

# Task 6 D : Language Understanding

## Abstract

Custom question answering leverages cloud-based Natural Language Processing (NLP) to seamlessly integrate a conversational interface with data. It enables the retrieval of relevant answers from customer queries or within a specific project context.

The process begins by importing content into a project repository containing question and answer pairs. During import, the system analyses the structure of the content to infer relationships between different elements, enhancing the effectiveness of the question-answer matching process. There is flexibility to refine existing pairs or introduce new ones according to requirements. Each question-and-answer pair comprises various components, including alternative question formulations, metadata tags for answer filtering, and prompts for further refining search results.

Once the project is deployed, a client application forwards user queries to the designated endpoint. The custom question answering service then interprets the query and returns the most suitable response. Typically, this interaction occurs via a JSON response format, commonly utilized by chatbots and other client applications integrated with the custom question answering system.

The objective is to **develop a Custom Question Answering Bot** tailored for the travel and transport domain, with a focus on corporate bookings. Utilizing Azure Cognitive Services Language Studio, we will construct the bot and deploy it to Azure. Subsequently, we will integrate the bot with a channel such as Facebook for wider accessibility and interaction.

## Overview of steps required to create a custom question answering bot on Azure Language Studio and connect it to Facebook

- Create FAQ documents which will serve as the basis for training custom question answering model.
- Login to Azure Account at <https://portal.azure.com/>.
- Create Language Studio Project: In the Azure portal, navigate to "Language Studio" and create a new project. Choose the "Custom question answering" option.
- Import FAQ as Source: In your Language Studio project, import your FAQ documents as a knowledge base source. Organize and format the content for easy processing.
- Deploy Model: Train your Language Studio model using the imported FAQ documents. Once trained, deploy the model.
- Connect to Facebook: In the Azure portal, navigate to your Language Studio project and select "Channels". Choose Facebook and follow the instructions to connect your bot to a Facebook page.
- Configure Facebook Messenger: Configure the settings for your Facebook Messenger integration, including providing necessary permissions and configuring webhook URLs.
- Test the Bot: Once connected, test your bot in Facebook Messenger to ensure it can answer questions accurately based on your FAQ documents.
- Refine and Update: Continuously refine and update your Language Studio model as needed based on user feedback and changes to your FAQ documents.

By following these steps, a custom question answering bot can be created using Azure Language Studio and connect it to Facebook, leveraging own FAQ documents as the knowledge base source.

## 1. Building a Knowledge Base for Corporate Travel and Transport

To create a knowledge base, gather FAQs, manuals, and relevant documents, organize them into categories such as booking procedures and travel policies, format the content for easy processing, and save it locally in a suitable format for integration into the Custom Question Answering Bot during development.

### MyTravel Corporate Booking FAQ

Q: Do we have booking holding facility in case of International travel?

A: No, we only offer 'book international flight' feature on our B2B site [at the moment](#) but within 2 months, we will have a ticket holding feature too on our B2B platform. For now, you can hold your international ticket with the help of our helpdesk team.

Q: What is the process to change a date with your portal in case of International tickets?

A: You just need to drop an email with original PNR to our help desk team (b2bfli@helpdesk@mytravel.com). They will do the needful and send you the new ticket.

Q: How about the cancellation of flight and hotels?

A: You can cancel your flight ticket through online system only but if your travel time is in next 6 hours then you need to get it cancelled with the respective airline directly and accordingly share your cancellation request number with us. We shall process the refunds from our end for the same. Hotel booking can be canceled at helpdesk only because this process is offline as of now.

Q: How much time it will take in case of refunds?

A: It is processed immediately after the confirmation of the cancellation and goes directly to the respective booking account i.e., deposit account or credit card (whichever the case be).

Q: Can you customize the report as per our requirement?

A: We have a detailed reporting model and you see it department wise and branch wise. Single user level of customization is also possible but it only happens once you are comfortable with the tool with at least 5 to 6 months of user [experience](#).

Q: Any special facility provided for CXO level person?

A: We are just a [third party](#) ticket booking partner so we [can not](#) give any additional facility in case of airlines as they have their own policies for the travelers. But Yes in case of hotels we can do certain level of customization depending on different hotels.

Q: How can we monitor that our employee is buying the lowest fare available?

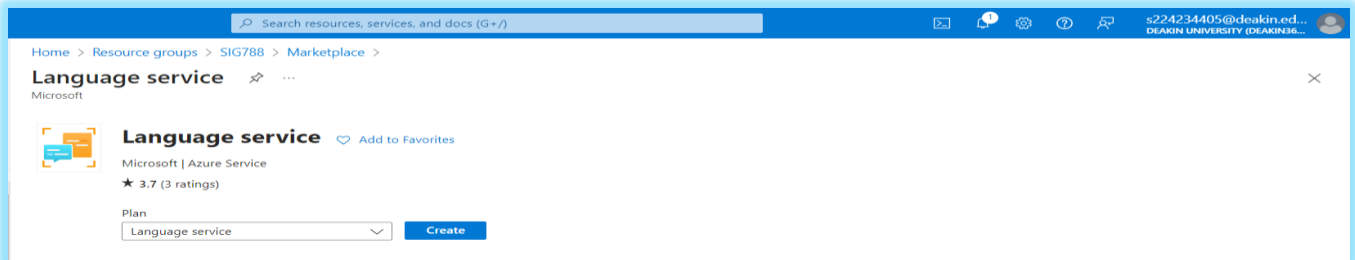
A: We have a Selective Fare Email feature, which is an approval process tool that allows employees to email all possible travel options to their seniors in one go and get an approval through the same.

Q: Can I mail all fares in one go to my employees?

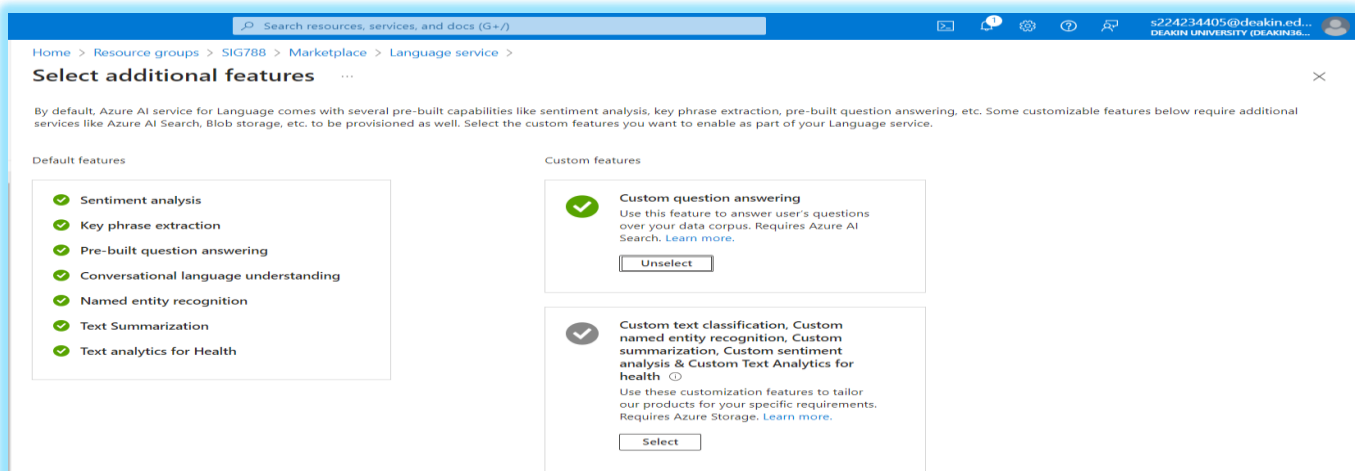
A: Yes, Selective Fare Email feature lets you send all possible options to your employees in one go. The employee can further confirm the accepted option. This will save a lot of time which otherwise wastes away in going back and forth [in an attempt to](#) figure out the best possible choice.

## 2. Create Language Service

Login to the azure portal. Access the Azure portal and navigate to your resource group. Search for "Language Service" and initiate the creation process.



Opt for "Custom question answering" and proceed accordingly, specifying an appropriate App Name and region considering pricing and availability factors.



portal.azure.com/#view/Microsoft\_Azure\_ProjectOxford/TextAnalyticsCreate\_Dx/searchEnabled~/true/storageEnabled~/false/dxParameters~//%7B"searchEnabled"%3Atrue...

Home > Resource groups > SIG788 > Marketplace > Language service > Select additional features >

### Create Language

Basics Network Identity Tags Review + create

Unlock insights from unstructured text using advanced natural language processing. Use sentiment analysis to find out what customers think of your brand. Find topic-relevant phrases using key phrase extraction and identify the language of the text with language detection. Detect and categorize entities in your text with named entity recognition.

[Learn more](#)

**Project Details**

Subscription \*

Resource group \*   
[Create new](#)

**Instance Details**

Region

Name \*

Pricing tier \*   
[View full pricing details](#)

**Custom question answering**

Custom question answering lets you answer user's questions over your data corpus. You can extract questions and answers from your data, customize them and create a knowledge base. The knowledge base is stored in an Azure AI Search index in your own subscription.

[Learn more](#)

Azure search region

Azure search pricing tier \*   
[View full Azure search pricing details](#)

**Responsible AI Notice**

Microsoft provides technical documentation regarding the appropriate operation applicable to this Azure AI service that is made available by Microsoft. Customer acknowledges and agrees that they have reviewed this documentation and will use this service in accordance with it.

[Responsible Use of AI documentation for Text Analytics for Health](#)

[Previous](#) [Next](#) [Review + create](#)

[Give feedback](#)

Your language service, named "MyTravel," has been successfully created.

Search resources, services, and docs (G+)

Home > TextAnalyticsCreate-20240413110527 | Overview > SIG788 >

### MyTravel

Language

Search  Delete

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems

Resource Management

Essentials

Resource group (move) : [SIG788](#)

Status : Active

Location : East Asia

Subscription (move) : [Azure for Students](#)

Subscription ID : 5d130746-93b8-4472-b701-9a9cf1200924

Tags (edit) : [Add tags](#)

API Kind : TextAnalytics

Pricing tier : Free

Endpoint : <https://mytravel.cognitiveservices.azure.com/>

Manage keys : [Click here to manage keys](#)

[JSON View](#)

Choose an Azure resource within your resource group to access Language Studio.

### Select an Azure resource

To access Language studio, you need an Azure resource. You can use an existing resource or create a new one. You can change the resource you use at any time. [Learn more about resources in Azure.](#)

**Azure directory \***

Note: Switching directory will cause the page to refresh.

**Azure subscription \***

Select an existing Azure subscription or [create a free account](#) and then refresh

**Resource type \***

Language or Azure Cognitive Services resources can be used for any capability except for translation, which requires a Translator resource

**Resource name \***

Select an existing resource or create a new one

**Pricing tier:** Free (F0)

**Managed identity:** Enabled

[Create a new Language resource](#)

[Done](#) [Cancel](#)

### 3. Create a project in Language Studio

To create a project in Language Studio, first choose the option "I want to set the language for all projects created in this resource," then select **English**. Next, enter a project **name** and **description**, leaving the default answer setting as "No answer found." Finally, review your choices and select "**Create project**."

The screenshot shows the 'Create a project' dialog with a progress bar on the left indicating three steps: 'Choose language setting', 'Enter basic information', and 'Review and finish'. The 'Review and finish' step is currently active. The main area displays the project configuration: 'Projects in multiple languages allowed?' is set to 'No'; 'Language resource' is 'MyTravel'; 'Azure Search resource' is 'mytravel-asnwmxwiqtpp7s'; 'Project name' is 'MyTravel'; 'Description' is 'Travel and Transport Booking Service'; 'Source language' is 'English'; and 'Default answer when no response is returned' is 'No answer found'. At the bottom, there are 'Back', 'Next', 'Create project', and 'Cancel' buttons.

### 4. Add Sources to the Knowledge Base

Go to the Manage sources page, then click on "**Add source**" -> "**Files**." Select the file created in step 1. Additionally, include the **Chitchat** option to enable the system to engage in casual conversation.

The screenshot shows the 'Manage sources' page with a table of sources. The table has columns for 'Source', 'Source name', 'Unstructured', and 'Source type'. There are two sources listed: 'qna\_chitchat\_Professional' and 'MyTravel Corporate Booking FAQ.docx'. The 'qna\_chitchat\_Professional' source is marked as 'No' for 'Unstructured' and 'file' for 'Source type'. The 'MyTravel Corporate Booking FAQ.docx' source is also marked as 'No' for 'Unstructured' and 'file' for 'Source type'.

Source	Source name	Unstructured	Source type
qna_chitchat_Professional		No	file
MyTravel Corporate Booking FAQ.docx	TravelFaq	No	file

### 5. Edit Knowledge Base

Editing the knowledge base is crucial because it ensures that the information provided remains accurate, up-to-date, and relevant to users' needs. As circumstances change or new information becomes available, it's essential to reflect these updates in the knowledge base to maintain its usefulness and effectiveness. Additionally, the same question can be queried in multiple ways, and editing allows for capturing these variations to ensure comprehensive coverage.

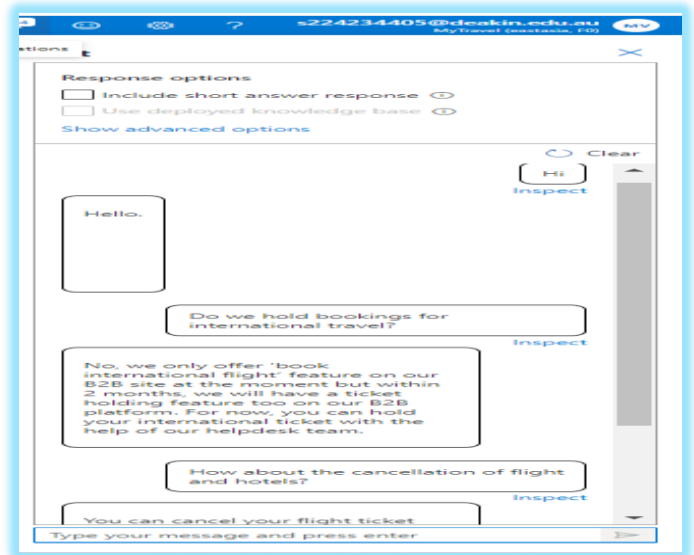
The screenshot shows the 'Edit knowledge base' page. It displays a list of sources, including 'MyTravel Corporate Booking FAQ.docx'. Below the sources, there is a section for 'Answer' and 'Alternate questions (2)'. The 'Answer' section shows a question: 'Do we have booking holding facility in case of International travel?'. The 'Alternate questions' section shows a question: 'Do we hold bookings for international travel?'. The page also includes a 'Follow up prompts' section and a 'Metadata' section.

## 6. Test your project

Navigate to the menu bar and select **"Test."**

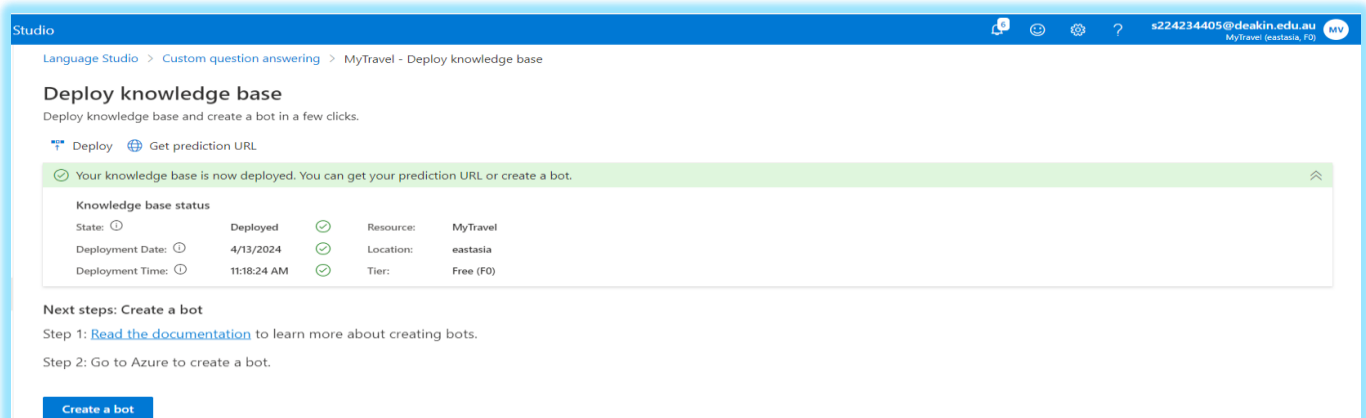
Enter the question **"Do we hold bookings for international travel?"**

The system will generate an answer based on the question-answer pairs automatically identified and extracted from your source.



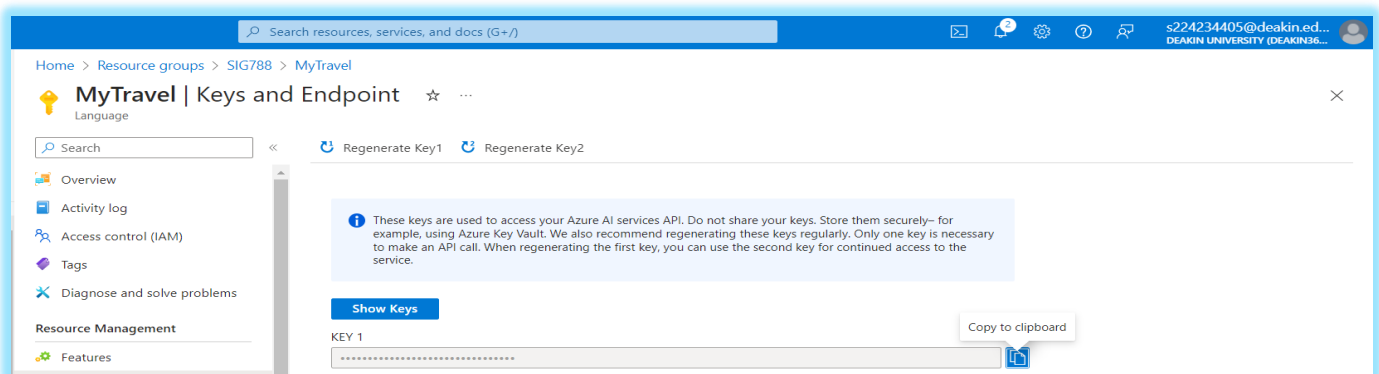
## 7. Deploy Knowledge Base

After verifying the test results, click the **"Deploy project"** icon to access the deploy project menu. Once successfully deployed, the project will transition from the test index to a production index in Azure Search. The endpoint can now be used to answer questions in custom application or bot.



## 8. Create a Bot

In Language Studio, on the custom question answering Deploy project page, select the **"Create a bot"** option. This action will open a new browser tab for the Azure portal, displaying the Azure AI Bot Service's creation page. Configure the Azure AI Bot Service as needed and then hit the **"Create"** button. Copy the Language Resource Key from **'MyTravel'** -> **Keys and Endpoint** as shown below.



Home > **Custom deployment** ...

Deploy from a custom template

If any Microsoft products are included in a Marketplace offering (e.g. Windows Server or SQL Server), such products are licensed by Microsoft and not by any third party.

**Basics**

Subscription	Azure for Students
Resource group	SIG788
Resource group location	Australia East
Bot handle	MyTravel-bot
Pricing tier	Standard
Creation type	Create new User-assigned managed identity

**Web App**

App name	MyTravel-bot-1a3f
SDK language selection	C#
Creation type	Create new app service plan
Language Resource Key	*****
Language project name	MyTravel
Language service endpoint hostname	https://MyTravel.cognitiveservices.azure.com
Subscription id	/subscriptions/8d5ceb22-44c7-4367-bfc6-07378096e055
Resource Group Name	SIG788
Account Name	MyTravel

Previous Next **Create**

## 9. Access App Bot

After the bot is created, open the Bot service resource.

Home > Resource groups > SIG788 > **MyTravel-bot** Azure Bot

Search resources, services, and docs (G+)

Download bot source code Refresh Move Delete

Help us improve Bot Service. Take our survey!

**Essentials**

Resource group (move)	: SIG788	Bot Service pricing tier	: S1
Subscription (move)	: Azure for Students	Messaging endpoint	: https://MyTravel-bot-1a3f.azurewebsites.net/api/messages
Subscription ID	: 5d130746-93b8-4472-b701-9a9cf1200924	Location	: Global
Tags (edit)	: WebAppLinked : true		

[JSON View](#)

**Build enterprise-grade conversational AI**

Develop enterprise-grade, conversational AI experiences, while maintaining control of your data. Edit your bot in SDK, host your bot in any environment and enable customers from a variety of channels, such as your app or website, Direct Line Speech, Microsoft Teams and more. [Learn more](#) >

**Get started with the Bot Framework**

Build, test, deploy, and manage intelligent bots, all in one place. The Bot Framework includes a modular and extensible SDK for building bots, as well as tools, templates, and related AI services. Note: For User-Assigned Managed Identity and Single Tenant app, BotFramework SDK (C# or Javascript) version 4.15.0 or higher is needed for these app types. [Learn the Bot Framework](#) >

[Download bot source code](#)

**Test and refine your bot**

Refined and debug locally with Emulator, and test your bot online in Web Chat. [Learn more about testing and debugging.](#)

[Test in Web Chat](#)

**Publish to Azure**

When you are ready, publish your bot to Azure and connect to channels. [Learn about publishing directly to Azure and continuous deployment.](#)

[Connect to channels](#)

**Settings**

- Bot profile
- Configuration
- Channels
- Pricing
- Test in Web Chat
- Encryption
- Networking
- Properties
- Locks

**Monitoring**

- Conversational analytics
- Alerts
- Metrics
- Diagnostic settings
- Logs

**Automation**

## 10. Test in Web Chat

Select 'Test in Web Chat'. Enter the message "Do we hold bookings for international travel?" into the chat prompt. The chatbot will respond with an answer retrieved from the project.

Home > Resource groups > SIG788 > MyTravel-bot > **MyTravel-bot | Test in Web Chat** Azure Bot

Search resources, services, and docs (G+)

Start over

Test

Hello and Welcome

Just now

Hi

Just now

Hello.

Just now

Are you Bot?

Just now

I'm digital. In other words, I'm not human.

Just now

Do we hold bookings for international travel?

Just now

No, we only offer 'book international flight' feature on our B2B site at the moment but within 2 months, we will have a ticket holding feature too on our B2B platform. For now, you can hold your international ticket with the help of our helpdesk team.

Just now

Type your message

**Settings**

- Bot profile
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- Pricing
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- Networking
- Properties
- Locks

**Monitoring**

- Conversational analytics
- Alerts
- Metrics
- Diagnostic settings

## 11. Create App in Facebook

Access <https://developers.facebook.com/>, navigate to "My Apps," and then create a new app. Select the app type as 'business' and provide a suitable name for the app.

Create an app


Add use case

App details

What do you want your app to do?


These are the most common use cases developers have used on Meta for Developers. Each use case unlocks secondary use cases with more functionality. Customize use cases once your app is created. [Learn more about app creation.](#)

☐




**Authenticate and request data from users with Facebook Login**  
Our most common use case. A secure, fast way for users to log into your app or game and for the app to ask for permissions to access their data to personalize their experience. [Learn more about Facebook Login.](#)

☐



**Launch a game on Facebook**  
Launch a game that players can find and play directly in their Feed or messages/conversations, on both desktop and mobile devices. [Learn more about Instant Games.](#)

☒



**Other**  
Explore other products and data permissions such as ads management, WhatsApp and more. You'll be asked to select an app type and then you can add the permissions and products you need.

Next


Create an app

Type

Details


Select an app type

The app type can't be changed after your app is created. [Learn more](#)



**Consumer**  
Connect consumer products and permissions, like Facebook Login and Instagram Basic Display to your app.

☐



**Business**  
Create or manage business assets such as Pages, Events, Groups, Ads, Messenger, WhatsApp and Instagram Graph API using the available business permissions, features and products.

☒

Create an app

Type

Details

Add an app name

This is the app name that will show on your My Apps page and associated with your app ID. You can change the name later in Settings.

MyTravel

8/30

Add an app name

This is the app name that will show on your My Apps page and associated with your app ID. You can change the name later in Settings.

MyTravel

8/30

App contact email

This is the email address we'll use to contact you about your app. Make sure it is an address you check regularly. We may contact you about policies, app restrictions or recovery if your app is deleted or compromised.

madhavi1083@yahoo.co.in

Business portfolio · Optional

Connecting a business portfolio to your app is only required for certain products and permissions. You'll be asked to connect a Business Account when you request access to those products and permissions.

No Business Manager account selected

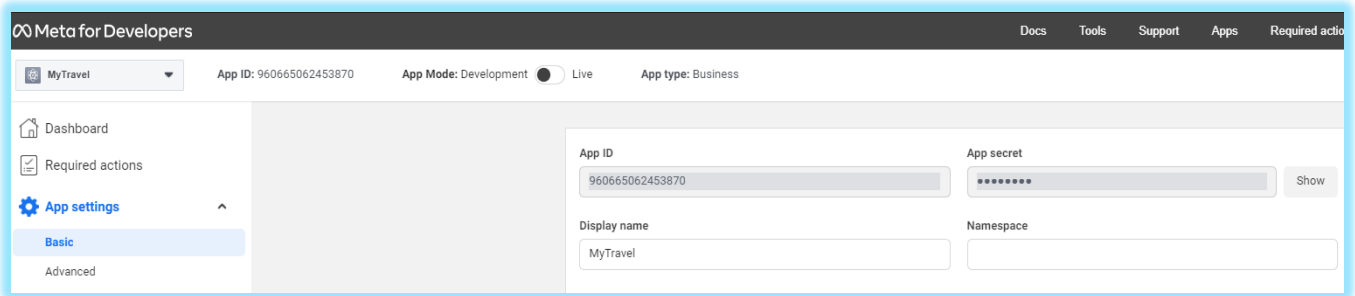
By proceeding, you agree to the [Meta Platform Terms](#) and [Developer Policies](#).

Previous

Create app

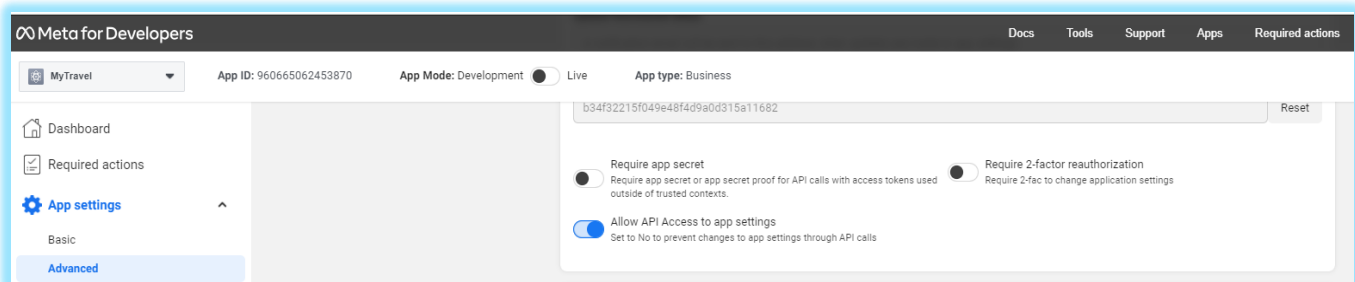
## 12. Retrieve App ID and App Secret for Facebook Page

Access the **App settings**, then navigate to "**Basic**". Copy the **App ID** and **App Secret** of the Facebook Page and save them. You'll require these credentials to connect to Facebook later on the Bot page.



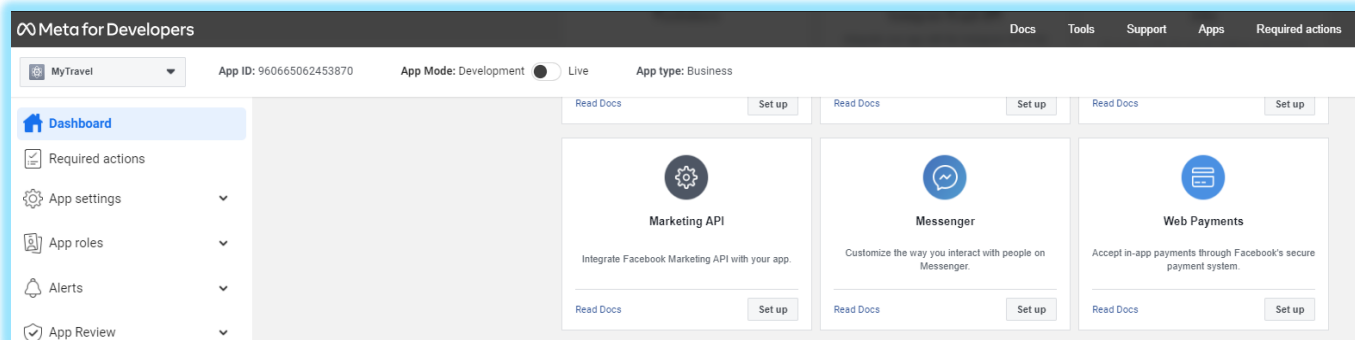
## 13. Allow API Access

Access the **App settings**, then navigate to "**Advanced**". Enable '**Allow API Access to app settings**' and Save changes.

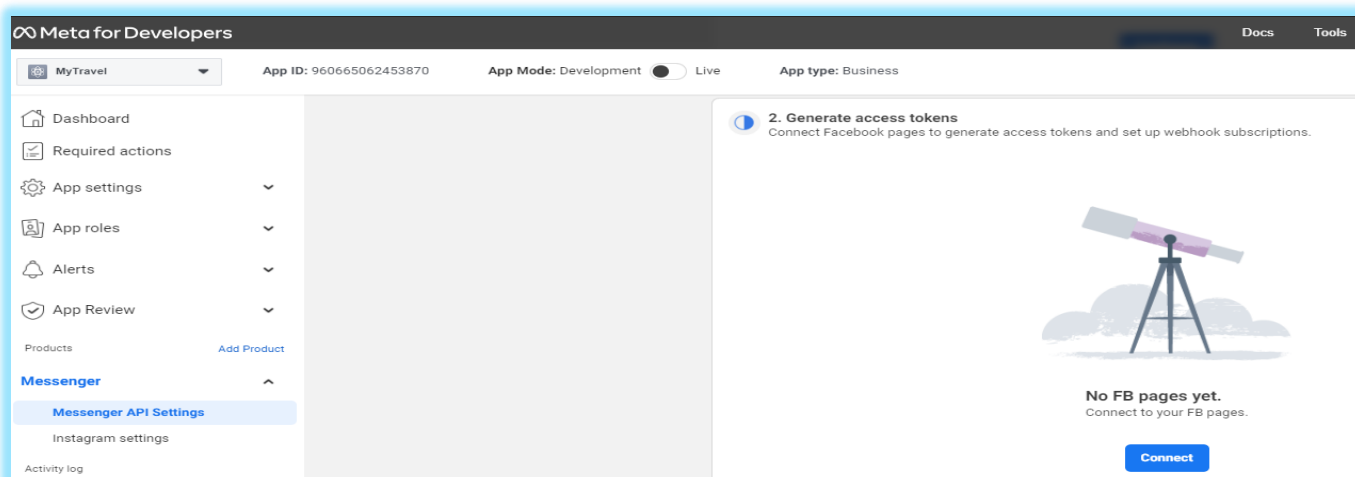


## 14. Grant Bot 'MyTravel' access to Messenger pages

Access the Messenger Setup section in the Facebook Developer Dashboard.



Choose **Messenger API Settings** -> **Generate access tokens** -> **Connect**






Choose the page that Bot needs to access

**Choose the Pages that you want MyTravel to access**  
Later, you'll be able to review what MyTravel will be able to do with the Pages you select.

☐ Opt in to all current and future Pages  
This will give MyTravel access to your current Pages, in addition to any Page you create in the future.

☒ Opt in to current Pages only  
This will only give MyTravel access to the Pages you select.



☐ Select all 1 asset selected

☒  **MyTravel**  
227937617079896

## 15. Integrate the bot with FB channel

Copy the page Id and token and paste them in the MyTravel-bot to Facebook connection page as below.

**2. Generate access tokens**  
Connect Facebook pages to generate access tokens and set up webhook subscriptions.

Page Name	Webhook Subscription	Token
 <b>MyTravel</b> 227937617079896	<a href="#">Add Subscriptions</a> No fields subscribed.	<a href="#">Generate</a> 

[Add Page](#)

Home > Resource groups > SIG788 > MyTravel-bot

**MyTravel-bot | Facebook**

Search resources, services, and docs (G+)

Close Delete channel Refresh Feedback

**Configure the page**

Your bot can be connected to Facebook Messenger or Facebook Workplace so that it can communicate with users on either platform. The following instructions will help with how to connect a bot to this Facebook channel. [Learn more](#)

**Facebook credentials**  
The Facebook App ID and Secret can be found in your Facebook account settings. The Callback URL and Verify Token are used to provide Facebook with the correct endpoint for your application so that your bot will receive messages. [Learn more](#)

App ID \*

Secret \*

Callback URL

Verify Token

**Pages credentials**  
The Page ID and Access Token can be found in your Facebook account settings.

Filter by page ID  [+ New page](#)

Page ID

Use the App Id and Secret copied from FB in Step 12 to establish the connection.

Your bot can be connected to Facebook Messenger or Facebook Workplace so that it can communicate with users on either platform. The following instructions will help with how to connect a bot to this Facebook channel. [Learn more](#)

**Facebook credentials**  
The Facebook App ID and Secret can be found in your Facebook account settings. The Callback URL and Verify Token are used to provide Facebook with the correct endpoint for your application so that your bot will receive messages. [Learn more](#)

App ID \*

Secret \*

Callback URL

Verify Token

**Pages credentials**  
The Page ID and Access Token can be found in your Facebook account settings.

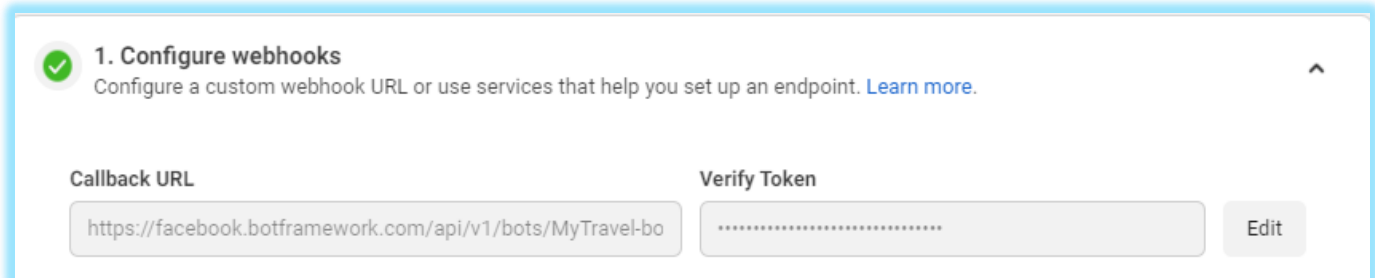
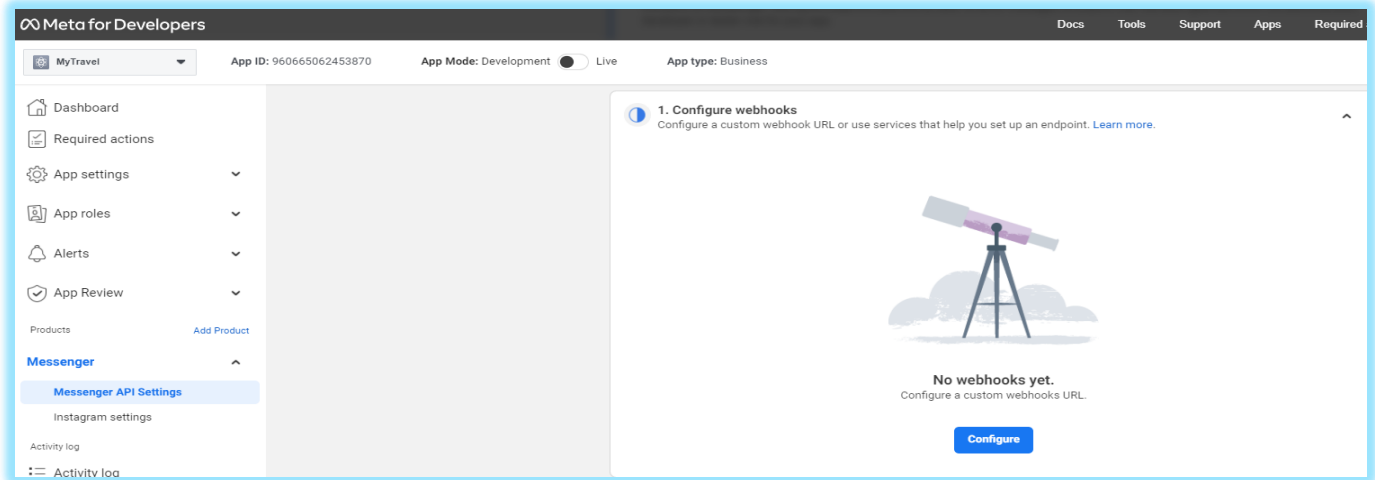
Filter by page ID  [+ New page](#)

Page ID

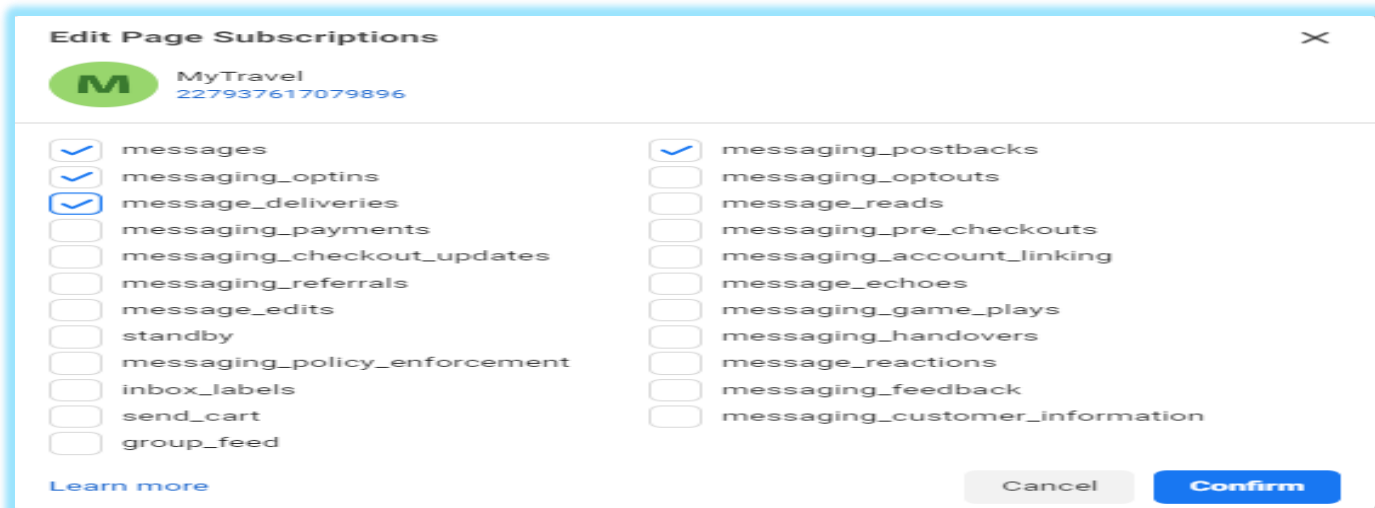
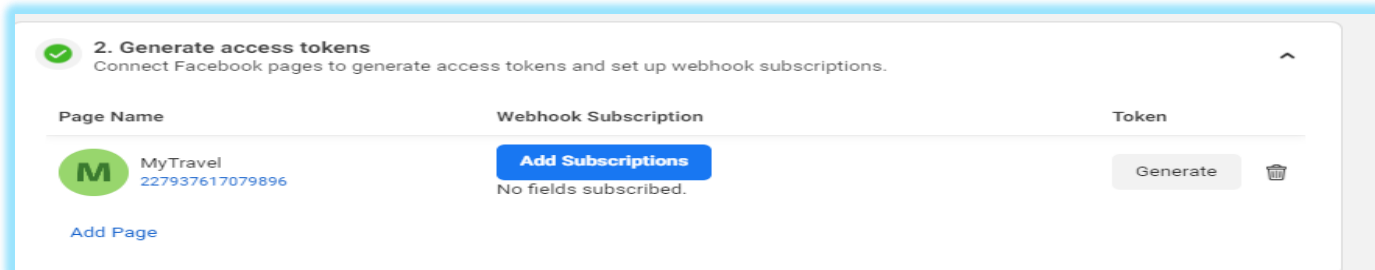
[Delete](#) [Edit](#)

## 16. Configure webhook and subscription settings in FB developer Dashboard

When the Facebook channel is added to the bot, it generates a callback URL and token that will be utilized by Facebook. In FB developer App page, Click on **Messenger API Setting** -> **Configure Webhooks**. Add the URL and token copied in previous step from Bot.

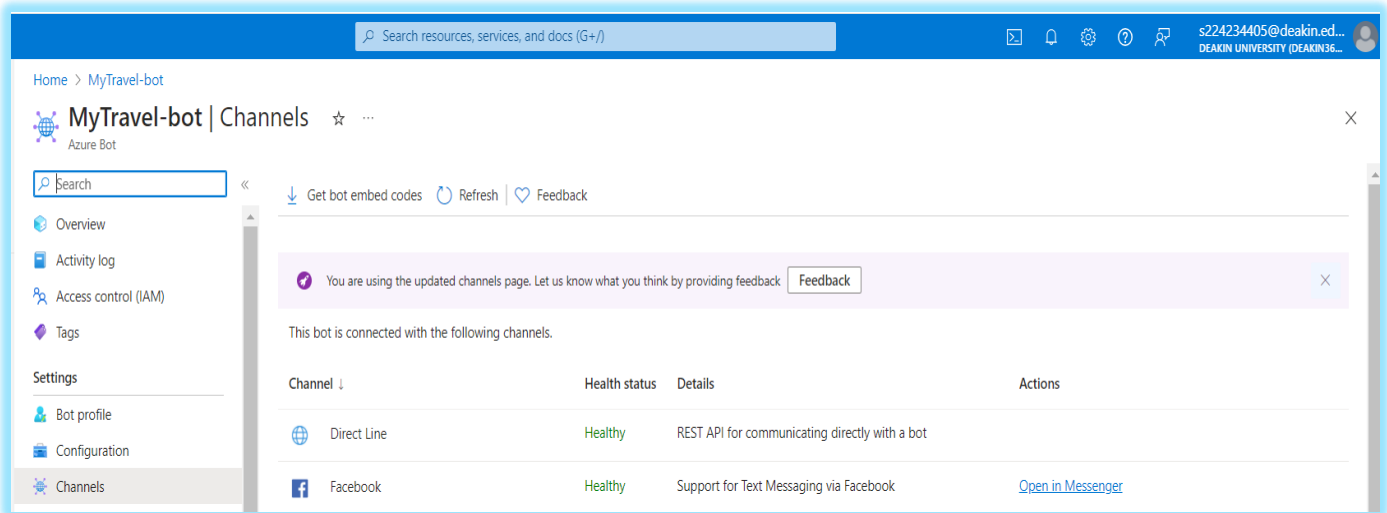


To add Webhook Subscription to the FB page, Click on **Messenger API Setting** -> **Generate access tokens** -> **Add Subscriptions**. Enable the necessary options and save.

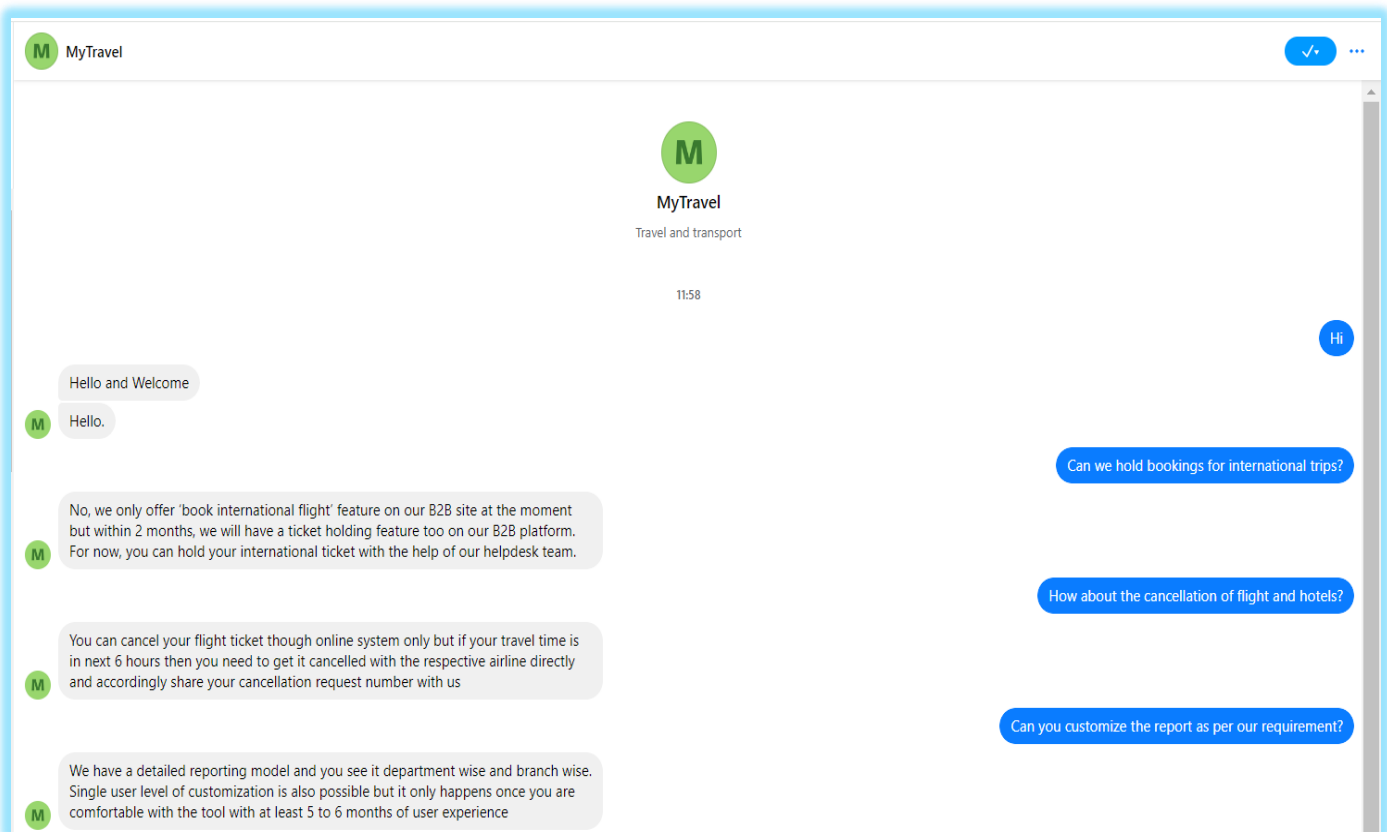


## 17. Connect to Messenger and test the chatbot

In the bot page on Azure, navigate to **channels** and select **Facebook**. Then, under the action options, click on "**Open in Messenger**." Accessing the Messenger Setup section in the Dashboard allows for configuring the bot to integrate with Facebook Messenger, enabling communication and interaction with users through this platform.

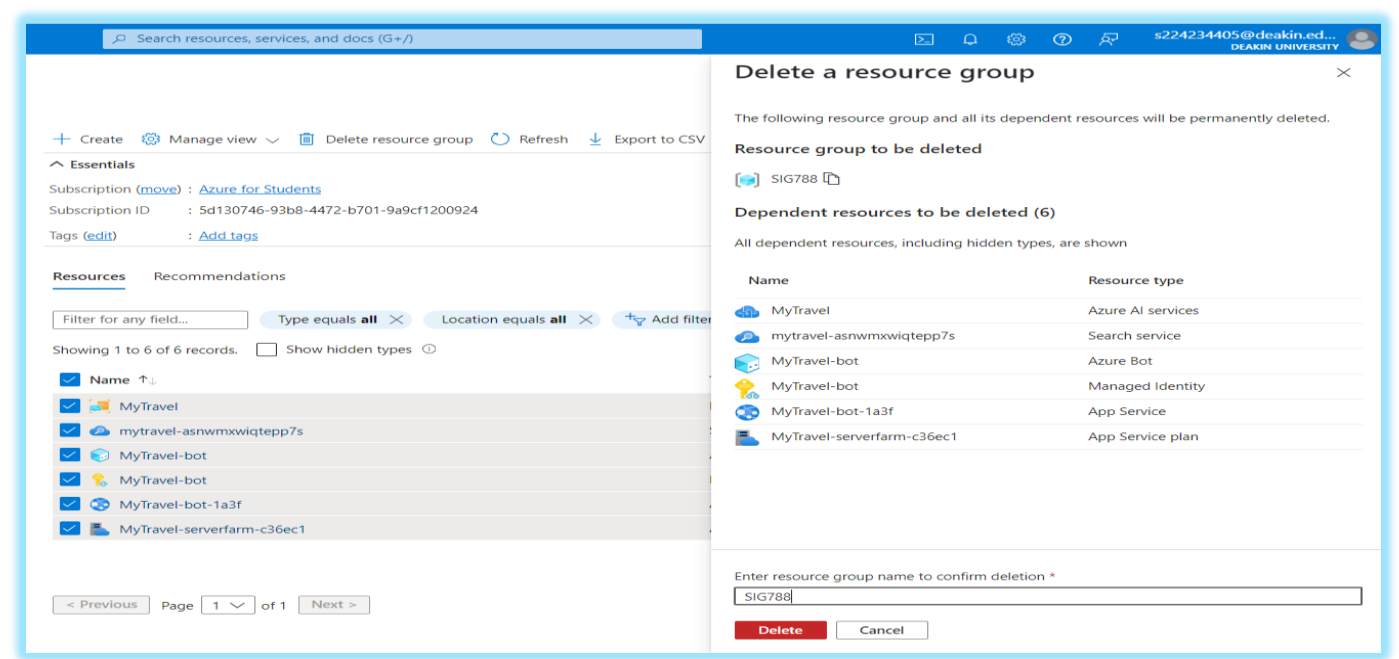


Once the Messenger chat opens, enter the query and test the bot as described. If the responses meet expectations, we can confirm that the connection to the channel is functioning correctly.

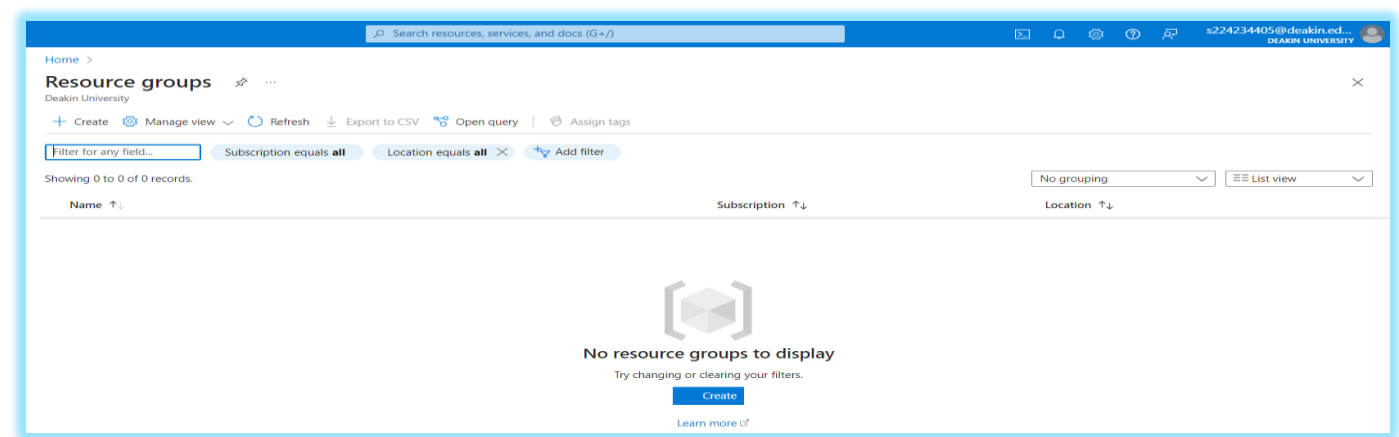


## 18. Cleanup Resources

Log in to the Azure portal and navigate to **Resource Groups**. Select the desired resource group containing the resources you wish to delete. Choose the specific resources you want to remove. Confirm the deletion and wait for the process to complete. Verify that all selected resources have been successfully deleted. Optionally, delete the resource group itself if no longer needed.



Verification of the successful deletion confirms that no residual resources remain, ensuring efficient resource management and avoiding unnecessary costs or clutter in the system.



## 19. References

- Michelle, Sandford. (2022). Chatbots on Azure. [Online] Available at: [https://olympus.mygreatlearning.com/courses/109578/pages/chatbots-on-azure?module\\_item\\_id=5378435](https://olympus.mygreatlearning.com/courses/109578/pages/chatbots-on-azure?module_item_id=5378435) [Accessed 13 April 2024].
- Microsoft. (2023). Create, test, and deploy a custom question answering model. [Online] Available at: <https://learn.microsoft.com/en-us/azure/ai-services/language-service/question-answering/how-to/create-test-deploy> [Accessed 13 April 2024].
- Microsoft. (2024). Tutorial: Create a question answering bot with Azure Bot Service. [Online] Available at: <https://learn.microsoft.com/en-us/azure/ai-services/language-service/question-answering/tutorials/bot-service> [Accessed 13 April 2024].