Build an Informational Bot using QnAMaker and Azure Bot Service

Introduction

QnAMaker Logo

Objectives

Build an Informational Bot using QnAMaker and Azure Bot Service

Prerequisites

Watch Video Demo: Build an intelligent knowledge base with QnA Maker and Bot Service

Scenario

Informational bots make it easy for you to quickly get information via simple text-based chat. In this session, learn how to build an informational bot which can answer questions defined in a knowledge set or FAQ using Cognitive Services QnA Maker and displayed in a Cortana bot using Azure Bot Service.

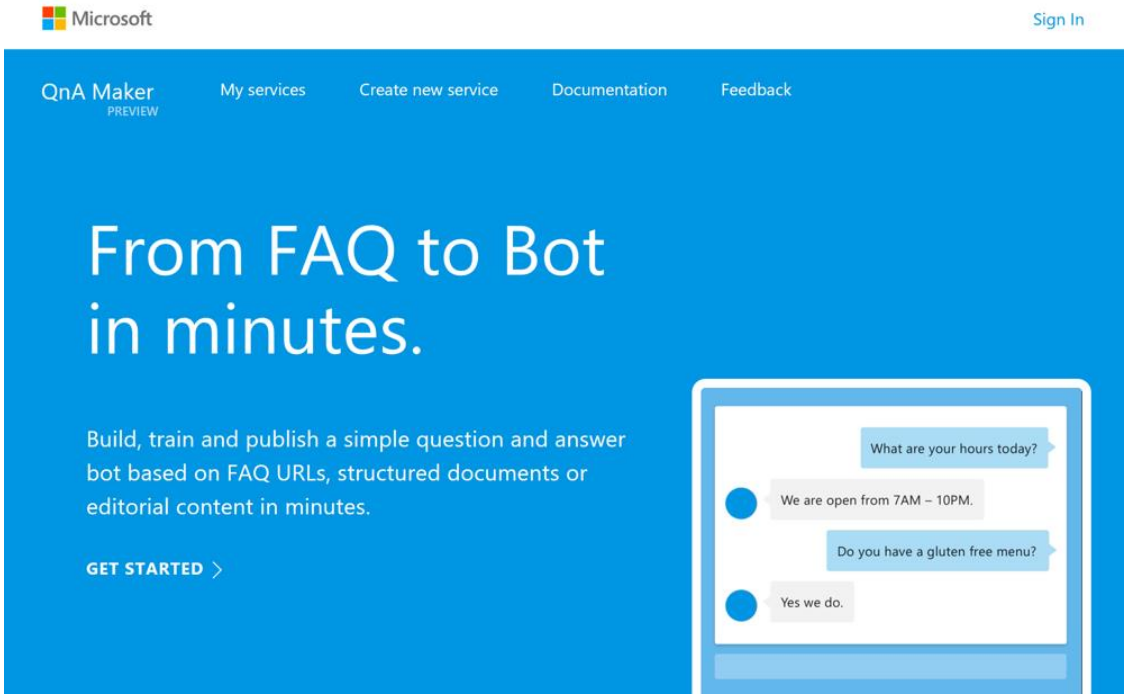
Audience

Bot Developers building conversational interfaces using Azure Bot Service

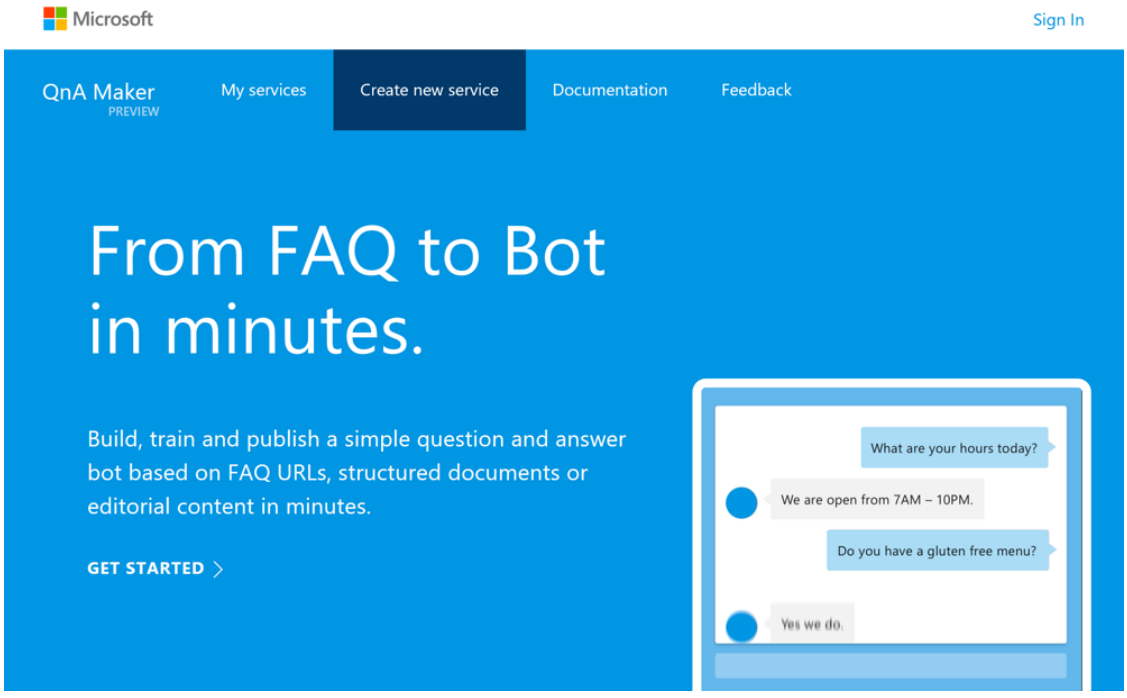
Exercise 1: Create a QnAMaker Service

In this exercise you will create a QnAMaker service. A QnAMaker service consists of a knowledge base created from one or more sources, such as an FAQ URL or a document that contains the question and answer pairs.

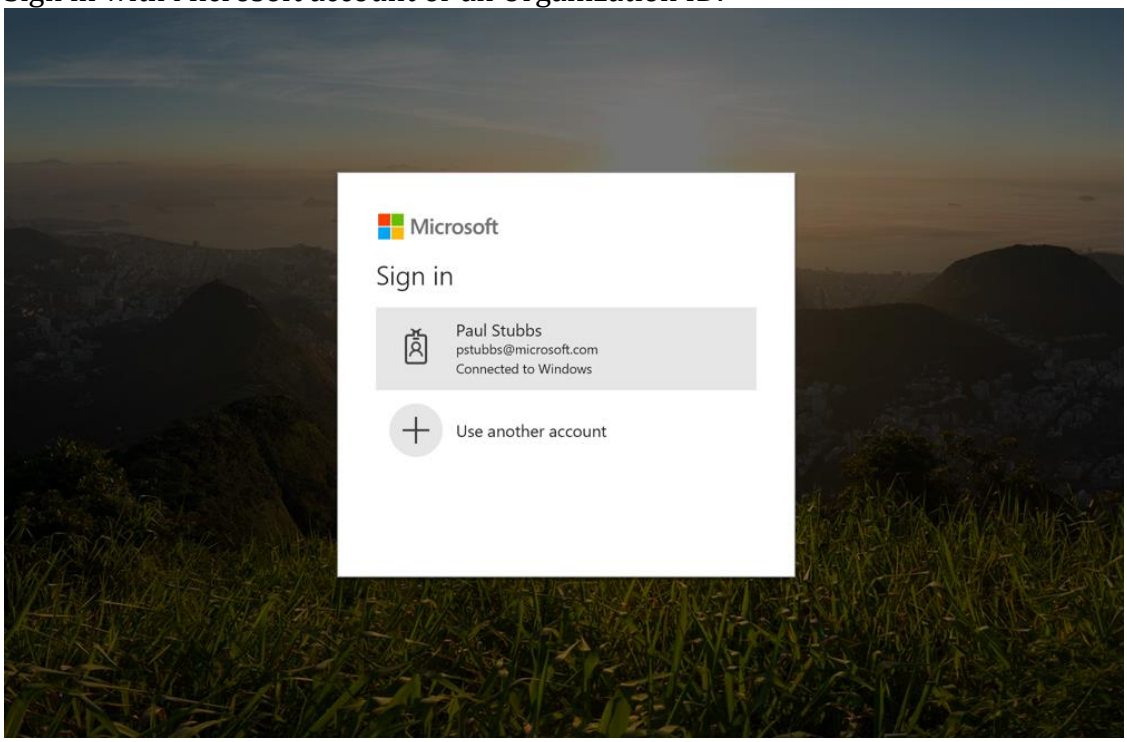
1. Open QnAMaker. Browse to https://QnAMaker.ai



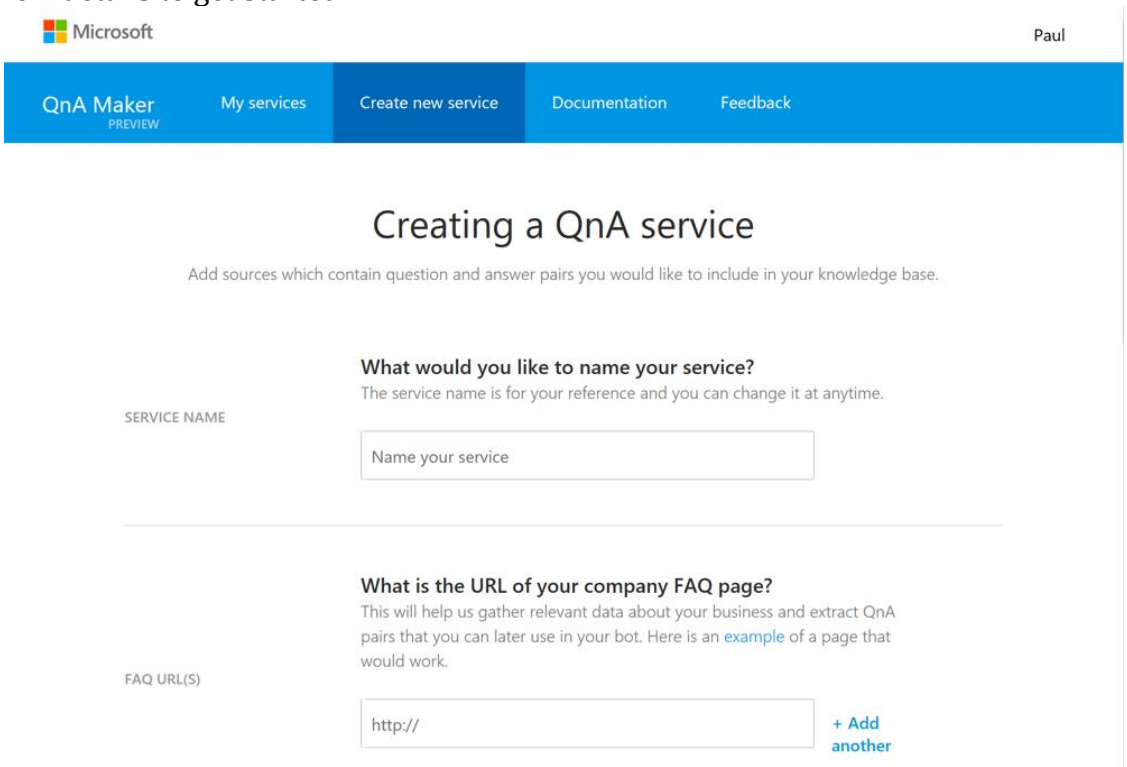
2. Create a new service. Click on *Create new service* from the top menu



3. Sign in with Microsoft account or an Organization ID.

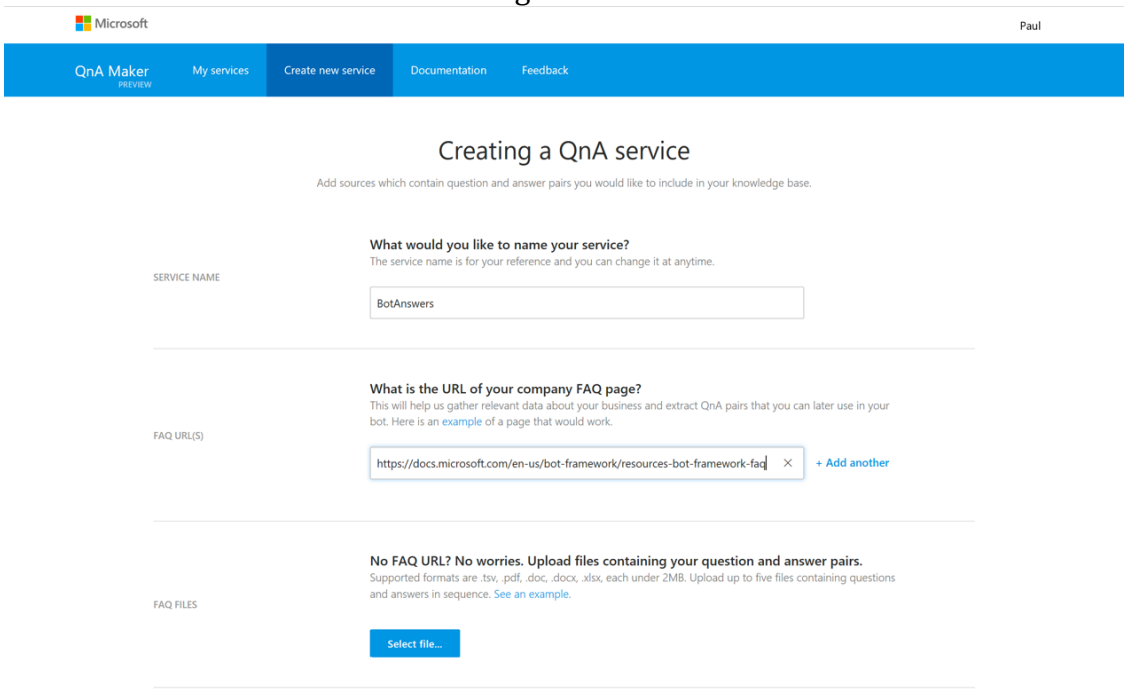


4. Enter QnAMaker Service details. Creating a new QaNMaker services requires only a few details to get started.



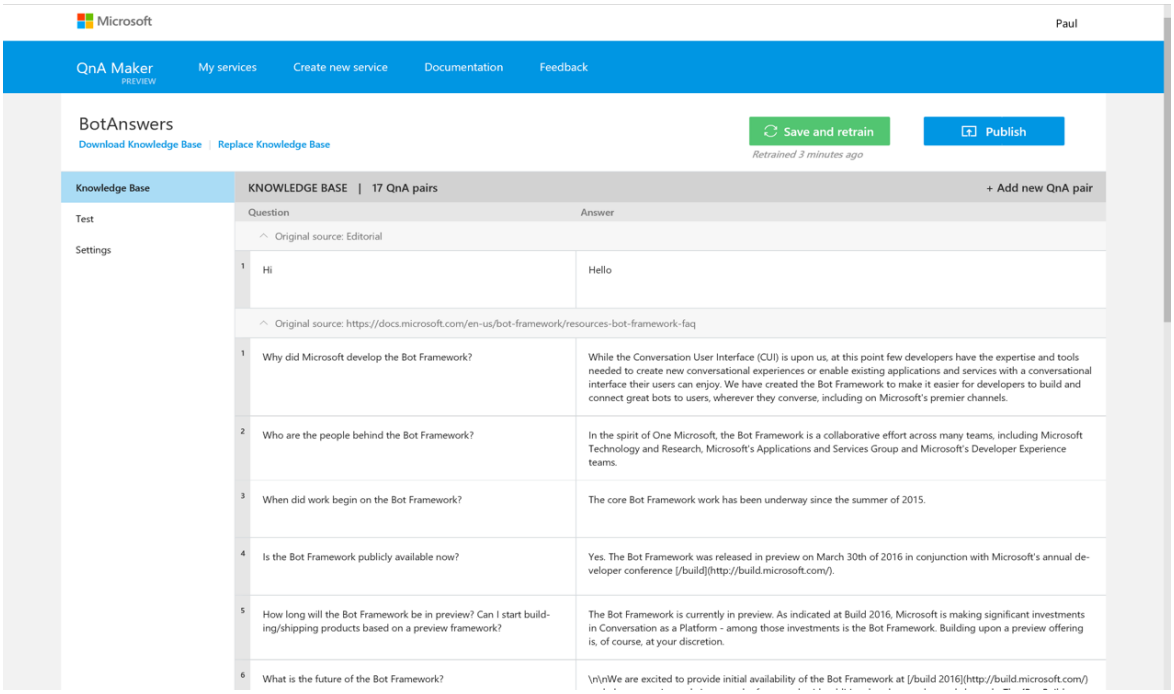
5. Enter the service name. Set the service name to **BotAnswers**.

6. Enter the FAQ URL. Set the FAQ URL to **https://docs.microsoft.com/en-us/bot-framework/resources-bot-framework-faq**, which is the URL for an FAQ document about the Bot Framework.
7. Do not select any FAQ files. For now, do not upload any FAQ files. Your **Creating a QnA service** form should look like the image below.



8. Create the service. Click **Create** to create the knowledge base. You will very briefly see a dialog while the source FAQ URL is parsed.

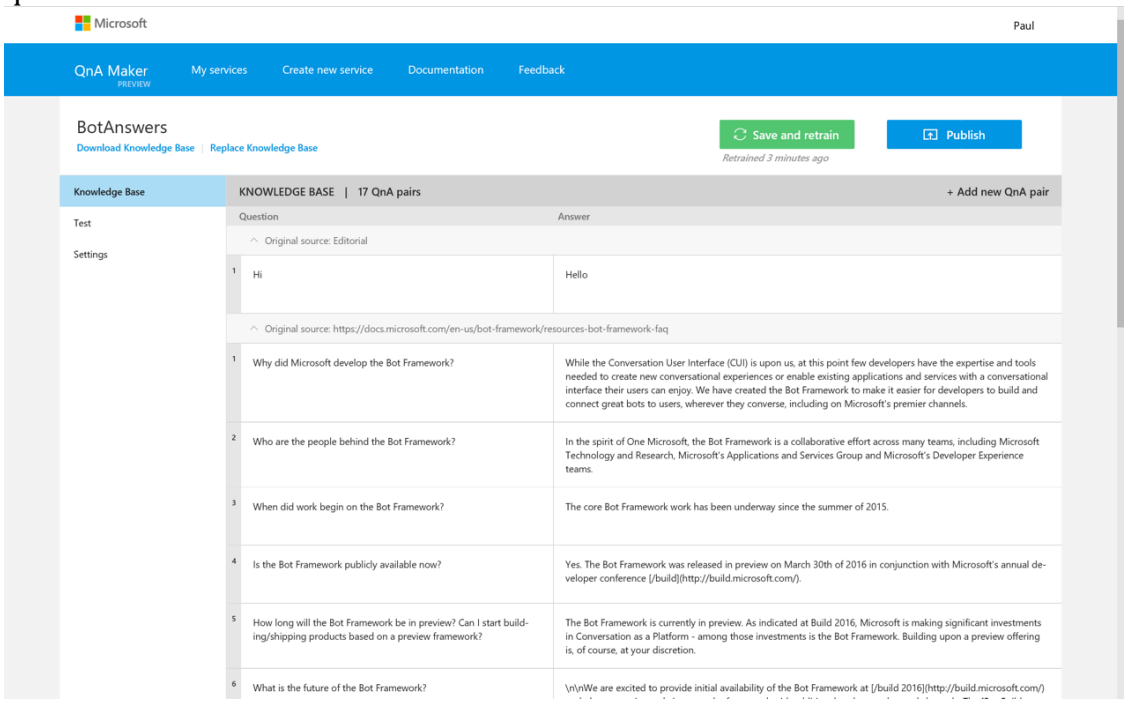
Once the service creation completes you will see your knowledge base. The knowledge base is formatted as a simple 2 column question and answer table.



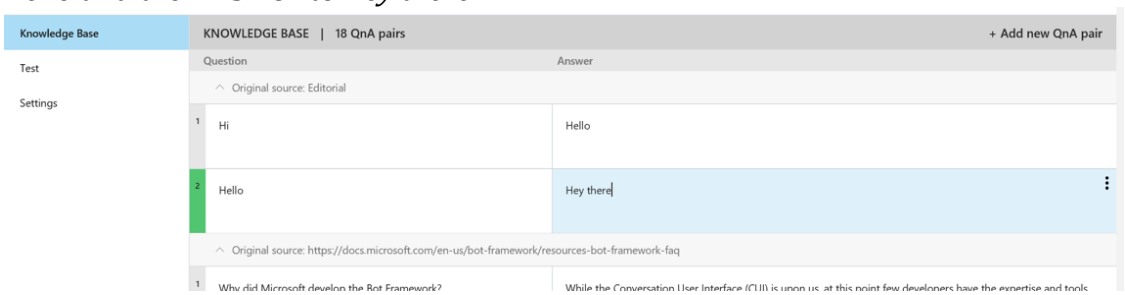
Exercise 2: Explore the QnAMaker knowledge base

In this exercise you will explore your newly created knowledge base.

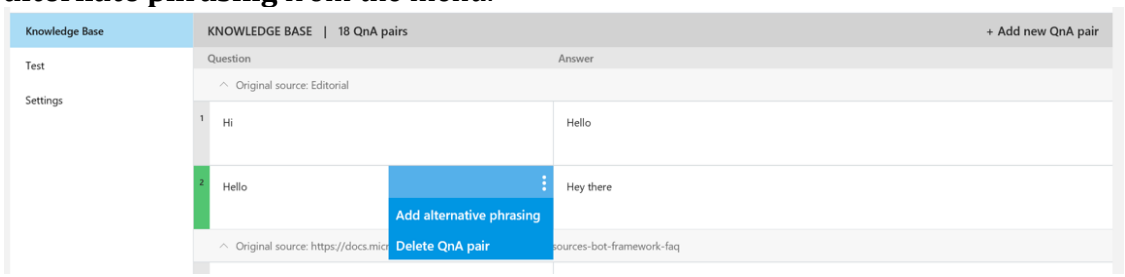
1. Open the **BotAnswers** service. If you are following along from the previous exercise the knowledge base is already open. the knowledge base is a 2-column table with questions and answers.



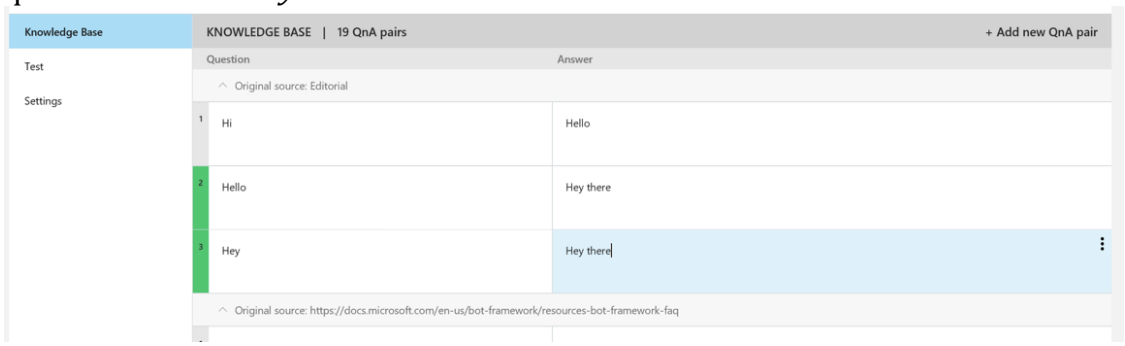
2. Add additional greeting. The knowledge base is divided or grouped by the source of the knowledge. In this this case there is only one source, the Bot Framework FAQ that you specified in exercise 1. There is also an additional grouping or section called **Editorial**. In the **Editorial** section there is one prepopulated value, "Hi" with an answer value of "Hello". Click on **Add new QnA pair**, located at the top right side of the table, to add an additional record to the **Editorial** section. Set the **Question** to *Hello* and the **Answer** to *Hey there*.



3. Add alternate phrasing. You can also add additional ways to phrase the question. Click on the three stacked menu dots in the *Hello* cell that you just created. Choose **Add alternate phrasing** from the menu.

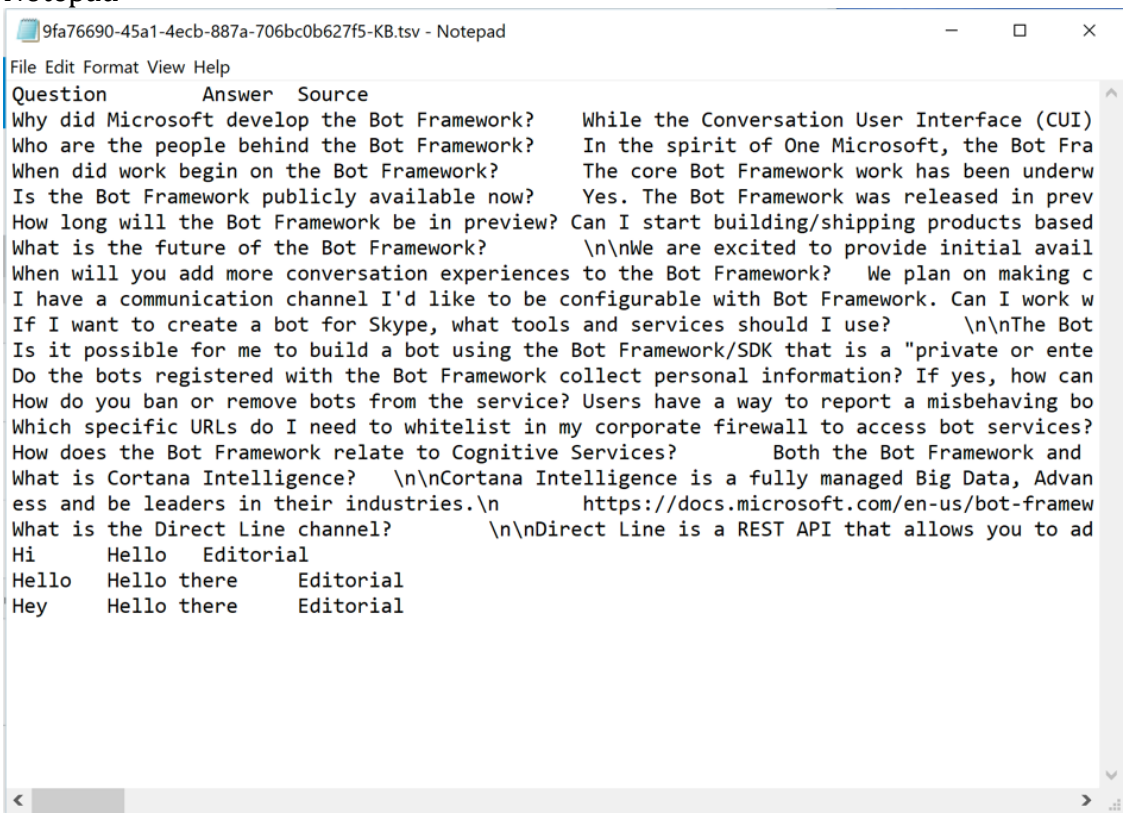


This creates a new question and answer pair with the answer copied. Set the new question value to *Hey*.

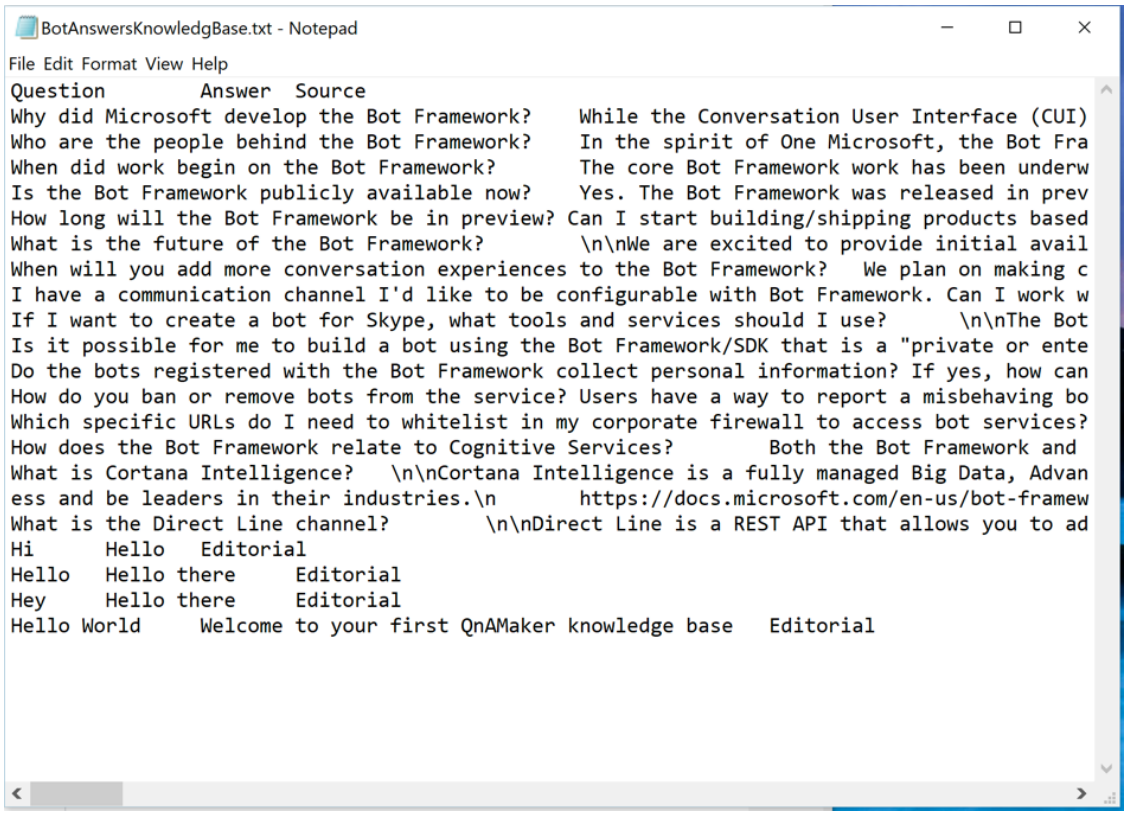


4. Save and train the model. After you change your knowledge base, you need to save and train the model by clicking the green Save and Train button on the top right of the page. This updates the AI model.
5. Download the knowledge base. This is an advanced feature that is optional. You can download your knowledge base as a tabbed separated. tsv file. Click on the **Download Knowledge Base** link at the top left of the table. Open the downloaded file and copy to

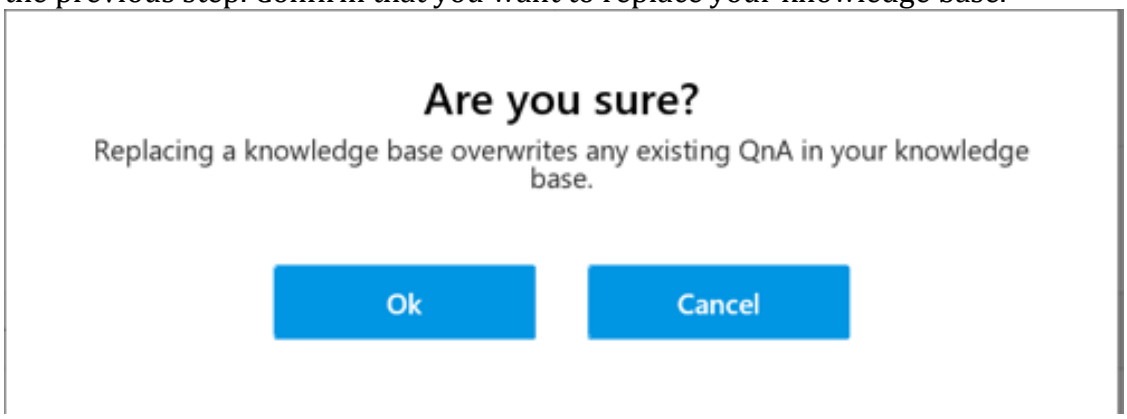
Notepad



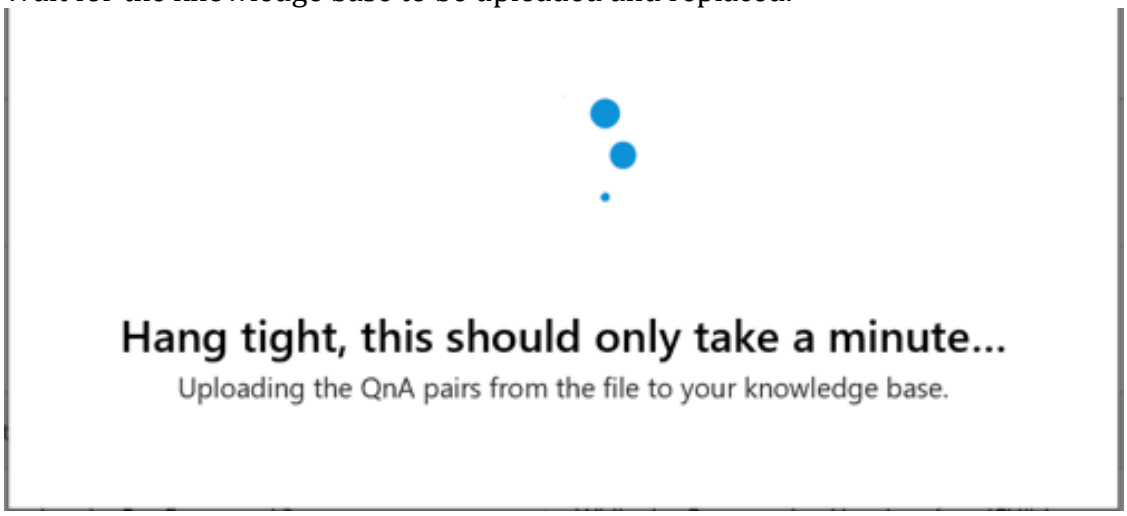
6. Add additional question and answer pairs. Another way to add question and answer pairs is to manually create a file. In this case, you are starting with the knowledge base created by parsing the FAQ URL. The format of the file is tabbed delimited columns for **Question**, **Answer**, and **Source**. Add a new entry to the Editorial source. Create a new line and enter *Hello World*, *Welcome to your first QnAMaker knowledge base*, *Editorial*, all tabbed delimited. Save the file as *BotAnswersKnowledgBase.tsv*.



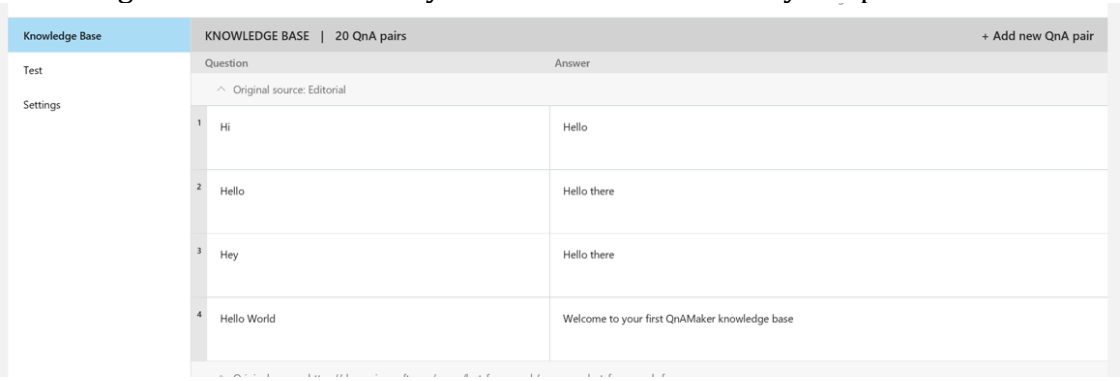
7. Upload updated knowledge base. Click on the **Replace Knowledge Base** link at the top left of the table. Browse for the *BotAnswersKnowledgBase.tsv* file that you saved in the previous step. Confirm that you want to replace your knowledge base.



Wait for the knowledge base to be uploaded and replaced.



Once the new knowledge base is created it will look as it did before, but now you see the new question and answer pair that you created manually in the file. Also note that the knowledge base is automatically saved and trained when you upload a file.



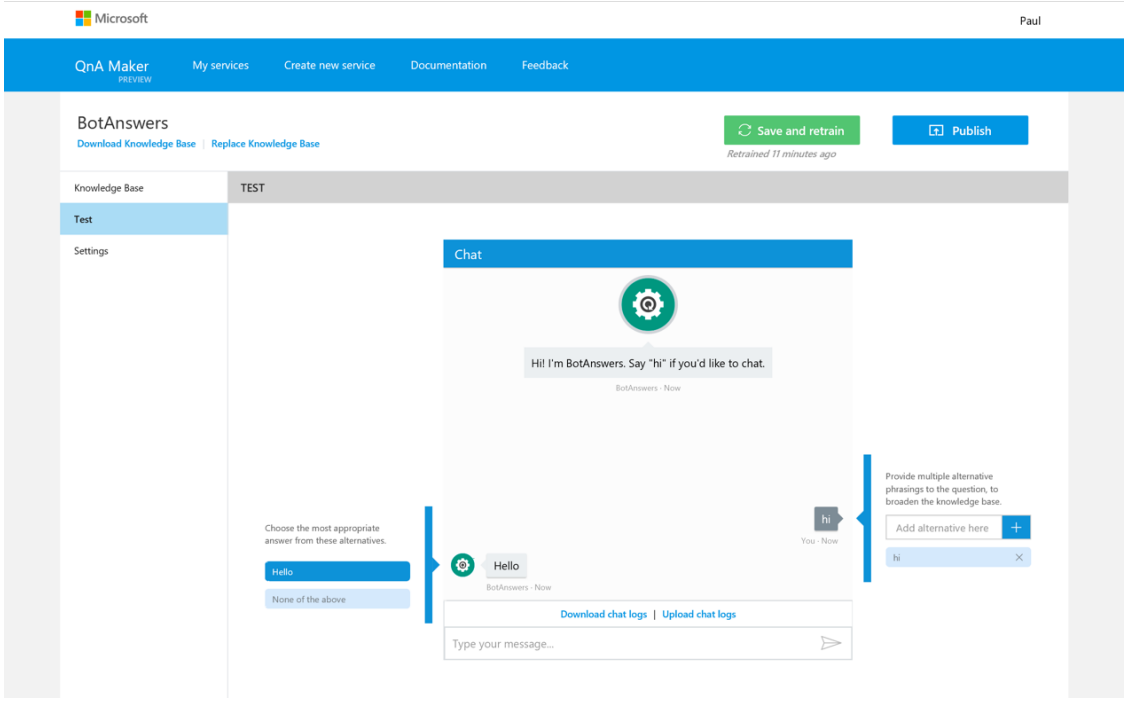
Next you will learn how to test and update the knowledge base from the test tool that is part of the site.

Exercise 3: Testing your knowledge base

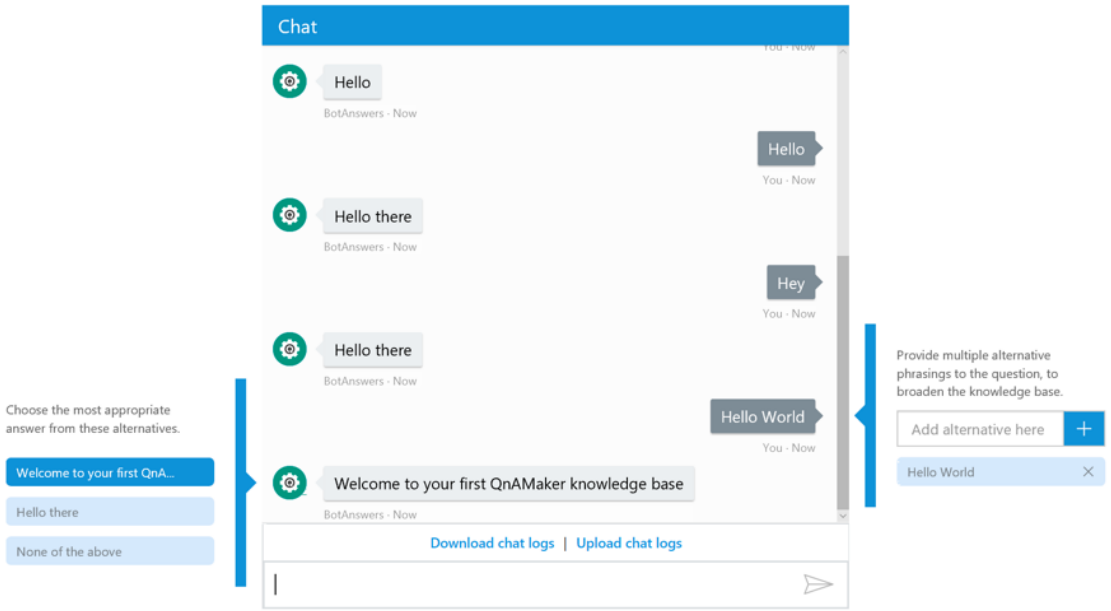
Testing your knowledge base is an important step in understanding how your knowledge base will respond to real world questions thrown at it. The QnAMaker includes a build in test tool that simulates a chatbot experience.

1. Open the **BotAnswers** service. If you are following along from the previous exercise the knowledge base is already open.

2. Open the Test tool. Click on the **Test** tab on the left side of the knowledge base table. The test tool looks and behaves like a simple web based chatbot.

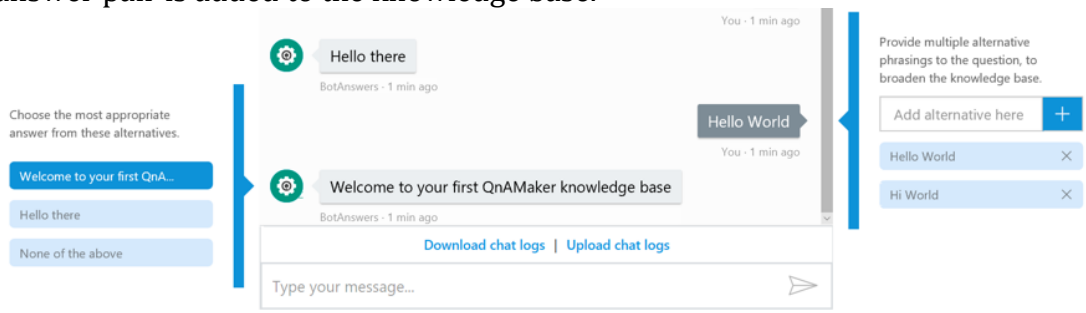


3. Enter some greetings. In the test tool. Enter the greetings you added to the knowledge base in the previous exercise. Try, *Hi*, *Hello*, *Hey*, and *Hello World* and note the responses.

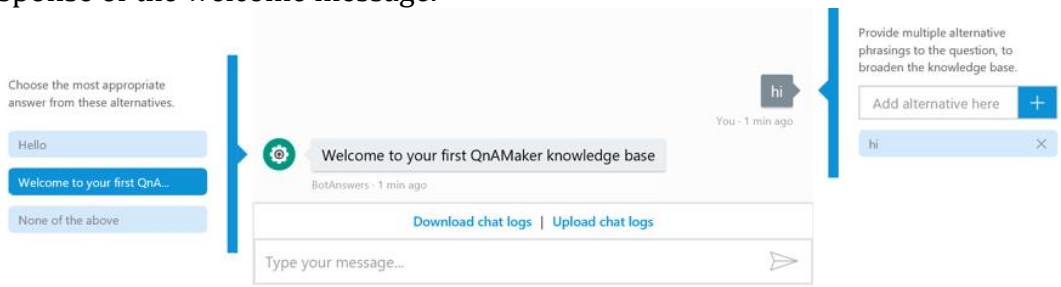


4. Add alternate phrasing. Within the test tool's chat window on the right side you can add additional phrasings for the question. Enter *Hi World* and click the plus menu icon to add the new phrasing. Save and retrain the model. This step of adding alternate phrasing has the same result as it did in the previous exercise. A new question and

answer pair is added to the knowledge base.



5. Update the answer. Maybe the answer to a question is not the right response. You can update it directly from the test tool. For example, update the answer for the question *Hi*. Enter *Hi* in the chat window. The response is *Hello*, but on the left side there are additional suggestions provided by QnAMaker. Select the answer, *Welcome to your first QnA...*. Save and retrain the model. Now when you say *Hi* you get the updated response of the welcome message.

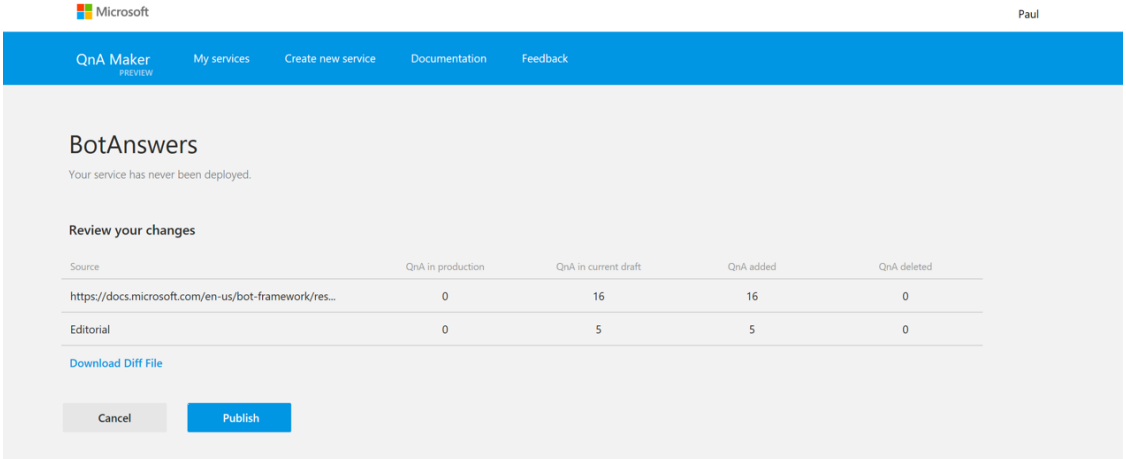


Exercise 4: Publish your knowledge base

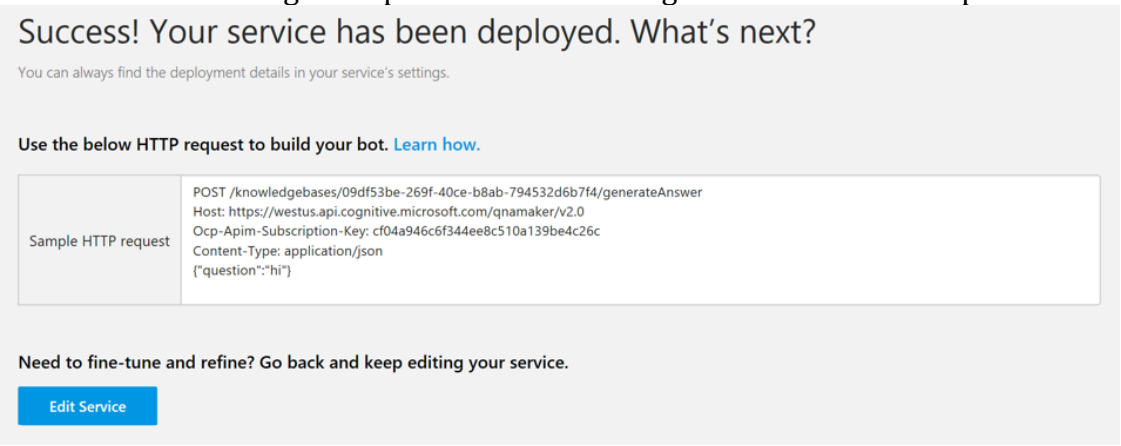
Once you are satisfied that your knowledge base has all the correct question and answer pairs, you are ready to publish it. Publishing makes the knowledge base available as a REST endpoint.

1. Open the **BotAnswers** service. If you are following along from the previous exercise the knowledge base is already open.
2. Publish the knowledge base. Click on the **Publish** button at the top right of the knowledge base table. This will open a confirmation page that shows you details of your knowledge base. It lists all the sources and how many question and answer pairs

are in each section and in production.



3. Publish the knowledge base. After reviewing all the details on the publish page, click the **Publish** button again to publish the knowledge base as a REST endpoint.



4. The successful publishing page shows you a sample REST call to your newly published knowledge base. In the sample REST post, you can see the Id for your knowledge base and the Id for your subscription key.

```
POST /knowledgebases/09df53be-269f-40ce-b8ab-794532d6b7f4/generateAnswer
Host: https://westus.api.cognitive.microsoft.com/qnamaker/v2.0
Ocp-Apim-Subscription-Key: cf04a946c6f344ee8c510a139be4c26c
Content-Type: application/json
{"question":"hi"}
```

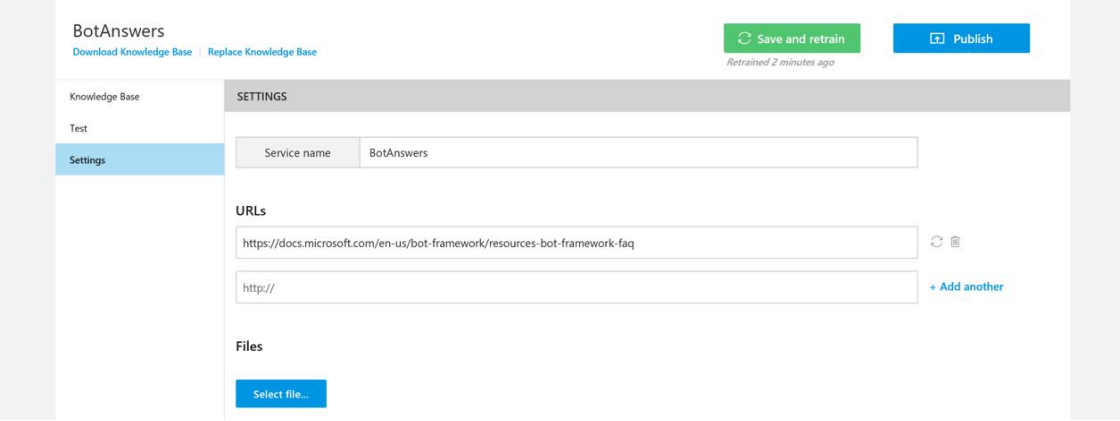
4. Edit the knowledge base. You can view and edit the knowledge base by clicking on the **Edit Service** button. This will take you back the knowledge base table of question and answer pairs.
5. Edit the settings.

Exercise 5: Updating your knowledge base settings

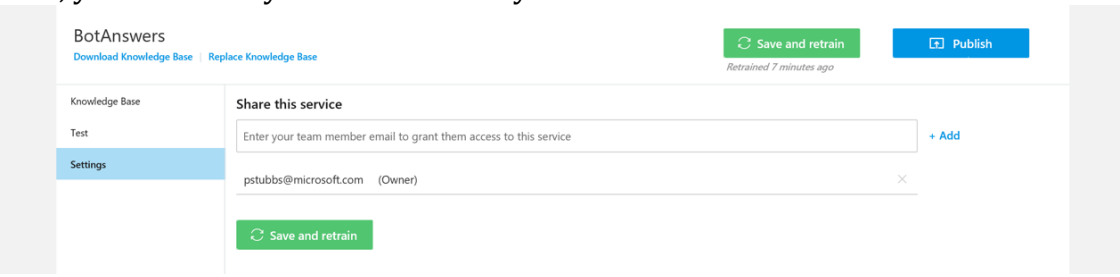
The settings enable you to manage the FAQ URLs and add addition members to knowledgebase. You will want to add subject matter experts to curate the questions and answers. They will also be able to view the logs and add, remove, or adjust any of the

questions and answers. In this exercise you will only view the available options. Do not change any settings in this exercise.

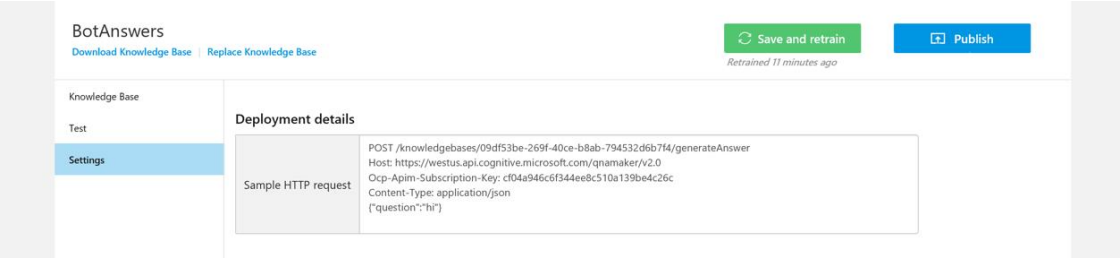
1. Open the **BotAnswers** service. If you are following along it should already be open
2. Open settings page. You view and update the settings for the knowledge base from the settings page. Click on the **Settings** button to view the settings page.
3. Update the sources. The first section of the settings page shows you the current sources and enables you to add additional sources. For now, you are not going to add any additional sources.



4. Share the service. You can add or remove additional members from the knowledge base. This is used to assign subject matter experts to manage the knowledge base. For now, you can leave yourself as the only member.

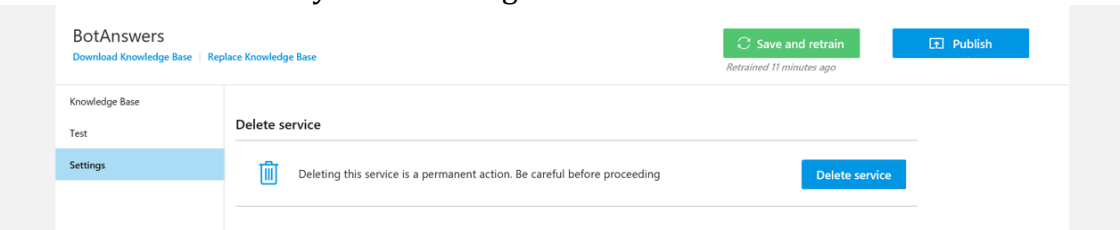


5. Sample service post. You can view the sample service post message again on the settings page. This is the same example that was displayed when you published the service.



6. Delete the service. You can delete your service from the bottom of the settings page. This will completely and permanently delete your knowledge base, service, and all of

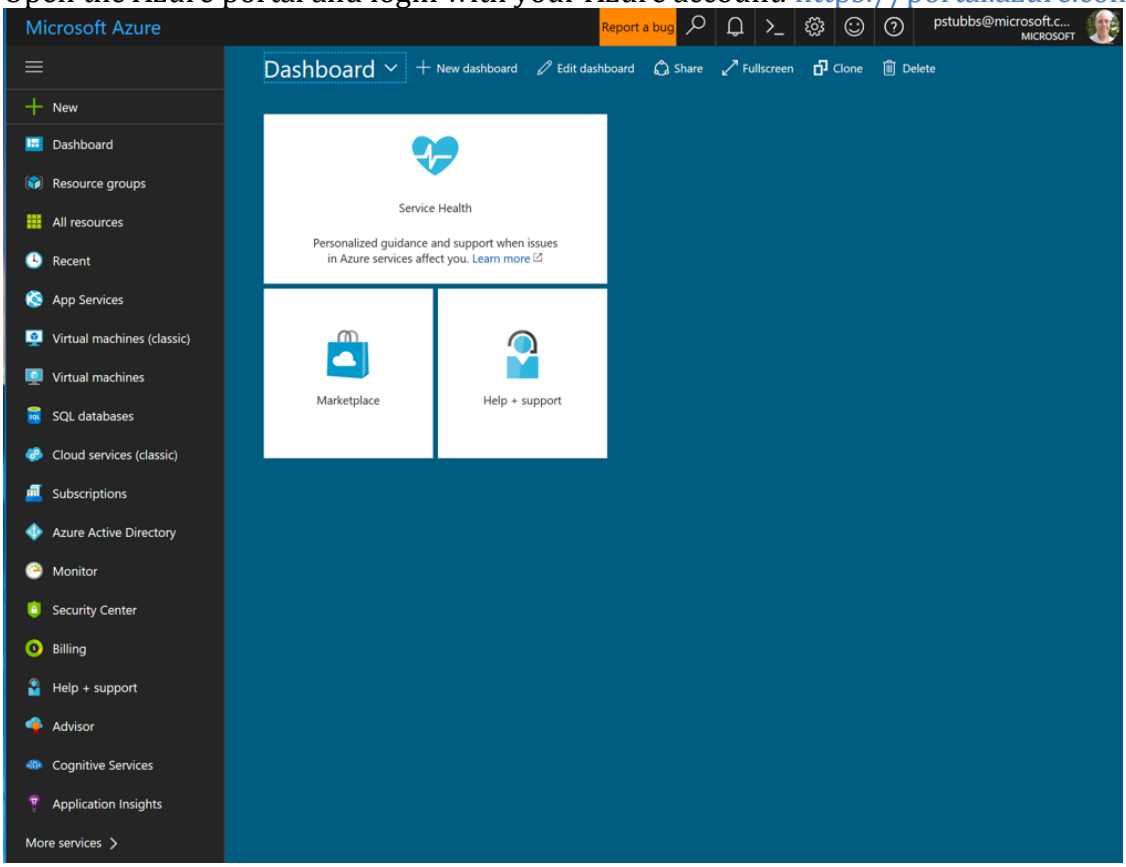
the data. Do not delete your knowledge base at this time.



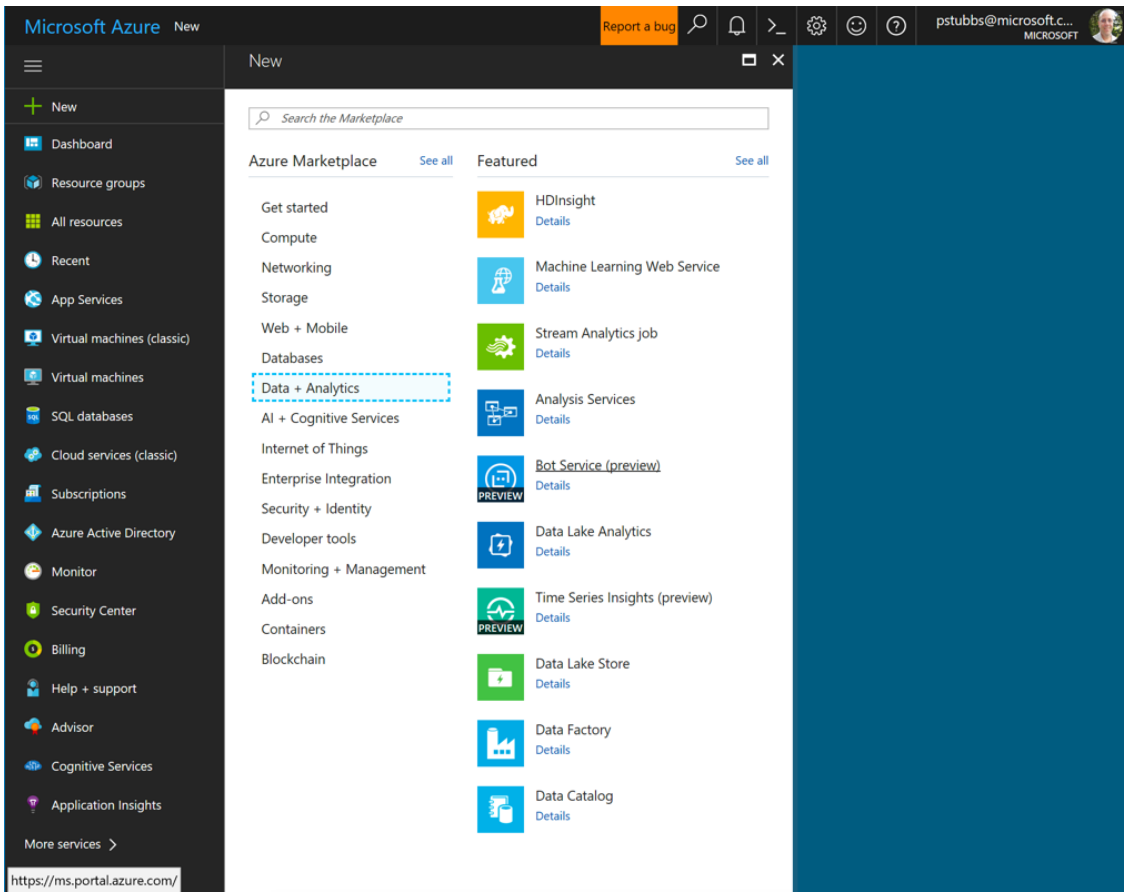
Exercise 6: Create an Information Bot with the Azure Bot Service

The Azure Bot Service makes it easy for you to create a bot using the Bot Framework by simply selecting a template. The Azure Bot Service will host your bot as a serverless Azure Function or an Azure Web App.

1. Open the Azure portal and login with your Azure account. https://portal.azure.com

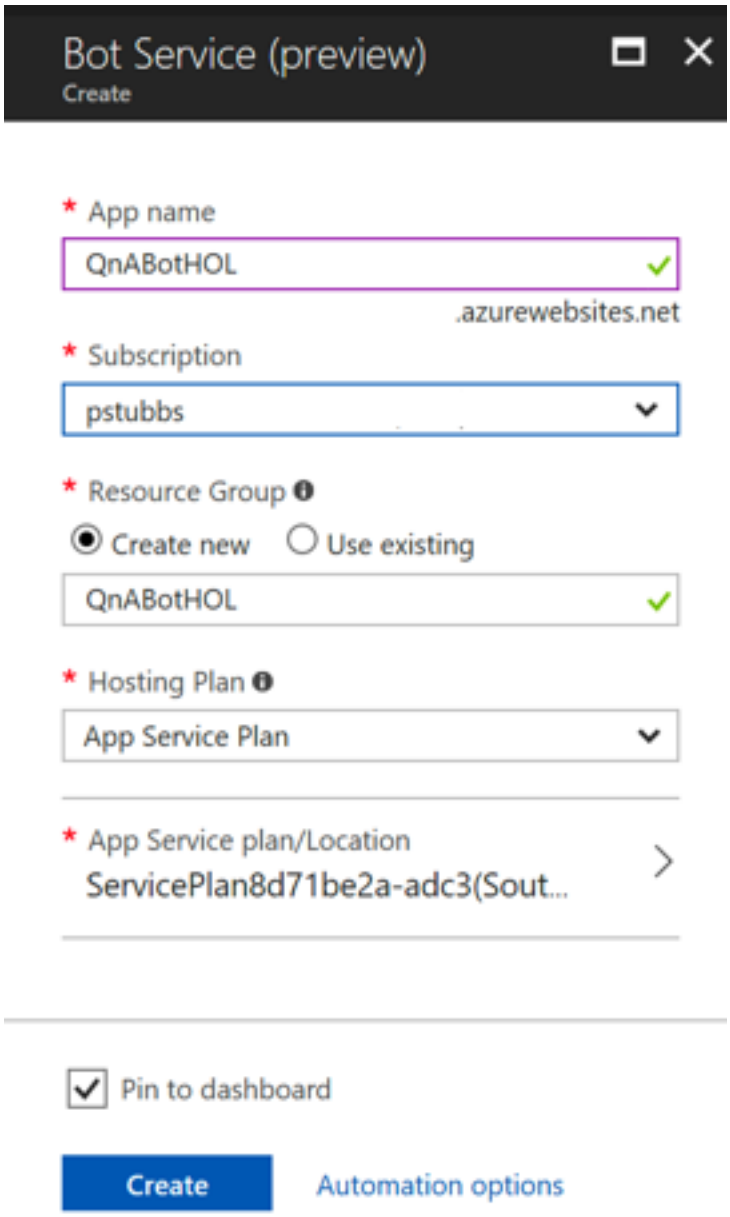


2. Create a new Bot Service. On the Azure Portal menu, choose New - Data + Analytics - Bot Service.

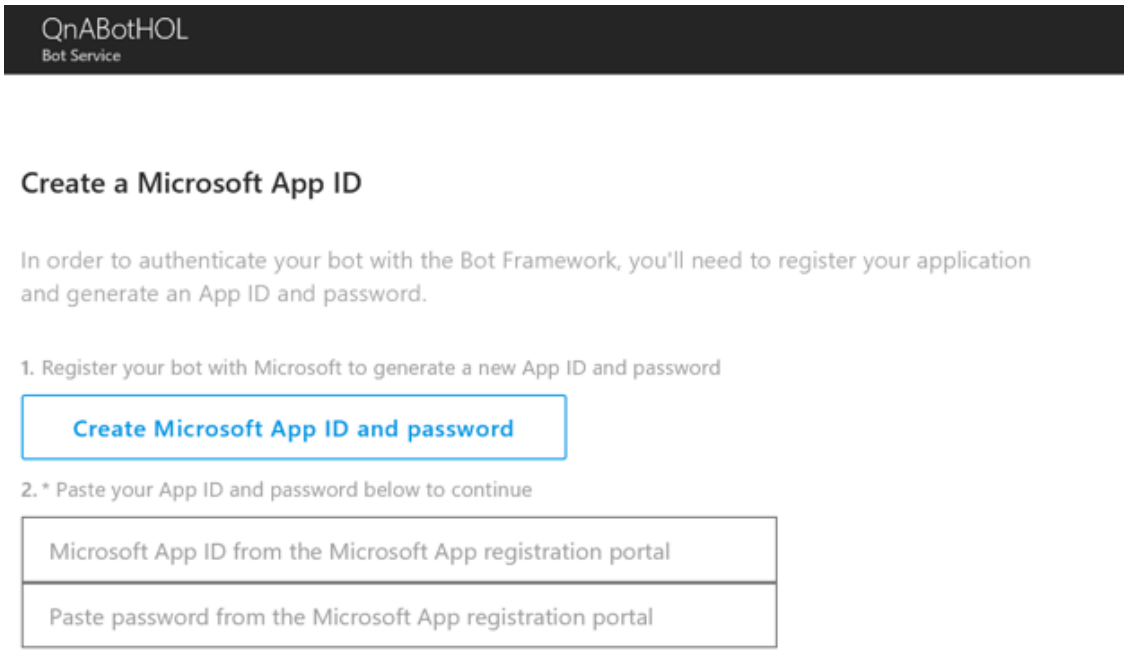


3. Enter Bot Service details. Enter the information for the Bot Service. For this HOL you can choose the defaults after you enter a valid unique app name.

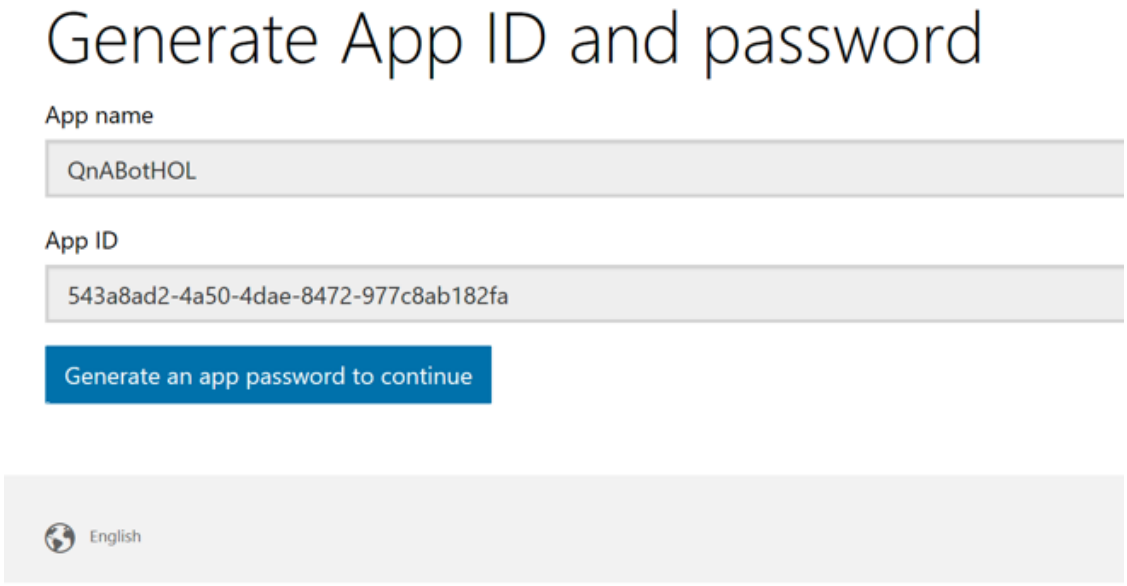
- App name - enter a unique name for your bot
- Subscription - choose a valid subscription
- Resource Group - create a new resource group. It will default to the same name as your app name
- Hosting Plan - Choose Consumption Plan. The Consumption Plan is based on Azure Functions. The other option, App Service Plan, is based on Azure Web Apps.
- Check Pin to dashboard to have the bot appear on your Azure dashboard.
- Click Create to provision all the bot's Azure services.



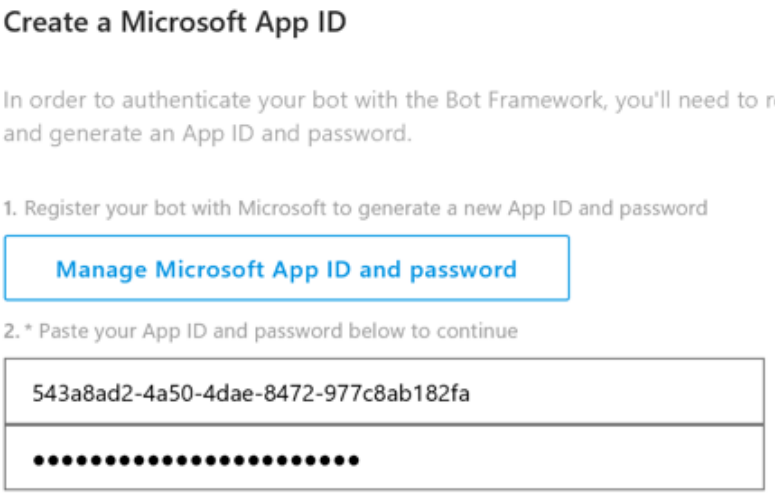
4. Create an App ID. As part of creating the bot, a wizard will guide you through the steps. The first thing that is needed is an App ID and secret. Click on Create Microsoft App ID and password. This will open a new browser tab at the Microsoft Application Registration Portal.



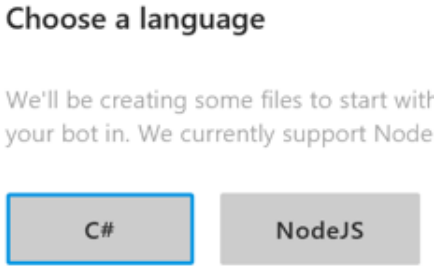
5. Create the AppID and Password. Login to the Application Registration Portal using your MSA. Typically, this will be the same ID that you use for you Azure subscription. The Generate AppID form will be prepopulated with your bot name. Copy the AppID guide from this tab and paste it back in your bot wizard tab. Click on Generate an app password to continue. Clicking on this will pop a dialog that will contain a generated password. Copy this password/secret back in your bot wizard tab. This will only be displayed once. If you lose it, you will need to click the generate button again to create a new password.



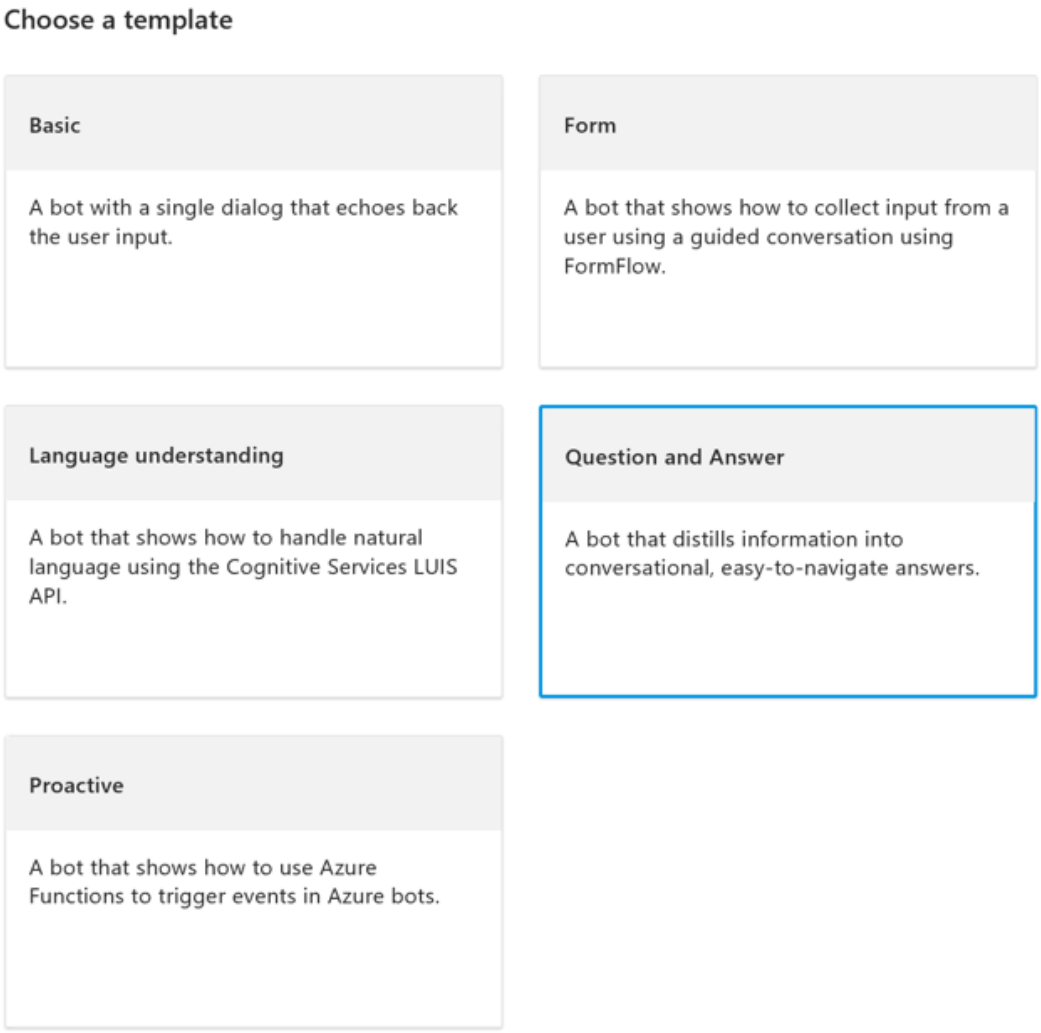
6. Paste the AppID and Secret from the previous step into the bot wizard.



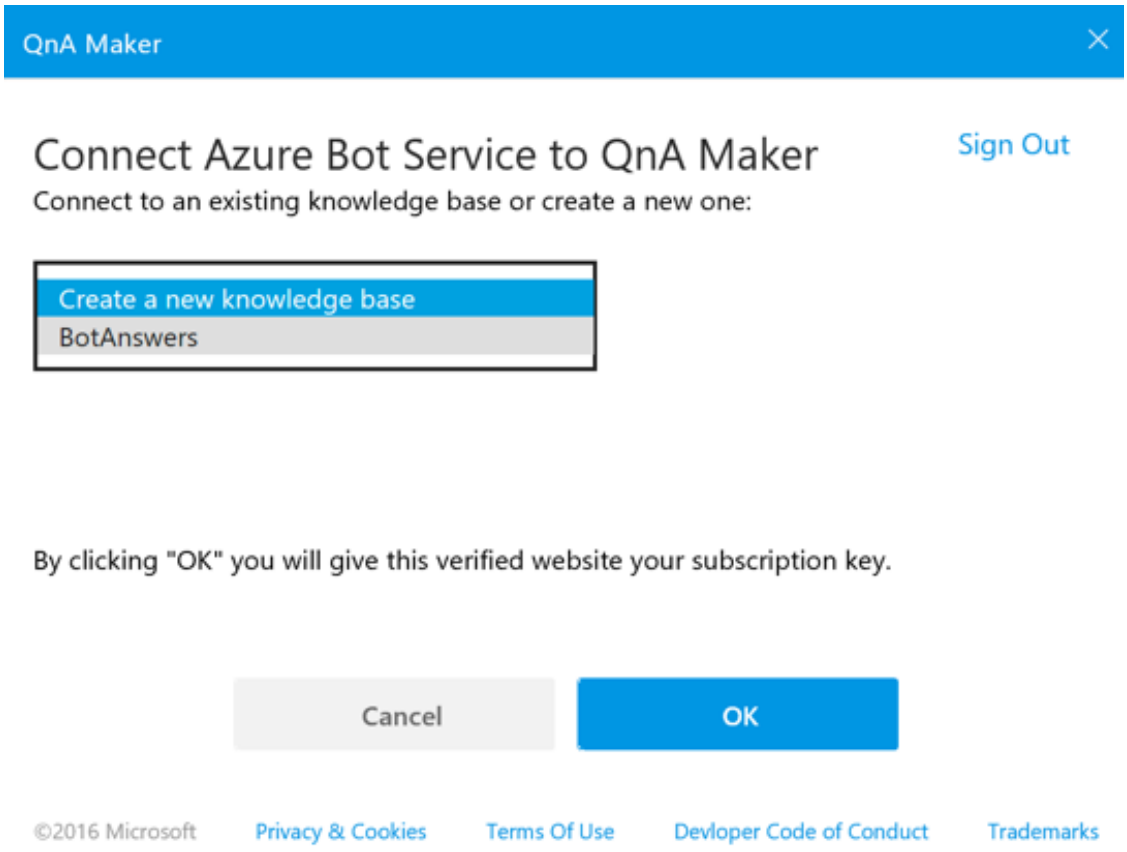
7. Choose C# and the bot language. You also could use NodeJS, but for this HOL you will use C#.



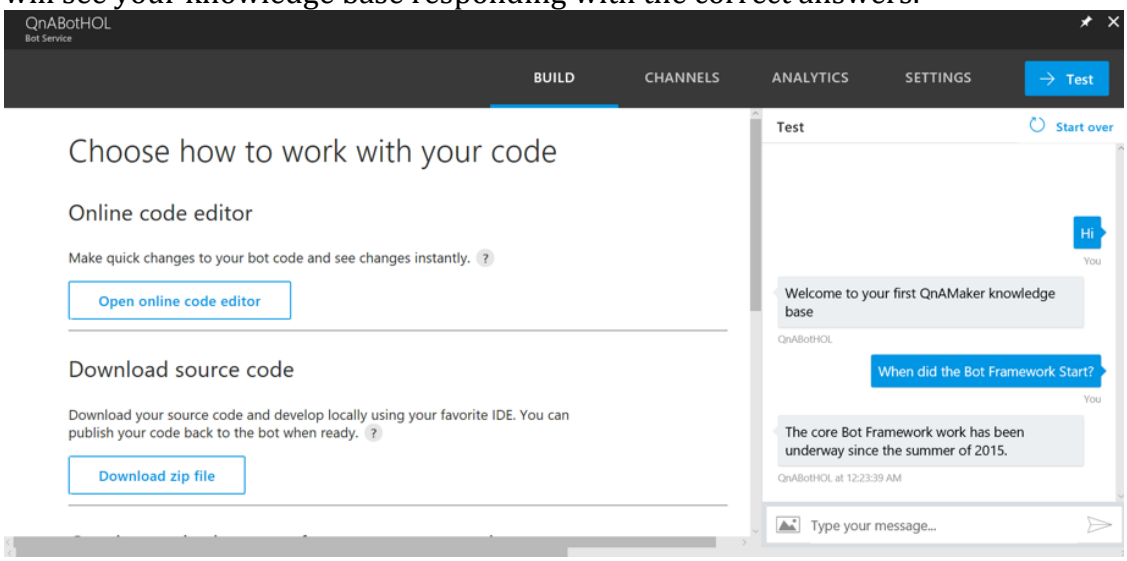
8. Select the Question and Answer template. There are currently 5 templates to get you started. The Question and Answer template will connect to your QnAMaker knowledge base rest endpoint.



9. Agree to the terms and create the bot. After checking the box that you agree to the legal terms, click the Create bot button.
10. Choose your knowledge base. In the QnAMaker dialog, select the knowledge base you created earlier, in this case BotAnswer. Click ok to complete the Question and Answer template wizard.



11. Test your bot. Click on the Test tab to test the bot. A chat like test pane will open on the right. Enter some questions like "Hi" and "When did the Bot Framework start." You will see your knowledge base responding with the correct answers.



12. View the code in the online editor. On the Build tab you can choose how to work with the code and you can enable a source code provider. Click Open online code editor. Don't make any changes at this time.

Choose how to work with your code

Online code editor

Make quick changes to your bot code and see changes instantly. ?

Open online code editor

Download source code

Download your source code and develop locally using your favorite IDE. You can publish your code back to the bot when ready. ?

Download zip file

Continous deployment from source control

Enable continuous deployment with your favorite source control provider. ?

Select a source control provider

Visual Studio Online

Url to your visual studio online site

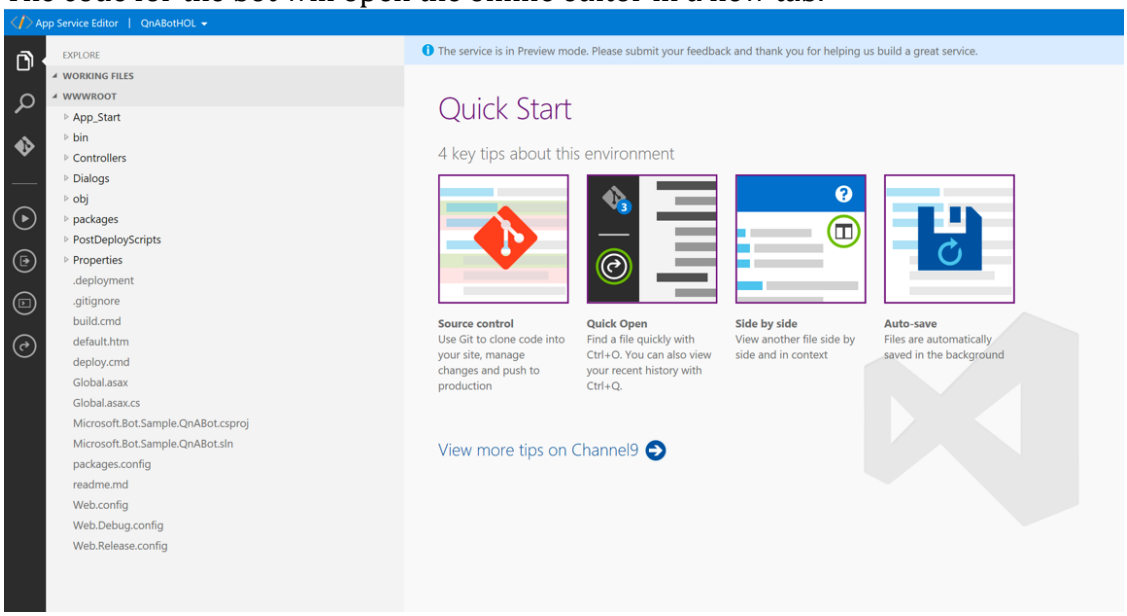
View Visual Studio Profile

Secondary user acccount name

Personal access token with 'Project and team' and 'Code' scope

Enable

13. The code for the bot will open the online editor in a new tab.



Exercise 7: Deploy an Information Bot with the Azure Bot Service to multiple channels

The Azure Bot Service makes it easy for you to create a bot using the Bot Framework by simply selecting a template. The Azure Bot Service will host your bot as a serverless Azure Function or an Azure Web App.

Appendix

```
\\c# code block
main{
}
```

1. list item 1
2. list item 2
    - sub list
    - sub list
        - sub sub list

Note: this is a note - thank you