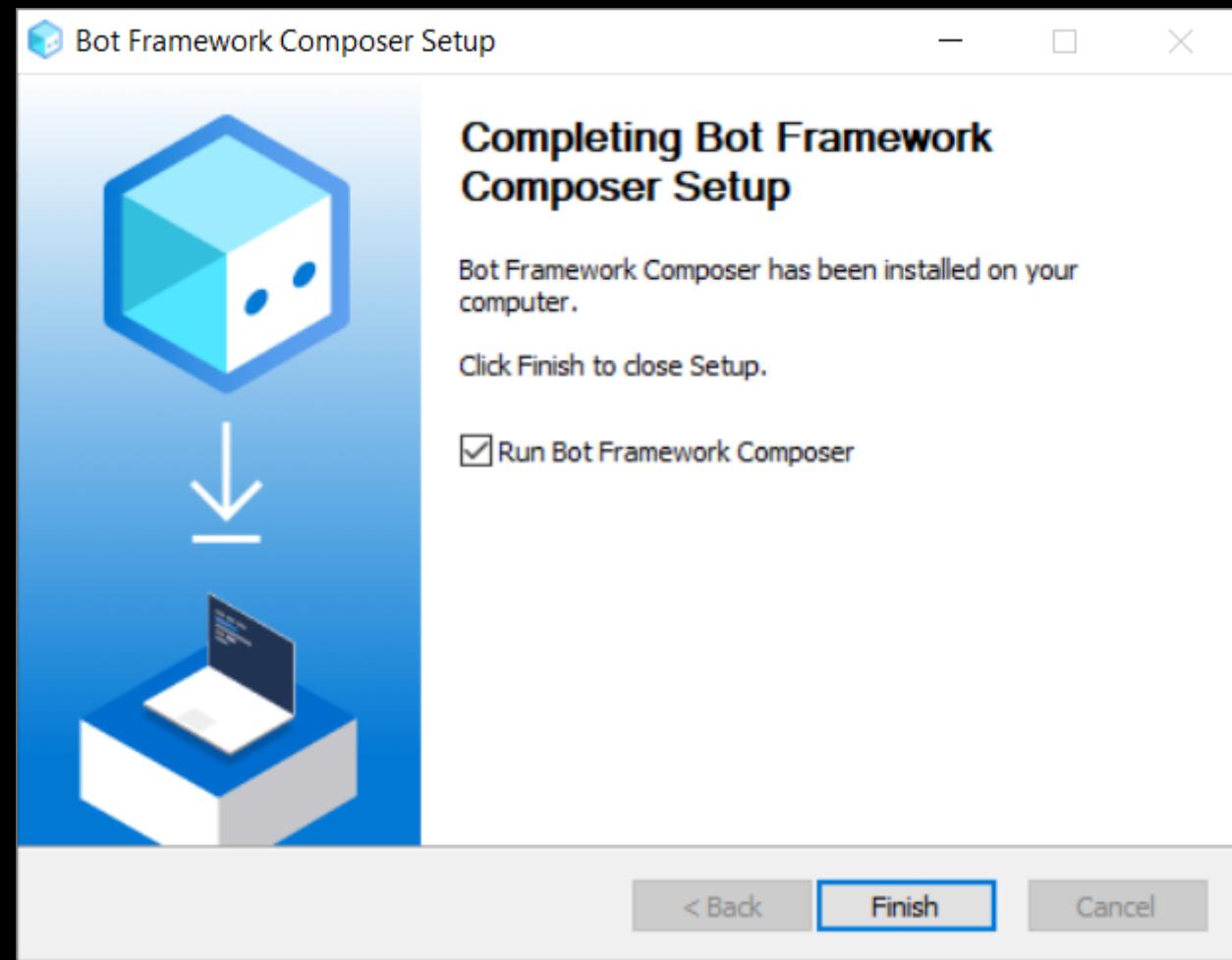
In this article

Installation prerequisites

Install Composer

Build Composer from source

Next steps



Installation Completed!





Collapse Navigation

Home

Create

Configure

User input

Bot responses

Knowledge base

Publish

Package manager

Welcome to Bot Framework Composer

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Open the product tour to learn about Bot Framework Composer or [create a new bot](#)

Resources



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Everything you need to build sophisticated conversational experiences

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Bot Framework Emulator

Test and debug your bots in Bot Framework Emulator

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Stack Overflow

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Home

Create

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User input

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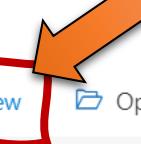
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[Download Emulator](#)**Stack Overflow**

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Select CREATE NEW



- Home
- Create
- Configure
- User input
- Bot responses
- Knowledge base
- Publish
- Package manager

Welcome

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+ Create

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Everything you need to know about the Bot Framework

Learn more

Composer settings

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Select a template

Microsoft's templates offer best practices for developing conversational bots.

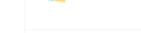
C# Node (Preview)



Empty Bot



Core Bot with Language



Core Bot with QnA Maker



Core Assistant Bot



Enterprise Assistant Bot



Enterprise Calendar Bot



Enterprise People Bot



Empty Bot

1.0.0

Node.js required

Bot Framework Composer requires Node.js in order to create and run a new bot. Click "Install Node.js" to install the latest version. You will need to restart Composer after installing Node.

Install Node.js

Cancel



Required Azure resources

- This template does not rely on any additional Azure resources

Supported languages

Cancel

Next

Download | Nodejs

nodejs.org/en/download/

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G

Downloads

Latest LTS Version: 14.17.1 (includes npm 6.14.13)

Download the Node.js source code or a pre-built installer for your platform, and start developing today.

LTS

Recommended For Most Users



Windows Installer

node-v14.17.1-x64.msi

Current

Latest Features



macOS Installer

node-v14.17.1.pkg



Source Code

node-v14.17.1.tar.gz

Windows Installer (.msi)

32-bit

64-bit

Windows Binary (.zip)

32-bit

64-bit

macOS Installer (.pkg)

64-bit

macOS Binary (.tar.gz)

64-bit

Select INSTALL NODE.JS

node-v14.17.1-x64.msi
29.2/29.2 MB

Show all

Challenge #4.18

Creating your First Bot

Bot Framework Composer

Bot Framework Composer, built on the Bot Framework SDK, is an [open-source IDE](#) for developers to [author, test, provision and manage](#) conversational experiences. It provides a powerful visual authoring canvas enabling dialogs, language-understanding models, QnAMaker knowledgebases and language generation responses to be authored from within one canvas and crucially, enables these experiences to be extended with code for more complex tasks such as system integration. Resulting experiences can then be tested within Composer and provisioned into Azure along with any dependent resources.



Welcome to Bot

Recent

+ Create new Open

Name

CoreWithQnA

Resources



Documentation

Everything you need to build sophisticated conversational experiences.

[Learn more](#)

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Microsoft Build
May 25–27, 2021
Digital event

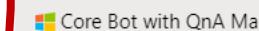
AI | The Show

All Around Azure
A Developer's Guide to AI

Select a template

Microsoft's templates offer best practices for developing conversational bots.

C# Node (Preview)



Core Bot with QnA Maker

1.0.0

A simple question-and-answer bot with Azure QnA Maker.

Recommended use

- Create a simple question-and-answer bot with Azure QnA Maker
- Customize and extend question-and-answer pairs or connect to your website's FAQ
- Extend your bot with [Azure Bot Framework components](#)

Included capabilities

- Answer questions from a QnA Maker knowledge base

Required Azure resources

- [Azure Language Understanding \(LUIS\)](#), or another recognizer of your choice

Cancel

Next

What's new

Conversational AI announcements at Microsoft Build 2021

Find out more about our latest release, including Composer 2.0, new...

Announcing Enterprise Assistant Bot Template and Conversational UX Guide

Find out more about the new Enterprise Assistant Bot template, to help yo...

Bot Framework Composer 1.3

New preview features: Form Dialogs, Orchestrator and Packag...

Build 2020 updates Read all of the updates from the Build conference, including Composer GA...

Microsoft Ignite 2020: Publish to Microsoft Power Virtual Agents Open a Power Virtual Agents topic in Bot



Welcome to Bot Framework Composer

Recent

+ Create new Open

Name

CoreWithQnA

Resources



Documentation

Everything you need to build sophisticated conversational experiences.

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Microsoft Build
May 25–27, 2021
Digital event

Create a bot project

Specify a name, description, and location for your new bot project.

Name *

myFirstBot

Runtime type

Azure Web App

Location

C:\Users\caio...

[Create new folder](#)

↓ Name

Date modified



..

a few seconds ago



3D Objects

4 months ago



AppData

4 months ago

Cancel

Next



What's new

Conversational AI announcements at Microsoft Build 2021

Find out more about our latest release, including Composer 2.0, new...

Announcing Enterprise Assistant Bot Template and Conversational UX Guide

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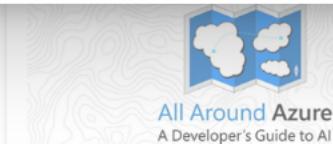
New preview features: Form Dialogs, Orchestrator and Packag...

Build 2020 updates

Read all of the updates from the Build conference, including Composer GA...

Microsoft Ignite 2020: Publish to Microsoft Power Virtual Agents

Open a Power Virtual Agents topic in Bot





- + Add
- myFirstBot
 - myFirstBot
 - Greeting
 - Unknown intent

[Edit](#)[Disable](#)

myFirstBot

[Show code](#)

Get started

Learn more

Recommended

- [Review your template readme](#)
Find additional template-specific guidance for setting up your bot. [Learn more](#)
- [Create a publishing profile](#)
A publishing profile provides the secure connectivity required to publish your bot. [Learn more](#)
- [Edit bot responses](#)
Define your bot's responses, add phrase variations, execute simple expressions based on context, or refer to conversational memory. [Learn more](#)
- [Edit user input and triggers](#)
Define user input and trigger phrases to direct the conversation flow. [Learn more](#)
- [Add packages](#)
Extend your bot with reusable dialogs, bot response templates and custom actions. [Learn more](#)
- [Enable App Insights](#)
Collect information about the use and performance of your bot. [Learn more](#)

Add QnA Maker knowledge base

Use Azure QnA Maker to extract question-and-answer pairs from an online FAQ. [Learn more](#)

Knowledge base name *

Windows_FAQ

FAQ website (source)

English (United States) *

<https://www.microsoft.com/en-ca/software-download/faq> Enable multi-turn extraction[Create custom knowledge base](#)[Cancel](#)[Create](#)

Frequently Asked Questions

microsoft.com/en-ca/software-download/faq

Microsoft | Software Download Windows Windows Insider Preview FAQ All Microsoft Search Sign in

Frequently Asked Questions

(-) Windows

(-) What's the difference between 32-bit and 64-bit versions of Windows?

The terms 32-bit and 64-bit refer to the way a computer's processor (also called a CPU) handles information. The 64-bit version of Windows handles large amounts of random access memory (RAM) more effectively than a 32-bit system. Not all devices can run the 64-bit versions of Windows.

(+) How do I tell if my computer can run a 64-bit version of Windows?

(+) How do I find my Windows product key?

(+) I purchased my copy of Windows through a university. Can I download it here?

(+) My Windows 7 product key won't verify. What's the problem?

(+) I don't see the Windows 8.1 or Windows 10 edition I'm looking for. Where else should I check?

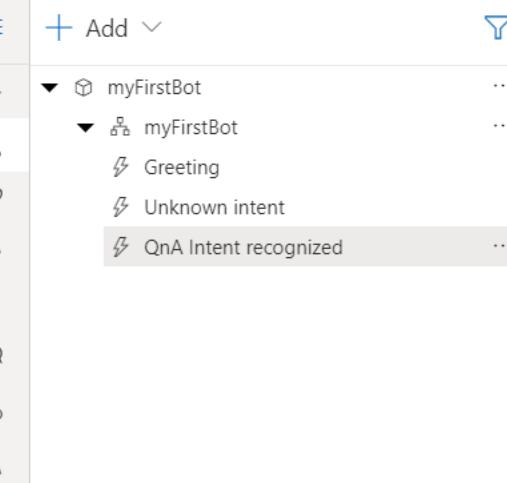
(+) I've created media using the media creation tool, now what do I do?

(+) I've downloaded an ISO file, now what?

<https://www.microsoft.com/en-ca/software-download/faq>



▶ Start bot



Edit ▾ Disable ▾

myFirstBot > QnA Intent recognized

⚡ QnA Intent recognized

QnA Intent recognized

Branch: If/else

count(turn.recognized.answers[0].context.prompts) > 0

True

Set a property

dialog.qnaContext :
=turn.recognized.answers[0].context.prompts

[Activity]

⌚ x1 = \${expandText(@answer)}
SuggestedActions =

Creating knowledge base...

Extracting question-and-answer pairs from https://www.microsoft.com/en-ca/software-download/faq

Recommended

Review your template readme
Find additional template-specific guidance for setting up your bot. [Learn more](#)

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A publishing profile provides the secure connectivity required to publish your bot. [Learn more](#)

Edit bot responses
Define your bot's responses, add phrase variations, execute simple expressions based on context, or refer to conversational memory. [Learn more](#)

Edit user input and triggers
Define user input and trigger phrases to direct the conversation flow. [Learn more](#)

Optional

Add packages
Extend your bot with reusable dialogs, bot response templates and custom actions. [Learn more](#)

Enable App Insights
Collect information about the use and performance of your bot. [Learn more](#)



Add ...

myFirstBot ...

- myFirstBot** ...
- Greeting
- Unknown intent
- QnA Intent recognized** ...

Edit ...

Disable ...

myFirstBot > QnA Intent recognized Show code

```

graph TD
    A[QnA Intent recognized] --> B{Branch: If/else}
    B --> C[Set a property]
    B --> D[Send a response]
    C --> E[Prompt for text]
    E --> F[Activity]
    F --> D
    
```

Branch: If/else

count(turn.recognized.answers[0].context.prompts) > 0

True

Set a property

dialog.qnaContext : =turn.recognized.answers[0].context.prompts

Prompt for text

[Activity]

False

Send a response

- \${expandText(@answer)}

Get started**Learn more****Required****Set up QnA Maker**

Use Azure QnA Maker to create a simple question-and-answer bot from a website FAQ. [Learn more](#)

**Recommended****Review your template readme**

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Edit user input and triggers

Define user input and trigger phrases to direct the conversation flow. [Learn more](#)

Optional**Add packages**

Extend your bot with reusable dialogs, hot



myFirstBot

Start bot



Delete bot

Configure your bot

myFirstBot (root)

Select region

Set up Language U

Azure QnA Maker

QnA Maker is an Azure website FAQ. [Learn more](#)

QnA Maker Subscription key

Type subscription key

(X) QnA Maker Subscript

Set up QnA

Microsoft App ID

An App ID is used for connecting your bot to other applications. Use an existing Microsoft App ID or create a new publishing profile for this bot.

Microsoft App Id [?](#)

Type App Id

Microsoft App Password [?](#)

Type App Password

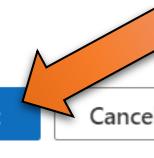
Set up QnA Maker

Use Azure QnA Maker to create a simple question-and-answer bot from a website FAQ. [Learn more](#)

 Use existing resources Create and configure new Azure resources Generate instructions for Azure administrator

Next

Cancel



Get started

Required

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✓ Edit user input and triggers

Define user input and trigger phrases to direct the conversation flow. [Learn more](#)

Optional

✓ Add packages

Extend your bot with reusable dialogs, hot

Problems Web Chat Output

Challenge #4.19

QnA Maker API

QnA Maker - Microsoft Azure x + ▼ - □ x

portal.azure.com/#blade/Microsoft_Azure_Marketplace/GalleryItemDetailsBladeNopdl/product/%7B"displayName"%3A"QnA%20Maker"%2C"itemDisplayName"%3A"QnA%20Maker"%2C"id"... ☆

Microsoft Azure Search resources, services, and docs (G+/) ≡ ? ? ? ? ? ?

Home > Create a resource >

QnA Maker Microsoft ... x

 **QnA Maker** Add to Favorites Microsoft 4.2 (171 ratings) Create

Overview Plans Usage Information + Support Reviews

QnA Maker is a cloud-based API service that lets you create a conversational question-and-answer layer over your existing data. Use it to build a knowledge base by extracting questions and answers from your semi-structured content, including FAQs, manuals, and documents. Answer users' questions with the best answers from the QnAs in your knowledge base -- automatically. Your knowledge base gets smarter, too, as it continually learns from user behavior.

More offers from Microsoft See All

 Workspace Microsoft Virtual Machine Azure Virtual Desktop resource	 Microsoft HPC Pack 2012 R2 Microsoft Virtual Machine Enterprise-class HPC solution. Easy to deploy, cost-effective and supports Windows/Linux workloads.	 Windows 10 IoT Core Services Microsoft Azure Service Commercialize your project with enterprise-grade security and support	 Web App + SQL Microsoft Azure Service Enjoy secure and flexible development, deployment, and scaling options for your web app
--	---	---	--

<https://portal.azure.com/#>

Select CREATE A NEW RESOURCE and select QnA MAKER / CREATE

Create - Microsoft Azure

portal.azure.com/#create/Microsoft.CognitiveServicesQnAMaker

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Create a resource > QnA Maker >

Create

QnA Maker

*** Basics** Tags Review + create

QnA Maker is a cloud-based API service that lets you create a conversational question-and-answer layer over your existing data. Use it to build a knowledge base by extracting questions and answers from your semi-structured content, including FAQs, manuals, and documents. Answer users' questions with the best answers from the QnAs in your knowledge base automatically. Your knowledge base gets smarter, too, as it continually learns from user behavior. [Learn more](#)

i QnA Maker managed (preview) is now a feature within Text Analytics, and it has been renamed to custom question answering. [Create a Text Analytics resource](#) to use question answering and other features such as entity recognition, sentiment analysis, etc.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ Free Trial

Resource group * ⓘ rg-caio-ai

Name * ⓘ qna-maker-caio

Pricing tier (Learn More) * ⓘ Free F0 (3 managed documents per month, 3 transactions per second)

Review + create Next : Tags >



Create - Microsoft Azure

portal.azure.com/#create/Microsoft.CognitiveServicesQnAMaker

Microsoft Azure Upgrade Search resources, services, and docs (G+/)

Home > Create a resource > QnA Maker >

Create

QnA Maker

Azure Search location * (US) East US

Azure Search pricing tier * Free F (3 Indexes)

App Service details - for runtime

When you create a QnAMaker resource, you host the runtime in your own Azure subscription. App Service is the compute engine that runs the QnA Maker queries for you.

App name * qna-maker-caio

Website location * (US) East US

Info The App service plan currently defaults to standard(S1) tier ([Pricing](#)). It can be modified by visiting the app service plan resource page once the resource has been created.

App insights details - for telemetry and chat logs

QnAMaker will optionally provision an instance of Application Insights and will appear in your Azure subscription. Telemetry and chatlogs will be stored here.

App insights [Enable](#) [Disable](#)

App insights location * (US) East US

[Review + create](#) [Next : Tags >](#)

https://portal.azure.com/#home

Create

QnA Maker

Project details

Subscription	Free Trial
Resource group	rg-caio-ai
Name	qna-maker-caio
Pricing tier	F0

Azure Search details - for data

Azure Search location	East US
Azure Search pricing tier	F

App Service details - for runtime

App name	qna-maker-caio
Website location	East US

App insights details - for telemetry and chat logs

App insights	Enabled
App insights location	East US

Validating... < Previous : Tags

Download a template for automation

Select CREATE



Azure services

Create a
resourceCost
Management ...

All resources

Azure Active
Directory

App Services



Policy



Subscriptions



Data factories



SQL databases



More services

Recent resources

Name	Type	Last Viewed
 qna-maker-caio	Cognitive Services	a few seconds ago
 rg-caio-ai	Resource group	a few seconds ago
 machinelearning-ai1006	Machine learning	17 hours ago
 machinelearning-caio	Machine learning	17 hours ago
 Free Trial	Subscription	17 hours ago
 computer-vision-caio	Cognitive Services	21 hours ago
 cognitiveservices-caio	Cognitive Services	21 hours ago
 storageaccountcaio	Storage account	21 hours ago
 face-api-ai1006	Cognitive Services	2 days ago
 language-understanding-ai1006-Authoring	Cognitive Services	2 days ago
 speech-ai1006	Cognitive Services	2 days ago
 translator-caio	Cognitive Services	6 days ago





myFirstBot

Start bot



Delete bot

Configure your bot

myFirstBot (root)

Select region

Set up Language U

Azure QnA Maker

QnA Maker is an Azure website FAQ. [Learn more](#)

QnA Maker Subscription key

Type subscription key

(X) QnA Maker Subscript

Set up QnA

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Type App Id

Microsoft App Password

Type App Password

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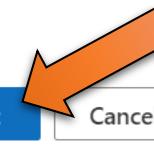


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Get started

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Required

Set up QnA Maker

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Recommended

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Define user input and trigger phrases to direct the conversation flow. [Learn more](#)

Optional

Add packages

Extend your bot with reusable dialogs, hot

Problems Web Chat Output



myFirstBot

Delete bot

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myFirstBot (root)

Select region

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Type subscription key

(X) QnA Maker Subscription key

Set up QnA

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Microsoft App Id [?](#)

Type App Id

Microsoft App Password [?](#)

Type App Password

Select QnA Maker resources

Select your Azure directory, then choose the subscription where your existing QnA Maker resource is located. [Learn more](#)

Azure directory *

Default Directory

Azure subscription *

Free Trial

QnA Maker resource name

qna-maker-caio

Back

Next

Cancel

Get started

Required

! Set up QnA Maker

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Extend your bot with reusable dialogs, hot



Delete bot

Configure your bot

myFirstBot (root)

Select region

Set up Language U

Azure QnA Maker

QnA Maker is an Azure website FAQ. [Learn more](#)

QnA Maker Subscription key

ea1f677965ef4f1d97fc

Set up QnA

Microsoft App ID

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Microsoft App Id [?](#)

Type App Id

Microsoft App Password [?](#)

Type App Password

Retrieve App ID

Select QnA Maker resources

X

The following QnA Maker keys have been successfully added to your bot project:

Key

Region
westus

Done



Get started

Learn more

Required

 Set up QnA Maker

Use Azure QnA Maker to create a simple question-and-answer bot from a website FAQ. [Learn more](#)

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Optional

 Add packages

Extend your bot with reusable dialogs, hot



Delete bot

Configure your bot

 Advanced Settings View (json)

myFirstBot (root)

Overview Development resources Connections Skill configuration Localization

Azure Language Understanding

Language Understanding (LUIS) is an Azure Cognitive Service that uses machine learning to understand natural language input and direct the conversation flow. [Learn more](#). Use an existing Language Understanding (LUIS) key from Azure or create a new key. [Learn more](#)

Application name ?

myFirstBot

Language Understanding authoring key ?

Type Language Understanding authoring key

Language Understanding region ?

Select region

Set up Language Understanding

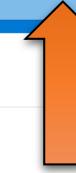
Azure QnA Maker

QnA Maker is an Azure Cognitive services that can extract question-and-answer pairs from a website FAQ. [Learn more](#). Use an existing key from Azure or create a new key. [Learn more](#).

QnA Maker Subscription key * ?

ea1f677965ef4f1d97f017f6e611b7b5

Starting your Bot



Delete bot

Configure your bot

myFirstBot (root)

Overview

Development resources

Connections

Skill configuration

Localization

Azure Language Understanding

Language Understanding (LUIS) is an Azure Cognitive Service that uses machine learning to understand natural language input and direct the conversation flow. [Learn more](#). Use an existing Language Understanding (LUIS) key from Azure or create a new key. [Learn more](#)

Application name

myFirstBot

Language Understanding authoring key

Type Language Understanding authoring key

Language Understanding region

Select region

Set up Language Understanding

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QnA Maker Subscription key *

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Delete bot

Configure your bot

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Type Language Understanding authoring key

Language Understanding region

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Set up Language Understanding

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QnA Maker Subscription key *

ea1f677965ef4f1d97f017f6e611b7b5

Local bot runtime manager

Start and stop local bot runtimes individually.

Bot	Status	
myFirstBot	Running	Open Web Chat Test in Emulator

Restart bot



Delete bot

Configure your bot

myFirstBot (root)

Overview Development resources Connections Skill configuration Localization

Azure Language Understanding

Language Understanding (LUIS) is an Azure Cognitive Service that uses machine learning to understand natural language input and direct the conversation flow. [Learn more](#). Use an existing Language Understanding (LUIS) key from Azure or create a new key. [Learn more](#)

Application name [?](#)

myFirstBot

Language Understanding authoring key [?](#)

Type Language Understanding authoring key

Language Understanding region [?](#)

Select region

Set up Language Understanding

Azure QnA Maker

QnA Maker is an Azure Cognitive services that can extract question-and-answer pairs from a website FAQ. [Learn more](#). Use an existing key from Azure or create a new key. [Learn more](#).

QnA Maker Subscription key * [?](#)

ea1f677965ef4f1d97f017f6e611b7b5

myFirstBot

Restart Conversation - new user ID

what is the difference between windows?

Just now

The terms 32-bit and 64-bit refer to the way a computer's processor (also called a CPU) handles information. The 64-bit version of Windows handles large amounts of random access memory (RAM) more effectively than a 32-bit system. Not all devices can run the 64-bit versions of Windows.

windows product key?

Just now

Windows 8.1 and Windows 10

The product key is located inside the product packaging, on the receipt or confirmation page for a digital purchase, or in a confirmation email that shows you purchased Windows. If you purchased a digital copy from [Microsoft Store](#)

, you can locate your product key in your [Account under Digital Content](#)

Type your message

Knowledge Base



- Home
- Create
- Configure
- User input
- Bot responses
- Knowledge base
- Publish
- Package manager

Knowledge (QnA)

Show code



▼
myFirstBot
...
myFirstBot

Question

Answer

Windows_FAQ ...

Add new question

Add new answer

What's the difference between 32-bit and 64-bit versions of Windows? (1)

The terms 32-bit and 64-bit refer to the way a computer's processor (also called a CPU) handles information. The 64-bit version of Windows handles large amounts of random access memory (RAM) more

How do I tell if my computer can run a 64-bit version of Windows? (1)

If you have a Windows operating system installed, open File Explorer or This PC. Right-click on This PC or Computer in the navigation pane and select

How do I find my Windows product key? (1)

Windows 8.1 and Windows 10

The product key is located inside the product packaging, on the receipt

I purchased my copy of Windows through a university. Can I download it here? (...)

Yes, but you'll need your product key. Go to the [Academic Products](https://www.microsoft.com/en-ca/software-download/vlacademic)

My Windows 7 product key won't verify. What's the problem? (1)

The most common issue is the use of a product key for a product that is not currently supported by the site such as an Upgrade key, an MSDN key, product keys for pre-installed media or an Enterprise edition key.



- Home
- Create
- Configure
- User input
- Bot responses
- Knowledge base
- Publish
- Package manager

Knowledge (QnA)

Show code



▼
myFirstBot
...
myFirstBot

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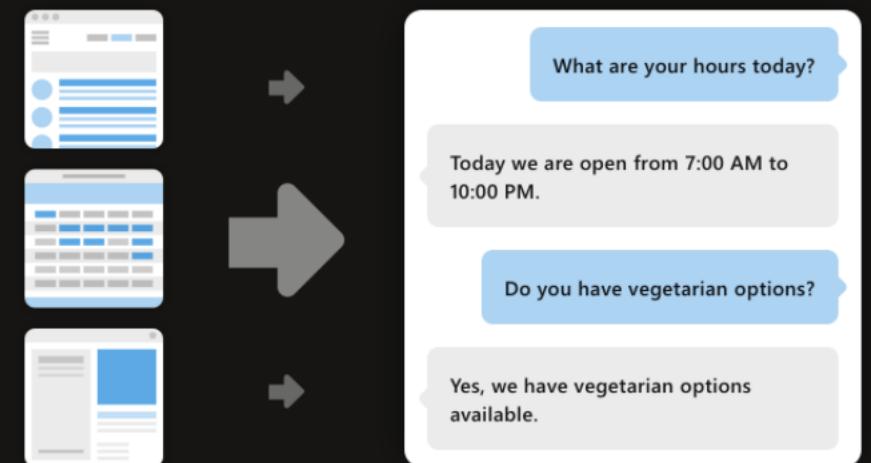
Challenge #4.20

<https://www.qnamaker.ai/>

From data to bot in minutes

Build, train and publish a sophisticated bot using FAQ pages, support websites, product manuals, SharePoint documents or editorial content through an easy-to-use UI or via REST APIs.

[Get started >](#)



ⓘ Help us improve QnA Maker

[Take our survey!](#)

X

My knowledge bases

caiogasparinegmail (Default Direct)

All subscriptions

All services

Knowledge base name	Last modified	Last published	Sample Code	Azure service name	
 myFirstBot(composer).en-us.qna	6/17/2021, 5:19:58 PM	6/17/2021, 5:20:05 PM	View Code	qna-maker-caio	



myFirstBot(composer).en-us.qna (Publ...)

EDIT

PUBLISH

SETTINGS

Save and train

← Test



Knowledge base

Search the KB



28 QnA pairs



Add QnA pair



View options

Enable rich editor



2

3

Next >

Question

Answer

Source: <https://www.microsoft.com/en-ca/software-download/faq>

What's the difference between 32-bit and 64-bit versions of Windows?

+ Add alternative phrasing

The terms 32-bit and 64-bit refer to the way a computer's processor (also called a CPU) handles information. The 64-bit version of Windows handles large amounts of random access memory (RAM) more effectively than a 32-bit system. Not all devices can run the 64-bit versions of Windows.



+ Add follow-up prompt

How do I tell if my computer can run a 64-bit version of Windows?

+ Add alternative phrasing

If you have a Windows operating system installed, open File Explorer or This PC. Right-click on This PC or Computer in the navigation pane and



myFirstBot(composer).en-us.qna (Publ...)

EDIT

PUBLISH

SETTINGS

Save and train

← Test

myFirstBot(composer).en-us.qna

Publishing your knowledge base moves your QnAs from the test index to the production index. Once you publish, the knowledge base endpoint becomes available for use in your Bot or App.

This knowledge base will be published to the [qna-maker-caio](#) QnA Maker service.

Cancel

Publish



Success! Your service has been deployed. What's next?

You can always find the deployment details in your service's settings.

Create Bot



[View](#) all your bots on the Azure Portal.

Use the below HTTP request to call your Knowledgebase. [Learn more.](#)

Postman Curl

```
POST /knowledgebases/d9f9f3b0-44c6-4c72-81d4-d9a8266f4466/generateAnswer
Host: https://qna-maker-caio.azurewebsites.net/qnamaker
Authorization: EndpointKey d05e9901-6f63-4eef-b100-c1f15f9905b4
Content-Type: application/json
{"question":"<Your question>"}
```

Need to fine-tune and refine? Go back and keep editing your service.

Edit Service

Microsoft Azure [Upgrade](#) [Search resources, services, and docs \(G+\)](#)

Home > Web App Bot ...

Bot Service

Pricing tier ([View full pricing details](#))
F0 (10K Premium Messages) 

App name * 

SDK language * C# Node.js 

QnA Auth Key *

*App service plan/Location
qna-maker-caio/East US

Application Insights 
On Off 

Application Insights Location *

Microsoft App ID and password 
Auto create App ID and password

[Create](#) [Automation options](#)

Microsoft Azure [Upgrade](#) [Search resources, services, and docs \(G+\)](#)

All services > All resources > bot-handle6

All resources

Default Directory

+ Create a resource Home Dashboard All services FAVORITES All resources Resource groups App Services Function App SQL databases Azure Cosmos DB Virtual machines Load balancers Storage accounts Virtual networks Azure Active Directory Monitor Advisor Security Center Cost Management + Bill...

[Create](#) [Manage view](#) ...

Filter for any field...

Name
bot-handle6
bot-handle6
bot-handle6vna533
cognitiveservices-caio
computer-vision-caio
df-caio-001
dlcaioai
face-api-ai1006
language-understanding-ai1006
language-understanding-ai1006-Aut...
machinelearnin0720013928
machinelearnin1030589640
machinelearnin1111828162

< Page 1 > of 1

<https://dev.botframework.com/bots/channels?id=bot-handle6&channelId=webchat>

bot-handle6 | Channels

Web App Bot

Search (Ctrl +/)

Overview Activity log Access control (IAM) Tags

Settings Bot profile Configuration

Channels Channels (Preview)

Pricing Test in Web Chat Encryption Properties Locks

Monitoring Conversational analytics

Connect to channels

Name	Health	Published
Web Chat	Running	--

[Edit](#) [Get bot embed codes](#)

Add a featured channel

More channels

<https://www.qnamaker.ai/>

Microsoft Azure [Upgrade](#) [Search resources, services, and docs \(G+\)](#)

All services > All resources > bot-handle6

All resources Default Directory

+ Create a resource Home Dashboard All services **FAVORITES** All resources Resource groups App Services Function App SQL databases Azure Cosmos DB Virtual machines Load balancers Storage accounts Virtual networks Azure Active Directory Monitor Advisor Security Center Cost Management + Bill...

bot-handle6 | Channels Web App Bot

Search (Ctrl+ /) Overview Activity log Access control (IAM) Tags

Name ↑

- bot-handle6** ...
- bot-handle6 ...
- bot-handle6vna533 ...
- cognitiveservices-caio ...
- computer-vision-caio ...
- df-caio-001 ...
- dlcaioai ...
- face-api-ai1006 ...
- language-understanding-ai1006 ...
- language-understanding-ai1006-Aut... ...
- machinelearnin0720013928 ...
- machinelearnin1030589640 ...
- machinelearnin1111828162 ...

Filter for any field...

Settings Bot profile Configuration **Channels** Channels (Preview)

Pricing Test in Web Chat Encryption Properties Locks

Monitoring Conversational analytics

Configure Web Chat

+ Add new site Default Site Disable |

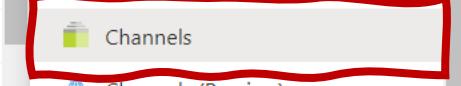
Default Site

Secret keys

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
[Show](#) | [Regenerate](#)

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
[Show](#) | [Regenerate](#)

Done



https://www.qnamaker.ai/

Copy the Embed code // iframe

Microsoft Azure [Upgrade](#) [Search resources, services, and docs \(G+\)](#)

All services > All resources > bot-handle6

All resources

Default Directory

+ Create a resource Home Dashboard All services **FAVORITES** All resources Resource groups App Services Function App SQL databases Azure Cosmos DB Virtual machines Load balancers Storage accounts Virtual networks Azure Active Directory Monitor Advisor Security Center Cost Management + Bill...

[Create](#) [Manage view](#) ...

Filter for any field...

Name	...
bot-handle6	...
bot-handle6	...
bot-handle6vna533	...
cognitiveservices-caio	...
computer-vision-caio	...
df-caio-001	...
dlcaioai	...
face-api-ai1006	...
language-understanding-ai1006	...
language-understanding-ai1006-Aut...	...
machinelearnin0720013928	...
machinelearnin1030589640	...
machinelearnin1111828162	...

bot-handle6 | Channels

Web App Bot

Default Site

Search (Ctrl+ /)

Overview Activity log Access control (IAM) Tags

Settings Bot profile Configuration

Channels

Channels (Preview) Pricing Test in Web Chat Encryption Properties Locks

Monitoring Conversational analytics

Secret keys

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Show | Regenerate

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Show | Regenerate

Embed code

```
<iframe src='https://webchat.botframework.com/embed/bot-handle6?s=YOUR_SECRET_HERE' style='min-width: 400px; width: 100%; min-height: 500px;'></iframe>
```

[Copy](#) Learn more about advanced customization options for Web Chat

Done

language-understanding-ai1006 x Notebooks - Microsoft Azure Ma +

ml.azure.com/fileexplorerAzNB?wsid=/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/workspaces/machinelearning-ai1006&tid=362067a6-2936-46... ☆

Microsoft Azure Machine Learning

Home > Notebooks

Success: Successfully uploaded all files

Notebooks

Files Samples

01a - Image Analysis with Computer Vision.ipynb
01b - Image Classification.ipynb
01c - Object Detection.ipynb
01d - Face Analysis.ipynb
01e - Optical Character Recognition.ipynb
01f - Receipts with Form Recognizer.ipynb
02a - Text Analytics.ipynb
02b - Speech.ipynb
02c - Translation.ipynb
02d - Language Understanding.ipynb
03a - QnA Bot.ipynb
CODE_OF_CONDUCT.md
LICENSE
README.md
SECURITY.md

02d - Language Unc x *03a - QnA Bot.ipynb x

ml-compute · Kernel not connected

7. Run the cell below by clicking the **Run cell** (>) button on the left of the cell to render the HTML.
8. In the HTML chat interface, test the bot by submitting a question, such as *Who is Margie?* or *What destinations can I go to?* (when the bot initializes, it may respond with the message *Hello and welcome* in addition to answering your question.).

1 %%html
2
3 <iframe src='https://webchat.botframework.com/embed/bot-handle6?s=YOUR_SECRET_HERE' style='border:none; width:100%; height:100px;'></iframe>
4

Experiment with the bot. You'll probably find that it can answer questions from the FAQ quite accurately, but it will have limited ability to interpret questions that it has not been trained with. You can always use the QnA Maker portal to edit the knowledge base to improve it, and republish it.

Learn More

- To learn more about the QnA Maker service, view [the QnA Maker documentation](#).
- To learn more about the Microsoft Bot Service, view [the Azure Bot Service page](#).

Paste your CODE here!

Microsoft Azure [Upgrade](#) [Search resources, services, and docs \(G+\)](#)

All services > All resources > bot-handle6

All resources

Default Directory

+ Create Manage view

Filter for any field...

Name	...
bot-handle6	...
bot-handle6	...
bot-handle6vna533	...
cognitiveservices-caio	...
computer-vision-caio	...
df-caio-001	...
dlcaioai	...
face-api-ai1006	...
language-understanding-ai1006	...
language-understanding-ai1006-Aut...	...
machinelearnin0720013928	...
machinelearnin1030589640	...
machinelearnin1111828162	...

bot-handle6 | Channels

Web App Bot

Search (Ctrl +/)

Overview

Activity log

Access control (IAM)

Tags

Settings

Bot profile

Configuration

Channels

Channels (Preview)

Pricing

Test in Web Chat

Encryption

Properties

Locks

Monitoring

Conversational analytics

+ Add new site

Default Site

Default Site

Secret keys

azMhFYhY4ag.TqWyNSLiHU4Yf5eymlqvsOuU0WjqSjbUUN

Hide | Regenerate

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Show | Regenerate

Embed code

```
<iframe src='https://webchat.botframework.com/embed/bot-handle6?s=YOUR_SECRET_HERE' style='min-width: 400px; width: 100%; min-height: 500px;'></iframe>
```

Done

Copy your Secret key

language-understanding-ai1006 x Notebooks - Microsoft Azure Ma +

ml.azure.com/fileexplorerAzNB?wsid=/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/workspaces/machinelearning-ai1006&tid=362067a6-2936-46... ☆

Microsoft Azure Machine Learning

Home > Notebooks

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Notebooks

Files Samples

01a - Image Analysis with Computer Vision.ipynb
01b - Image Classification.ipynb
01c - Object Detection.ipynb
01d - Face Analysis.ipynb
01e - Optical Character Recognition.ipynb
01f - Receipts with Form Recognizer.ipynb
02a - Text Analytics.ipynb
02b - Speech.ipynb
02c - Translation.ipynb
02d - Language Understanding.ipynb
03a - QnA Bot.ipynb
CODE_OF_CONDUCT.md
LICENSE
README.md
SECURITY.md

02d - Language Unc x 03a - QnA Bot.ipynb x

ml-compute · Kernel not connected

7. Run the cell below by clicking the **Run cell** (▶) button on the left of the cell to render the HTML.
8. In the HTML chat interface, test the bot by submitting a question, such as *Who is Margie?* or *What destinations can I go to?* (when the bot initializes, it may respond with the message *Hello and welcome* in addition to answering your question.).

Run cell

1
2
3 iework.com/embed/bot-handle6?s=azMhFYhY4ag.TqWyNSLiHU4Yf5eymIqvsOuU0WjqSjbUUNzfDsJZos' s
4

Experiment with the bot. You'll probably find that it can answer questions from the FAQ quite accurately, but it will have limited ability to interpret questions that it has not been trained with. You can always use the QnA Maker portal to edit the knowledge base to improve it, and republish it.

Learn More

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- To learn more about the Microsoft Bot Service, view [the Azure Bot Service page](#).

Start the cell to RUN your code

language-understanding-ai1006 x Notebooks - Microsoft Azure Ma x +

ml.azure.com/fileexplorerAzNB?wsid=/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/workspaces/machinelearning-ai1006&tid=362067a6-293... ? ☆ ○

Microsoft Azure Machine Learning

Home > Notebooks

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Notebooks

Files Samples

02d - Language Unc x 03a - QnA Bot.ipynb x

ml-compute - Kernel idle

Python 3.6.9

.gitignore
01a - Image Analysis with Computer Vision.ipynb
01b - Image Classification.ipynb
01c - Object Detection.ipynb
01d - Face Analysis.ipynb
01e - Optical Character Recognition.ipynb
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ML_CODE_OF_CONDUCT.md
LICENSE
ML README.md
ML SECURITY.md
setup.cmd
regression-automl-nyc-taxi-data
.amlignore
text-translator.ipynb

ml-compute - Running

Python 3.6 - AzureML

7

Free Trial machinelearning-ai1006 CG

ml-compute - Kernel idle

1
2
3 rework.com/embed/bot-handle6?s=azMhFYhY4ag.TqWyNSLiHU4Yf5eymIqvsOuU0WjqSjbUUNzfDsJZos style='min-width: 400px; width: 100%; min-height: 500px;
4
✓ <1 sec

Welcome to the QnA Maker sample! Ask me a question and I will try to answer it.

Hi! ;-} How are you doing?

The terms 32-bit and 64-bit refer to the way a computer's processor (also called a CPU) handles information. The 64-bit version of Windows handles large amounts of random access memory (RAM) more effectively than a 32-bit system. Not all devices can run the 64-bit versions of Windows.

Windows 64

Type your message

Your bot is RUNNING!

Steps to create your Chat Bot

- 1 – Create Q&A – Azure Portal
- 2 – Go to qnamaker.ai
- 3 – Create QnA
- 4 – KB definition
- 5 – Upload doc
- 6 – Add URL
- 7 – Create KB
- 8 – Add questions // if required
- 9 – Save and Train
- 10 – Test
- 11 – Publish
- 12 – Create a bot App
- 13 – Azure Portal – Channels
- 14 – Copy iframe + Secret

Challenge #4.21

QnA Bot – The Code

language-understanding-ai1006 x Notebooks - Microsoft Azure Ma +

ml.azure.com/fileexplorerAzNB?wsid=/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/workspaces/machinelearning-ai1006&tid=362067a6-2936-46... ☆

Microsoft Azure Machine Learning

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02a - Text Analytics.ipynb
02b - Speech.ipynb
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README.md
SECURITY.md

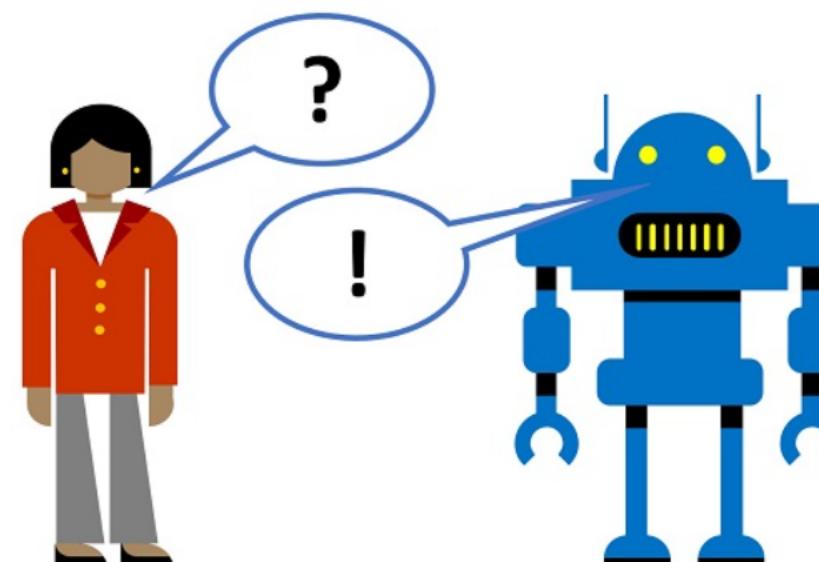
02d - Language Unc x 03a - QnA Bot.ipynb x

ml-compute · Kernel idle

Python 3.6.9

Conversational AI

Think about how often you communicate with other people through instant messaging, social media, email, or other online technologies. For many of us, it's our go-to form of contact. When you have a question at work, you might reach out to a colleague using a chat message, which you can use on mobile devices, so you're always in touch.



An orange arrow points from the '03a - QnA Bot.ipynb' file in the left sidebar towards the main workspace area.

Challenge #4.22

OCR - javascript

cognitive-services-quickstart-cod x +

github.com/Azure-Samples/cognitive-services-quickstart-code/blob/master/javascript/ComputerVision/REST/javascript-print-text.md

Raw Blame

```
<!DOCTYPE html>
<html>
<head>
    <title>OCR Sample</title>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/1.9.0/jquery.min.js"></script>
</head>
<body>

<script type="text/javascript">
    function processImage() {
        // *****
        // *** Update or verify the following values. ***
        // *****

        var subscriptionKey = document.getElementById("subscriptionKey").value;
        var endpoint = document.getElementById("endpointUrl").value;

        var uriBase = endpoint + "vision/v3.1/ocr";

        // Request parameters.
        var params = {
            "language": "unk",
            "detectOrientation": "true",
        };

        // Display the image.
        var sourceImageUrl = document.getElementById("inputImage").value;
        document.querySelector("#sourceImage").src = sourceImageUrl;

        // Perform the REST API call.
        $.ajax({
```

cognitive-services-quickstart-cod x +

github.com/Azure-Samples/cognitive-services-quickstart-code/tree/master/javascript

Why GitHub? Team Enterprise Explore Marketplace Pricing

Search Sign in Sign up

Azure-Samples / cognitive-services-quickstart-code

Code Issues 9 Pull requests 12 Actions Projects Wiki Security Insights

master cognitive-services-quickstart-code / javascript / Go to file

orenmichaely and ormichae Ormichae/quickstartfixes (#252) ... 7c5c225 1 hour ago History

...

📁	AnomalyDetector	Update Anomaly Detector SDK to t2
📁	AutoSuggest	Initial commit
📁	BingLocal	Updated env variables to standard
📁	BingSpellCheck	Formatting corrections
📁	ComputerVision	split comvis qss
📁	ContentModerator	Initial commit for Human Reviews example (#21)
📁	CustomSearch	Updated file name
📁	CustomVision	Update CustomVisionQuickstart.js
📁	Face	Update sample code using the latest detection model: detection_03, an...
📁	FormRecognizer	add snippets

<https://github.com/Azure-Samples/cognitive-services-quickstart-code/tree/master/javascript>

[Why GitHub?](#) ▼ [Team](#) [Enterprise](#) [Explore](#) ▼ [Marketplace](#) [Pricing](#) ▼ Search 🔍[Sign in](#)[Sign up](#)[Azure-Samples / cognitive-services-quickstart-code](#)[Notifications](#)[Star](#) 138[Fork](#) 242[Code](#)[Issues 9](#)[Pull requests 12](#)[Actions](#)[Projects](#)[Wiki](#)[Security](#)[Insights](#)[master](#) ▼[cognitive-services-quickstart-code / javascript / ComputerVision / REST / javascript-print-text.md](#)[Go to file](#)...[PatrickFarley](#) add more qs files ✓Latest commit d2441bd on Dec 4, 2020 [History](#)[1 contributor](#)

234 lines (205 sloc) | 8.03 KB

[Raw](#) [Blame](#)

Quickstart: Extract printed text (OCR) using the Computer Vision REST API and JavaScript

[!NOTE] If you're extracting English language text, consider using the new [Read operation](#). A [JavaScript quickstart](#) is available.

In this quickstart, you'll extract printed text with optical character recognition (OCR) from an image using the Computer Vision REST API. With the [OCR](#) method, you can detect printed text in an image and extract recognized characters into a machine-readable character stream.

Prerequisites

<https://github.com/Azure-Samples/cognitive-services-quickstart-code/blob/master/javascript/ComputerVision/REST/javascript-print-text.md>

cognitive-services-quickstart-cod x +

github.com/Azure-Samples/cognitive-services-quickstart-code/blob/master/javascript/ComputerVision/REST/javascript-print-text.md

Raw Blame

Copied! ✓

```
<!DOCTYPE html>
<html>
<head>
    <title>OCR Sample</title>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/1.9.0/jquery.min.js"></script>
</head>
<body>

<script type="text/javascript">
    function processImage() {
        // *****
        // *** Update or verify the following values. ***
        // *****

        var subscriptionKey = document.getElementById("subscriptionKey").value;
        var endpoint = document.getElementById("endpointUrl").value;

        var uriBase = endpoint + "vision/v3.1/ocr";

        // Request parameters.
        var params = {
            "language": "unk",
            "detectOrientation": "true",
        };

        // Display the image.
        var sourceImageUrl = document.getElementById("inputImage").value;
        document.querySelector("#sourceImage").src = sourceImageUrl;

        // Perform the REST API call.
        $.ajax({
```

Copy the code and save it in a HTML file

Optical Character Recognition (OCR):

Enter the URL to an image of printed text, then click the **Read image** button.

Subscription key: Endpoint URL:

Image to read:

Response:

Source image:



cognitiveservices-caio - Microsoft

portal.azure.com/#@craigasparine@gmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourceGroups/rg-caio-ai/providers/Microsoft.Cogniti...

Microsoft Azure Upgrade Search resources, services, and docs (G+/-) 1 ? ? caigasparine@gmail.c... DEFAULT DIRECTORY

Create a resource Home Dashboard All services **FAVORITES** All resources Resource groups App Services Function App SQL databases Azure Cosmos DB Virtual machines Load balancers Storage accounts Virtual networks Azure Active Directory Monitor Advisor Security Center Cost Management + Bill...

Home > cognitiveservices-caio

cognitiveservices-caio | Keys and Endpoint

Cognitive Services

Search (Ctrl+/)

Regenerate Key1 Regenerate Key2

These keys are used to access your Cognitive Service API. Do not share your keys. Store them securely—for example, using Azure Key Vault. We also recommend regenerating these keys regularly. Only one key is necessary to make an API call. When regenerating the first key, you can use the second key for continued access to the service.

Show Keys

KEY 1
..... 

KEY 2
..... 

Location  brazilsouth

Endpoint  https://cognitiveservices-caio.cognitiveservices.azure.com/



Go to your COGNITIVE SERVICES and copy your KEY and ENDPOINT

Optical Character Recognition (OCR):

Enter the URL to an image of printed text, then click the **Read image** button.

Subscription key: Endpoint URL:



Image to read: <https://upload.wikimedia.org>

Response:

Source image:



Paste your SUBSCRIPTION KEY and your ENDPOINT URL

Optical Character Recognition (OCR):

Enter the URL to an image of printed text, then click the **Read image** button.

Subscription key: 95dc4c5dc65c4075a62bb8 Endpoint URL: <https://cognitiveservices-cs>

Image to read: <https://upload.wikimedia.org>

Response:

```
{  
  "language": "en",  
  "textAngle": 0,  
  "orientation": "Up",  
  "regions": [  
    {  
      "boundingBox": "21,16,304,451",  
      "lines": [  
        {  
          "boundingBox": "28,16,288,41",  
          "words": [  
            {  
              "boundingBox": "28,16,288,41",  
              "text": "NOTHING"  
            }  
          ]  
        },  
        {  
          "boundingBox": "27,66,283,52",  
          "words": [  
            {  
              "boundingBox": "27,66,283,52",  
              "text": "EXISTS"  
            }  
          ]  
        }  
      ]  
    }  
  ]  
}
```

Source image:



Run the HTML code

Optical Character Recognition (OCR):

Enter the URL to an image of printed text, then click the **Read image** button.

Subscription key: 95dc4c5dc65c4075a62bb8 Endpoint URL: https://cognitiveservices-ca

Image to read: [https://jeroen.github.io/ma](https://jeroen.github.io/ima)

Response:

```
{  
  "language": "en",  
  "textAngle": 0,  
  "orientation": "Up",  
  "regions": [  
    {  
      "boundingBox": "36,92,582,269",  
      "lines": [  
        {  
          "boundingBox": "36,92,544,30",  
          "words": [  
            {  
              "boundingBox": "36,92,60,24",  
              "text": "This"  
            },  
            {  
              "boundingBox": "109,92,20,24",  
              "text": "is"  
            },  
            {  
              "boundingBox": "141,98,15,18",  
              "text": "a"  
            },  
            {  
              "boundingBox": "169,92,32,24",  
              "text": "lot"  
            }  
          ]  
        ]  
      ]  
    }  
  ]  
}
```

Source image:

This is a lot of 12 point text to test the
ocr code and see if it works on all types
of file format.
The quick brown dog jumped over the
lazy fox. The quick brown dog jumped
over the lazy fox. The quick brown dog
jumped over the lazy fox. The quick
brown dog jumped over the lazy fox.

Image link: <https://jeroen.github.io/images/testocr.png>

Optical Character Recognition (OCR):

Enter the URL to an image of printed text, then click the **Read image** button.

Subscription key: 95dc4c5dc65c4075a62bb8 Endpoint URL: https://cognitiveservices-cs

Image to read: <https://courses.cs.vt.edu/cs>

Response:

```
{  
  "language": "en",  
  "textAngle": 0,  
  "orientation": "Up",  
  "regions": [  
    {  
      "boundingBox": "55,110,459,660",  
      "lines": [  
        {  
          "boundingBox": "227,110,117,10",  
          "words": [  
            {  
              "boundingBox": "227,110,97,10",  
              "text": "CHAPTER"  
            },  
            {  
              "boundingBox": "338,110,6,10",  
              "text": "i"  
            }  
          ]  
        },  
        {  
          "boundingBox": "107,147,354,14",  
          "words": [  
            {  
              "boundingBox": "107,147,32,14",  
              "text": "AN"  
            }  
          ]  
        }  
      ]  
    }  
  ]  
}
```

Source image:

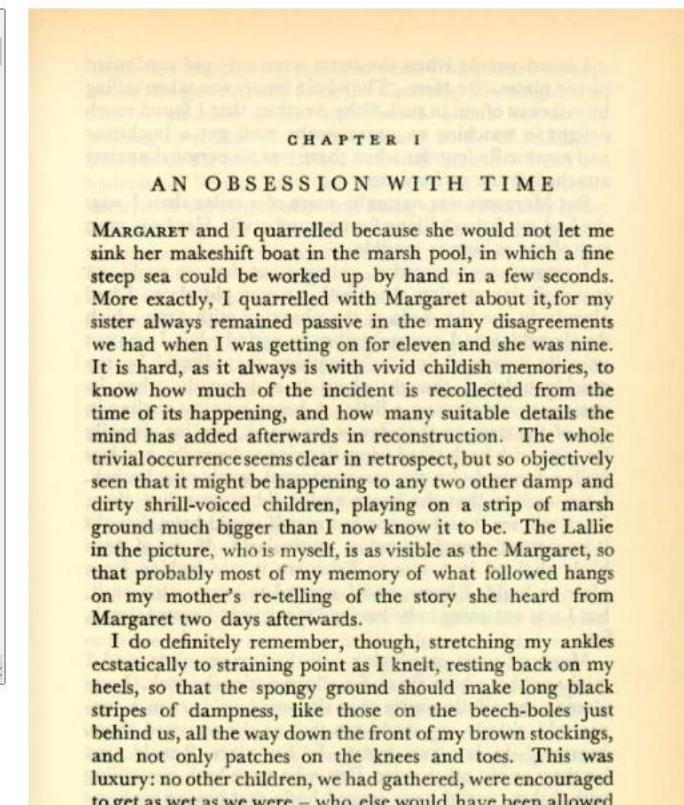


Image link: https://courses.cs.vt.edu/csonline/AI/Lessons/VisualProcessing/OCRscans_files/robertson.jpg

Optical Character Recognition (OCR):

Enter the URL to an image of printed text, then click the **Read image** button.

Subscription key: Endpoint URL:

Image to read:

Response:

```
{  
    "language": "unk",  
    "textAngle": 0,  
    "orientation": "NotDetected",  
    "regions": []  
}
```

Source image:

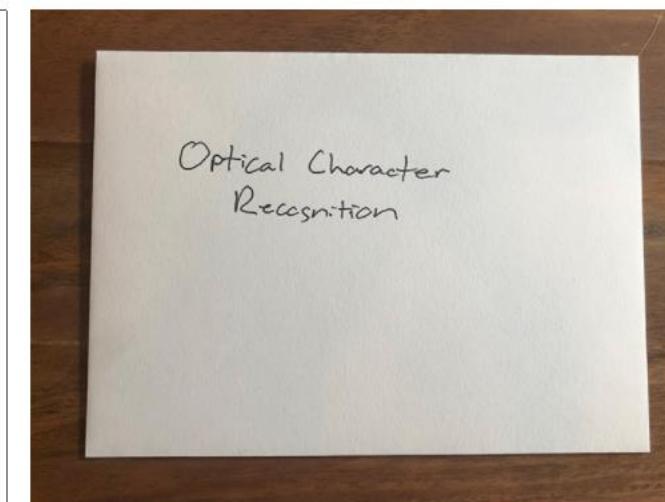


Image link: https://www.pyimagesearch.com/wp-content/uploads/2020/08/ocr_handwriting_reco_adrian_sample.jpg

Challenge #4.23

Text Analytics

What is Text Analytics?

Mine insights in unstructured text using natural language processing (NLP)—no machine learning expertise required. Gain a deeper understanding of customer opinions with sentiment analysis. Identify key phrases and entities such as people, places, and organizations to understand common topics and trends. Classify medical terminology using domain-specific, pretrained models. Evaluate text in a wide range of languages.

*The **Text Analytics API** is a cloud-based service that provides NLP features for **text mining and text analysis**, including **sentiment analysis**, **opinion mining**, **key phrase extraction**, **language detection**, and **named entity recognition**.*

What is Text Analytics?

We went to Contoso Steakhouse located at midtown NYC last week for a dinner party, and we adore the spot! They provide marvelous food and they have a great menu. The chief cook happens to be the owner (I think his name is John Doe) and he is super nice, coming out of the kitchen and greeted us all. We enjoyed very much dining in the place! The Sirloin steak I ordered was tender and juicy, and the place was impeccably clean. You can even pre-order from their online menu at www.contososteakhouse.com, call 312-555-0176 or send email to order@contososteakhouse.com! The only complaint I have is the food didn't come fast enough. Overall I highly recommend it!



Text Analytics

- *Detect Language*
- *Extract Key Phrases*
- *Determine Sentiment*
- *Extract Known Entities*

<https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/quickstarts/client-libraries-rest-api?tabs=version-3-1&pivots=programming-language-python>

jupyter AIDI1006-text-analytics (autosaved)

Logout

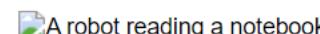
File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

Run

Text Analytics

Natural Language Processing (NLP) is a branch of artificial intelligence (AI) that deals with written and spoken language. You can use NLP to build solutions that extract semantic meaning from text or speech, or that formulate meaningful responses in natural language.

Microsoft Azure *cognitive services* includes the *Text Analytics* service, which provides some out-of-the-box NLP capabilities, including the identification of key phrases in text, and the classification of text based on sentiment.



For example, suppose the fictional *Margie's Travel* organization encourages customers to submit reviews for hotel stays. You could use the Text Analytics service to summarize the reviews by extracting key phrases, determine which reviews are positive and which are negative, or analyze the review text for mentions of known entities such as locations or people.

View Review Documents

Let's start by taking a look at some hotel reviews that have been left by customers.

The reviews are in text files. To see them, just run the code below by clicking the **Run cell** (>) button to the left of the cell.

```
In [1]: import os

# Read the reviews in the /data/reviews folder
reviews_folder = os.path.join('data', 'text', 'reviews')

# Create a collection of reviews with id (file name) and text (contents) properties
reviews = []
for file_name in os.listdir(reviews_folder):
    review_text = open(os.path.join(reviews_folder, file_name)).read()
```

localhost:8889/notebooks/AIDI1006-text-analytics.ipynb

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In [2]:

```
cog_key = '1b0fded66c0e4eed9026433d6ef56dcf'
cog_endpoint = 'https://cognitive-services-ai1006.cognitiveservices.azure.com/'

print('Ready to use cognitive services at {} using key {}'.format(cog_endpoint, cog_key))
```

Ready to use cognitive services at <https://cognitive-services-ai1006.cognitiveservices.azure.com/> using key 1b0fded66c0e4eed9026433d6ef56dcf

To use the Text Analytics service in your Cognitive Services resource, you'll need to install the Azure Cognitive Services Text Analytics SDK.

In [3]:

```
! pip install azure-cognitiveservices-language-textanalytics
```

Collecting azure-cognitiveservices-language-textanalytics
Using cached azure_cognitiveservices_language_textanalytics-0.2.0-py2.py3-none-any.whl (43 kB)
Requirement already satisfied: msrest>=0.5.0 in c:\programdata\anaconda3\lib\site-packages (from azure-cognitiveservices-language-textanalytics) (0.6.21)
Requirement already satisfied: azure-common~=1.1 in c:\programdata\anaconda3\lib\site-packages (from azure-cognitiveservices-language-textanalytics) (1.1.27)
Requirement already satisfied: certifi>=2017.4.17 in c:\programdata\anaconda3\lib\site-packages (from msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (2020.12.5)
Requirement already satisfied: isodate>=0.6.0 in c:\programdata\anaconda3\lib\site-packages (from msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (0.6.0)
Requirement already satisfied: requests-oauthlib>=0.5.0 in c:\programdata\anaconda3\lib\site-packages (from msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (1.3.0)
Requirement already satisfied: requests~=2.16 in c:\programdata\anaconda3\lib\site-packages (from msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (2.25.1)
Requirement already satisfied: six in c:\programdata\anaconda3\lib\site-packages (from isodate>=0.6.0->msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (1.15.0)
Requirement already satisfied: chardet<5,>=3.0.2 in c:\programdata\anaconda3\lib\site-packages (from requests~=2.16->msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (4.0.0)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\programdata\anaconda3\lib\site-packages (from requests~=2.16->msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (1.26.4)
Requirement already satisfied: idna<3,>=2.5 in c:\programdata\anaconda3\lib\site-packages (from requests~=2.16->msrest>=0.5.0->azure-cognitiveservices-language-textanalytics) (2.10)

Fill out the information about your URL endpoint and keys (COGNITIVE SERVICES)

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In [4]:

```
import os
from azure.cognitiveservices.language.textanalytics import TextAnalyticsClient
from msrest.authentication import CognitiveServicesCredentials

# Get a client for your text analytics cognitive service resource
text_analytics_client = TextAnalyticsClient(endpoint=cog_endpoint,
                                             credentials=CognitiveServicesCredentials(cog_key))

# Analyze the reviews you read from the /data/reviews folder earlier
language_analysis = text_analytics_client.detect_language(documents=reviews)

# print detected language details for each review
for review_num in range(len(reviews)):
    # print the review id
    print(reviews[review_num]['id'])

    # Get the language details for this review
    lang = language_analysis.documents[review_num].detected_languages[0]
    print(' - Language: {} \n - Code: {} \n - Score: {}'.format(lang.name, lang.iso6391_name, lang.score))

    # Add the detected language code to the collection of reviews (so we can do further analysis)
    reviews[review_num]["language"] = lang.iso6391_name
```

review1.txt

- Language: English
- Code: en
- Score: 1.0

review2.txt

- Language: English

Detect Language - CODE

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print detected language details for each review
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 # print the review id
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 print(' - Language: {} \n - Code: {} \n - Score: {}'.format(lang.name, lang.iso6391_name, lang.score))

 # Add the detected language code to the collection of reviews (so we can do further analysis)
 reviews[review_num]["language"] = lang.iso6391_name

review1.txt
- Language: English
- Code: en
- Score: 1.0

review2.txt
- Language: English
- Code: en
- Score: 1.0

review3.txt
- Language: English
- Code: en
- Score: 1.0

review4.txt
- Language: English
- Code: en
- Score: 1.0

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In [5]:

```
# # Use the client and reviews you created in the previous code cell to get key phrases
key_phrase_analysis = text_analytics_client.key_phrases(documents=reviews)

# print key phrases for each review
for review_num in range(len(reviews)):
    # print the review id
    print(reviews[review_num]['id'])

    # Get the key phrases in this review
    print('\nKey Phrases:')
    key_phrases = key_phrase_analysis.documents[review_num].key_phrases
    # Print each key phrase
    for key_phrase in key_phrases:
        print('\t', key_phrase)
    print('\n')

review1.txt
```

Key Phrases:

- Good Hotel
- good service
- Clean rooms
- Royal Hotel
- great location
- Buckingham Palace
- Westminster Abbey
- fish
- West coast
- lounge
- bedroom

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review1.txt

Key Phrases:

- Good Hotel
- good service
- Clean rooms
- Royal Hotel
- great location
- Buckingham Palace
- Westminster Abbey
- fish
- West coast
- lounge
- bedroom
- enormous bathroom
- group
- kitchen
- London
- UK
- taster menu
- Michelin Star
- staff
- courtyard

review2.txt

Key Phrases:

- old hotel
- Royal Hotel
- Tired hotel
- London
- United Kingdom
- room furnishings
- poor service

Extract Key Phrases – RESULT

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In [6]:

```
# Use the client and reviews you created previously to get sentiment scores
sentiment_analysis = text_analytics_client.sentiment(documents=reviews)

# Print the results for each review
for review_num in range(len(reviews)):

    # Get the sentiment score for this review
    sentiment_score = sentiment_analysis.documents[review_num].score

    # Classify 'positive' if more than 0.5,
    if sentiment_score < 0.5:
        sentiment = 'negative'
    else:
        sentiment = 'positive'

    # print file name and sentiment
    print('{0} : {1} ({2})'.format(reviews[review_num]['id'], sentiment, sentiment_score))

review1.txt : positive (0.9999973773956299)
review2.txt : negative (5.662441253662109e-07)
review3.txt : positive (0.9999995231628418)
review4.txt : negative (2.0623207092285156e-05)
```

Determine Sentiment

It might be useful to classify the reviews as *positive* or *negative* based on a *sentiment score*. Again, you can use the Text Analytics service to do this.

Extract Known Entities

Entities are things that might be mentioned in text that reference some commonly understood type of item. For example, a location, a person, or a date. Let's suppose you're interested in dates and places mentioned in the reviews - you can use the following code to find them.

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In [6]:

```
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sentiment_analysis = text_analytics_client.sentiment(documents=reviews)

# Print the results for each review
for review_num in range(len(reviews)):

    # Get the sentiment score for this review
    sentiment_score = sentiment_analysis.documents[review_num].score

    # Classify 'positive' if more than 0.5,
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        sentiment = 'negative'
    else:
        sentiment = 'positive'

    # print file name and sentiment
    print('{0} : {1} ({2})'.format(reviews[review_num]['id'], sentiment, sentiment_score))
```

review1.txt : positive (0.9999973773956299)
review2.txt : negative (5.662441253662109e-07)
review3.txt : positive (0.9999995231628418)
review4.txt : negative (2.0623207092285156e-05)

Determine Sentiment

It might be useful to classify the reviews as *positive* or *negative* based on a *sentiment score*. Again, you can use the Text Analytics service to do this.

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File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

In [7]:

```
# Use the client and reviews you created previously to get named entities
entity_analysis = text_analytics_client.entities(documents=reviews)

# Print the results for each review
for review_num in range(len(reviews)):
    print(reviews[review_num]['id'])
    # Get the named entitites in this review
    entities = entity_analysis.documents[review_num].entities
    for entity in entities:
        # Only get location entitites
        if entity.type in ['DateTime', 'Location']:
            link = ('' + entity.wikipedia_url + '') if entity.wikipedia_id is not None else ''
            print(' - {}: {} {}'.format(entity.type, entity.name, link))
```

review1.txt

- Location: The Royal Hotel (https://en.wikipedia.org/wiki/The_Royal_Hotel)
- Location: London (<https://en.wikipedia.org/wiki/London>)
- DateTime: 3/2/2018
- Location: Buckingham Palace (https://en.wikipedia.org/wiki/Buckingham_Palace)
- Location: Westminster Abbey (https://en.wikipedia.org/wiki/Westminster_Abbey)
- Location: India (<https://en.wikipedia.org/wiki/India>)
- Location: West Coast Main Line (https://en.wikipedia.org/wiki/West_Coast_Main_Line)

review2.txt

- Location: The Royal Hotel (https://en.wikipedia.org/wiki/The_Royal_Hotel)
- Location: London (<https://en.wikipedia.org/wiki/London>)
- Location: London
- Location: United Kingdom
- DateTime: 5/6/2018

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localhost:8889/notebooks/AIDI1006-text-analytics.ipynb

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review1.txt

- Location: The Royal Hotel (https://en.wikipedia.org/wiki/The_Royal_Hotel)
- Location: London (<https://en.wikipedia.org/wiki/London>)
- DateTime: 3/2/2018
- Location: Buckingham Palace (https://en.wikipedia.org/wiki/Buckingham_Palace)
- Location: Westminster Abbey (https://en.wikipedia.org/wiki/Westminster_Abbey)
- Location: India (<https://en.wikipedia.org/wiki/India>)
- Location: West Coast Main Line (https://en.wikipedia.org/wiki/West_Coast_Main_Line)

review2.txt

- Location: The Royal Hotel (https://en.wikipedia.org/wiki/The_Royal_Hotel)
- Location: London (<https://en.wikipedia.org/wiki/London>)
- Location: London
- Location: United Kingdom
- DateTime: 5/6/2018
- DateTime: since 1950's
- DateTime: now
- Location: British Museum (https://en.wikipedia.org/wiki/British_Museum)

review3.txt

- Location: Lombardy (<https://en.wikipedia.org/wiki/Lombardy>)
- Location: San Francisco (https://en.wikipedia.org/wiki/San_Francisco)
- DateTime: 8/16/2018
- DateTime: August
- Location: Chestnut Street (Philadelphia) ([https://en.wikipedia.org/wiki/Chestnut_Street_\(Philadelphia\)](https://en.wikipedia.org/wiki/Chestnut_Street_(Philadelphia)))
- Location: Marina District, San Francisco (https://en.wikipedia.org/wiki/Marina_District,_San_Francisco)
- Location: Marina
- Location: Golden Gate Bridge (https://en.wikipedia.org/wiki/Golden_Gate_Bridge)
- Location: Lombard Street (San Francisco) ([https://en.wikipedia.org/wiki/Lombard_Street_\(San_Francisco\)](https://en.wikipedia.org/wiki/Lombard_Street_(San_Francisco)))

review4.txt

- Location: Lombard, Illinois (https://en.wikipedia.org/wiki/Lombard,_Illinois)
- Location: San Francisco (https://en.wikipedia.org/wiki/San_Francisco)
- Location: Lombard Street (San Francisco) ([https://en.wikipedia.org/wiki/Lombard_Street_\(San_Francisco\)](https://en.wikipedia.org/wiki/Lombard_Street_(San_Francisco)))
- Location: Lombard
- Location: Golden Gate Bridge (https://en.wikipedia.org/wiki/Golden_Gate_Bridge)
- DateTime: from early morning
- DateTime: night

Extract Known Entities – RESULT

Challenge #4.24

Speech (Cognitive Services)

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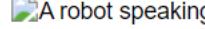
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Speech

Increasingly, we expect to be able to communicate with artificial intelligence (AI) systems by talking to them, often with the expectation of a spoken response.



Speech recognition (an AI system interpreting spoken language) and *speech synthesis* (an AI system generating a spoken response) are the key components of a speech-enabled AI solution.

Create a Cognitive Services resource

To build software that can interpret audible speech and respond verbally, you can use the **Speech** cognitive service, which provides a simple way to transcribe spoken language into text and vice-versa.

If you don't already have one, use the following steps to create a **Cognitive Services** resource in your Azure subscription:

1. In another browser tab, open the Azure portal at <https://portal.azure.com>, signing in with your Microsoft account.
2. Click the **+ Create a resource** button, search for *Cognitive Services*, and create a **Cognitive Services** resource with the following settings:
 - **Name:** *Enter a unique name.*
 - **Subscription:** *Your Azure subscription.*
 - **Location:** *Any available location.*
 - **Pricing tier:** S0
 - **Resource group:** *Create a resource group with a unique name.*
3. Wait for deployment to complete. Then go to your cognitive services resource, and on the **Overview** page, click the link to manage the keys for the service. You will need the endpoint and keys to connect to your cognitive services resource from client applications.

Get the Key and Endpoint for your Cognitive Services resource

Open the file: AIDI1006-speech

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Speech recognition

Suppose you want to build a home automation system that accepts spoken instructions, such as "turn the light on" or "turn the light off". Your application needs to be able to take the audio-based input (your spoken instruction), and interpret it by transcribing it to text that it can then parse and analyze.

Now you're ready to transcribe some speech. The input can be a microphone or an audio file. In this case, you'll use an audio file.

Run the cell below to use the speech-to-text capabilities of the Speech service to transcribe the audio.

In [6]:

```
import os
import IPython
from azure.cognitiveservices.speech import SpeechConfig, SpeechRecognizer, AudioConfig

# Get spoken command from audio file
file_name = 'light-off.wav'
audio_file = os.path.join('data', 'speech', file_name)

# Configure speech recognizer
speech_config = SpeechConfig(cog_key, cog_region)
audio_config = AudioConfig(filename=audio_file) # Use file instead of default (microphone)
speech_recognizer = SpeechRecognizer(speech_config, audio_config)

# Use a one-time, synchronous call to transcribe the speech
speech = speech_recognizer.recognize_once()

# Play audio and show transcribed text
IPython.display.display(IPython.display.Audio(audio_file, autoplay=True),
                      IPython.display.HTML(speech.text))
```

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IPython.display.HTML(speech.text))
```

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Turn the light off.

Try changing the **file_name** variable to *light-off.wav*, and run the cell again. The service should be able to transcribe both files correctly to text.

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In [12]:

```
import os
import IPython
from azure.cognitiveservices.speech import SpeechConfig, SpeechSynthesizer, AudioConfig

# Get text to be spoken
response_text = 'Turning the light on.'

# Configure speech synthesis
speech_config = SpeechConfig(cog_key, cog_region)
output_file = os.path.join('data', 'speech', 'response.wav')
audio_output = AudioConfig(filename=output_file) # Use a file instead of default (speakers)
speech_synthesizer = SpeechSynthesizer(speech_config, audio_output)

# Transcribe text into speech
result = speech_synthesizer.speak_text(response_text)

# Play the output audio file
IPython.display.display(IPython.display.Audio(output_file, autoplay=True),
IPython.display.Image(data=os.path.join("data", "speech", response_text.lower() + 'jpg')))
```

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Speech synthesis – CODE

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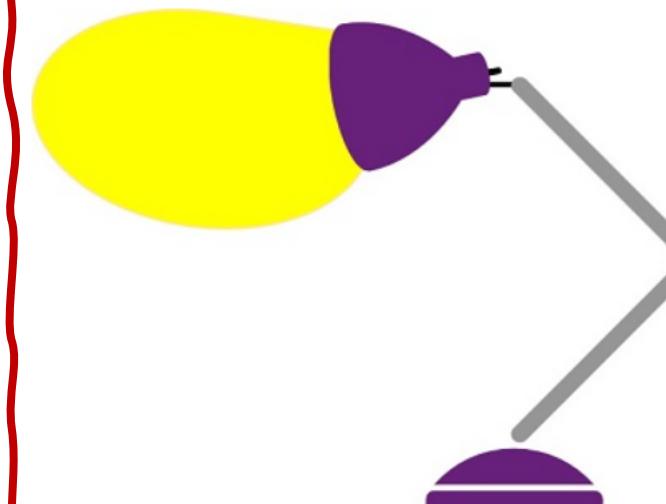
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```
output_file = os.path.join('data', 'speech', 'response.wav')
audio_output = AudioConfig(filename=output_file) # Use a file instead of default (speakers)
speech_synthesizer = SpeechSynthesizer(speech_config, audio_output)

# Transcribe text into speech
result = speech_synthesizer.speak_text(response_text)

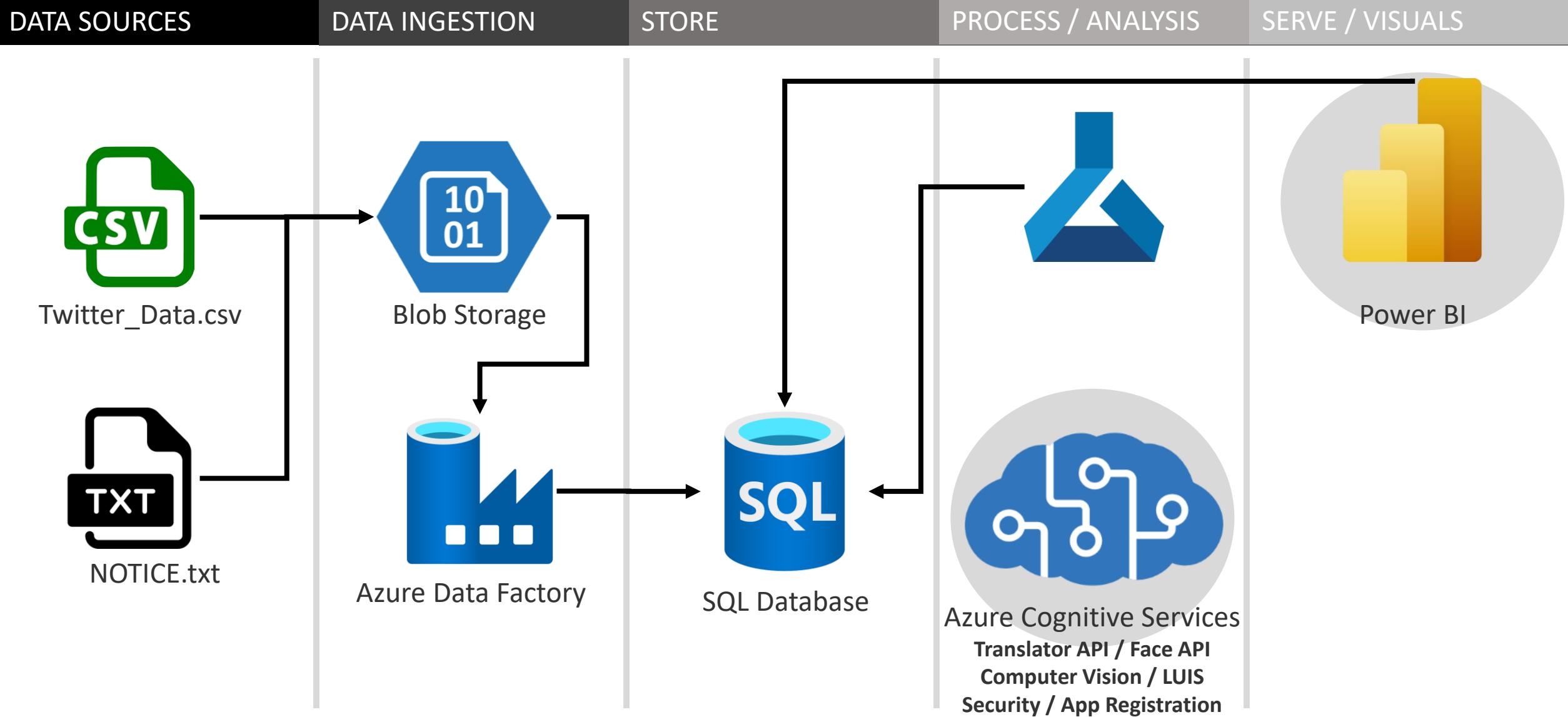
# Play the output audio file
IPython.display.display(IPython.display.Audio(output_file, autoplay=True),
IPython.display.Image(data=os.path.join("data", "speech", response_text.lower() + 'jpg')))
```

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Try changing the `response_text` variable to *Turning the light off.* (including the period at the end) and run the cell again to hear the result.

Data Architecture so far...



References

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Microsoft Official **Git Hub**, **Microsoft learn AI-102**, <https://github.com/MicrosoftLearning/AI-102-AIEngineer>

Thank you! ;-)

Please e-mail me the screenshots of your final steps for each component / service to validate your bonus points.