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 (b2bflighthelpdesk@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 though 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

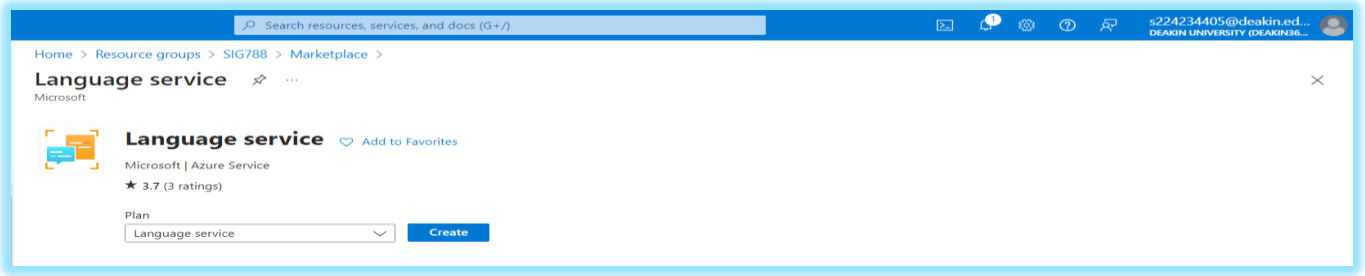
Q: Any special facility provided for CXO level person?
A: We are just a third party ticket booking partner so we can not give any additional facility in case of airlines as they have their own policies for the travelers. But Yes in case of hotels we can do certain level of customization depending on 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.

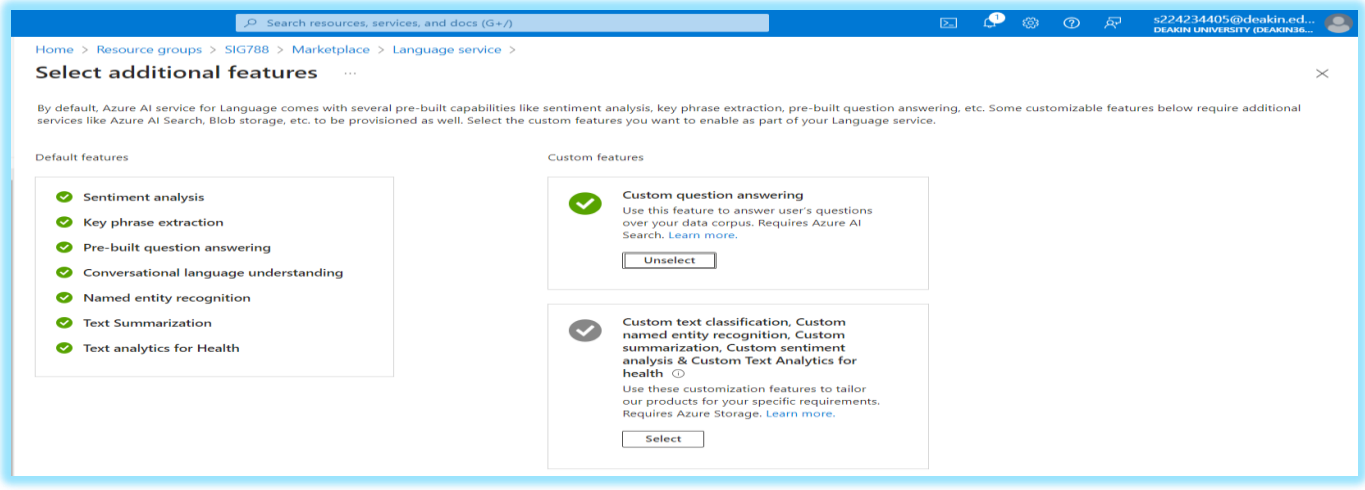
Q: Can I mail all fares in one go to my employees?
A: Yes, Selective Fare Email feature lets you send all possible options to your employees in one go. The employee can further confirm the accepted option. This will save a lot of time which otherwise wiles away in going back and forth in an attempt to figure out the best possible choice.

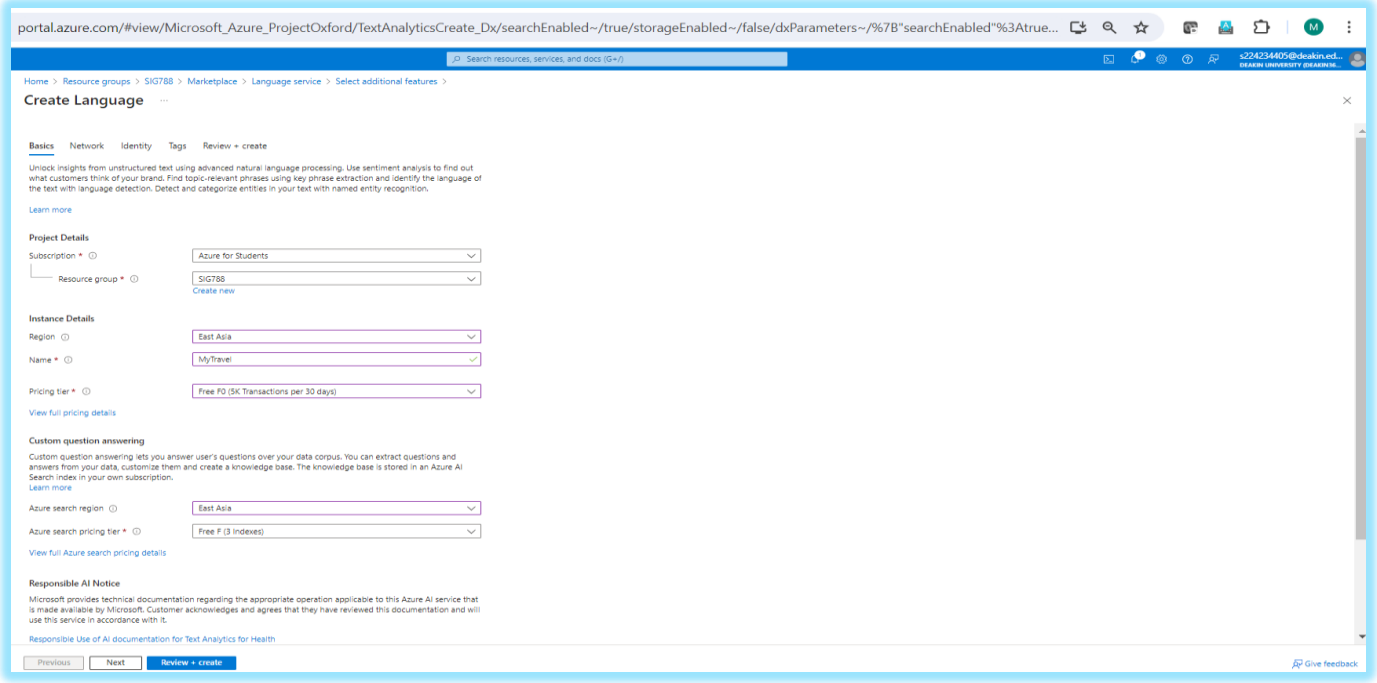
2. Create Language Service

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

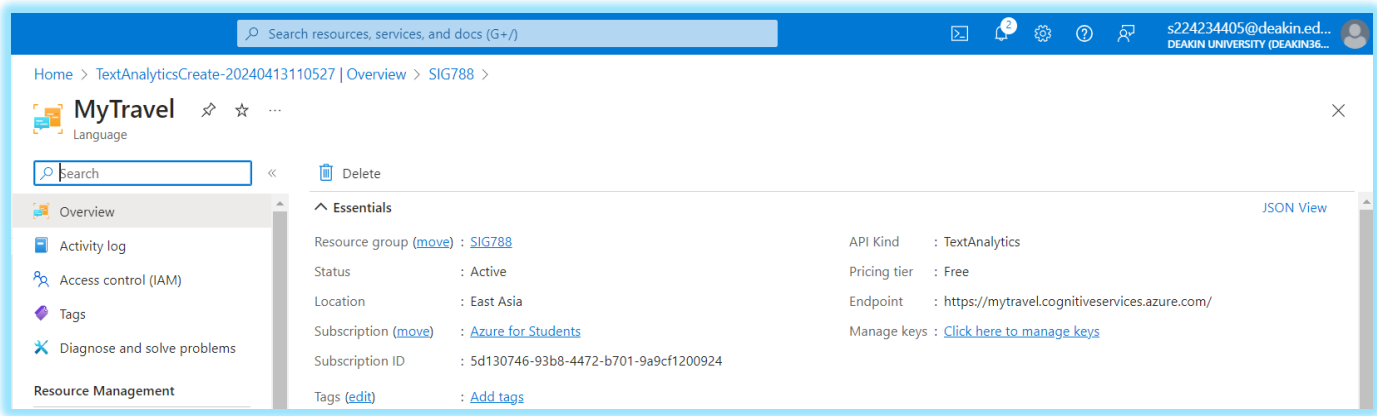


Opt for "**Custom question answering**" and proceed accordingly, specifying an appropriate **App Name** and **region** considering pricing and availability factors.

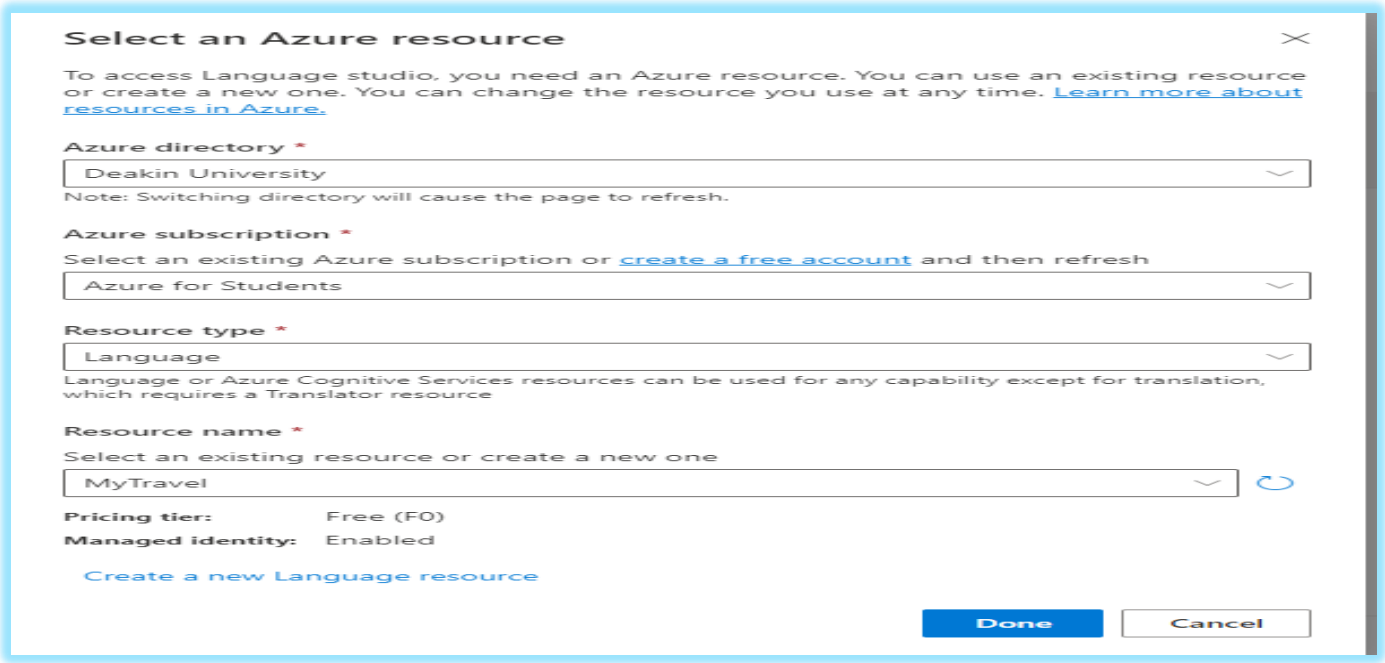




Your language service, named "**MyTravel**," has been successfully created.

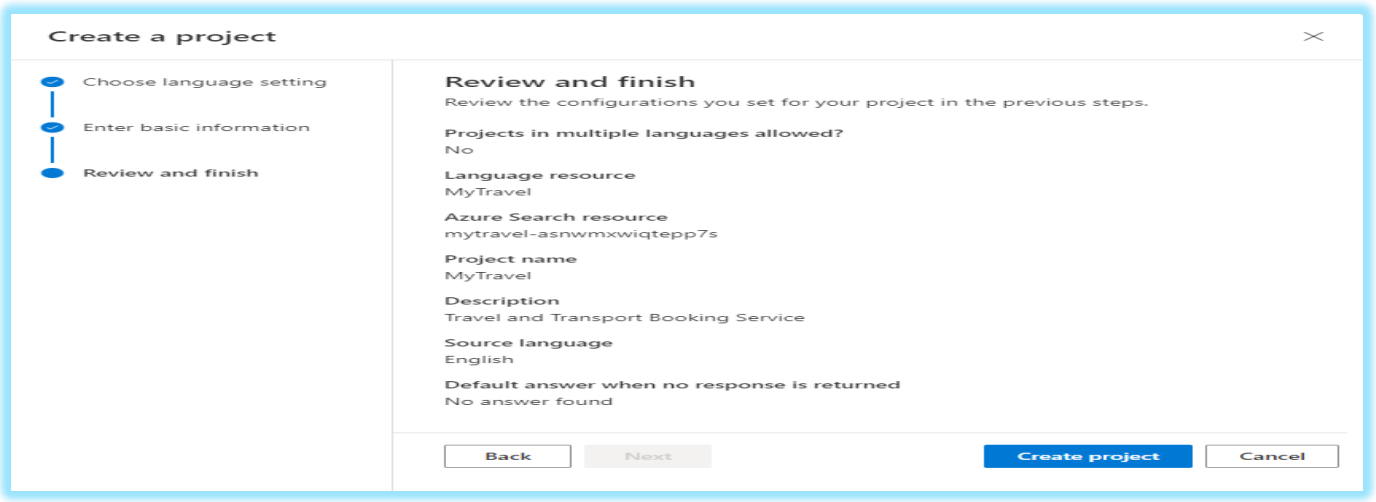


Choose an Azure resource within your resource group to access Language Studio.



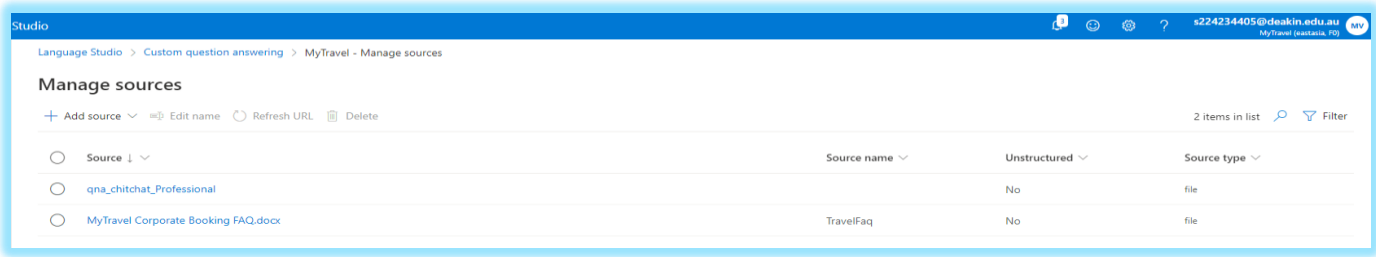
3. Create a project in Language Studio

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**."



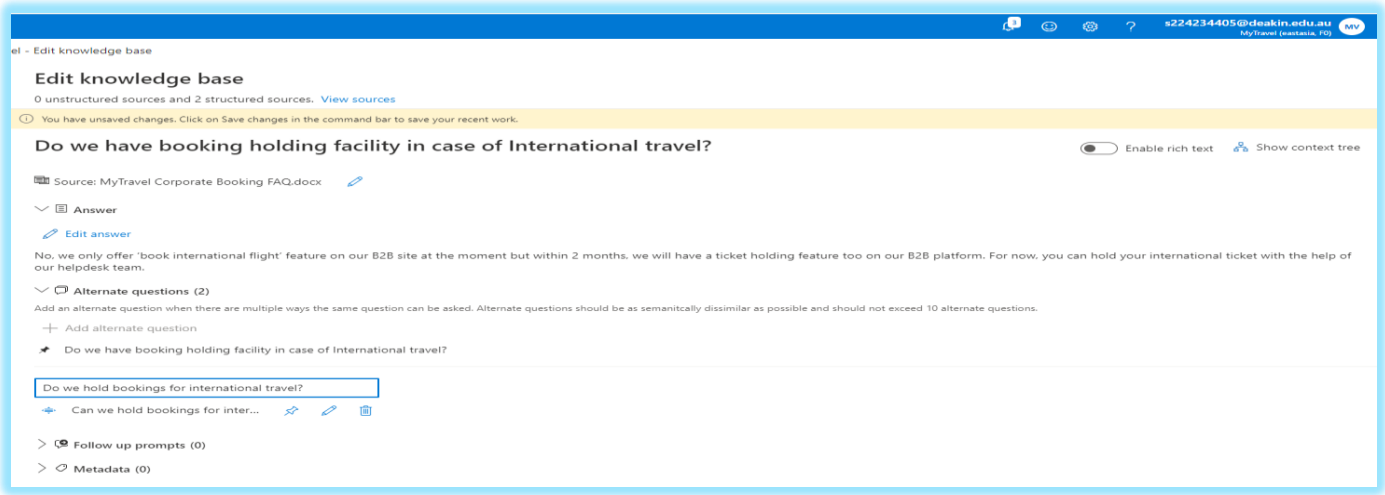
4. Add Sources to the Knowledge Base

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.



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.

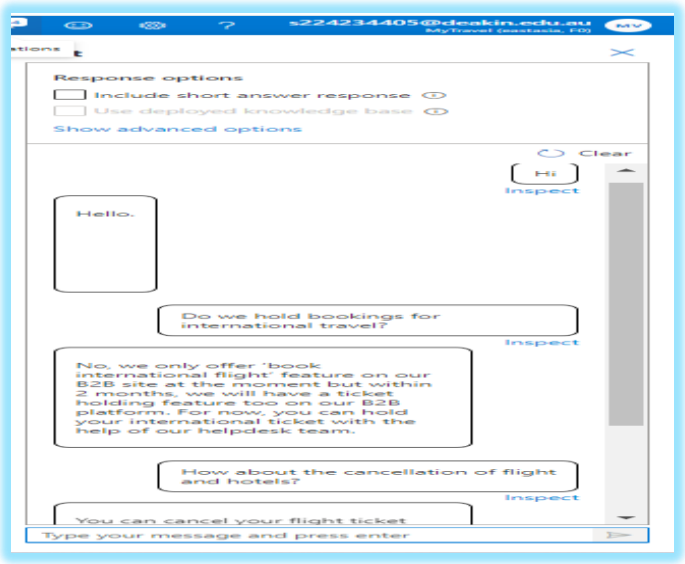


6. Test your project

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

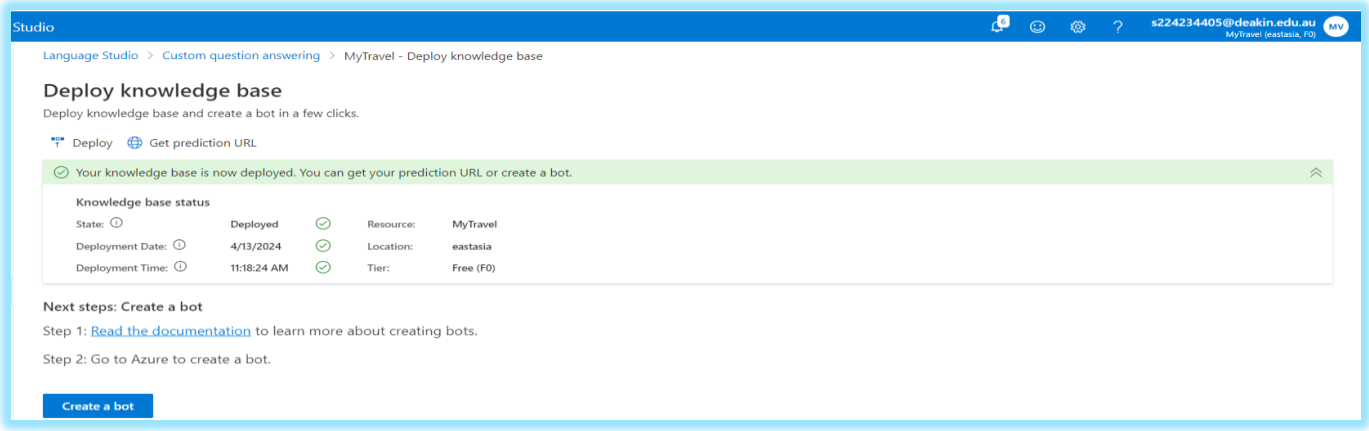
Enter the question "**Do we hold bookings for international travel?**"

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



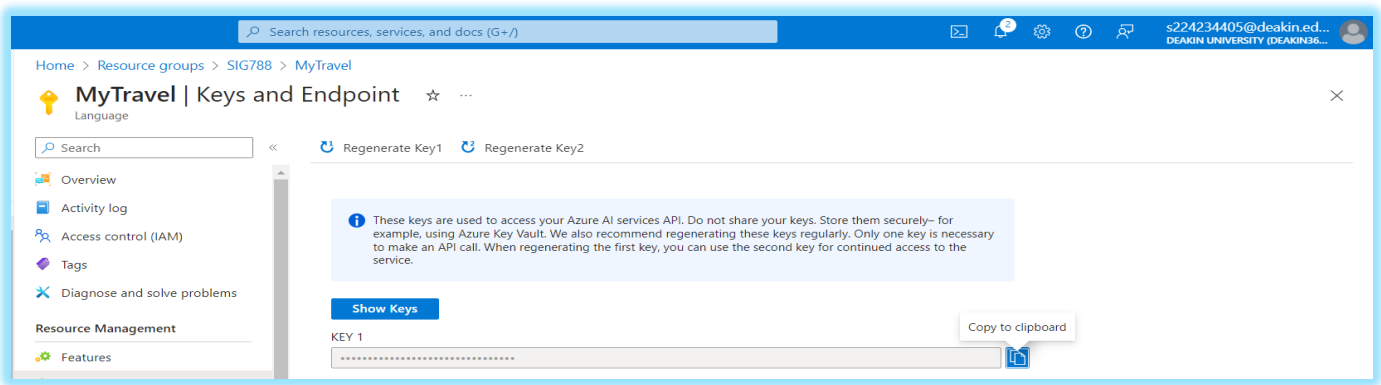
7. Deploy Knowledge Base

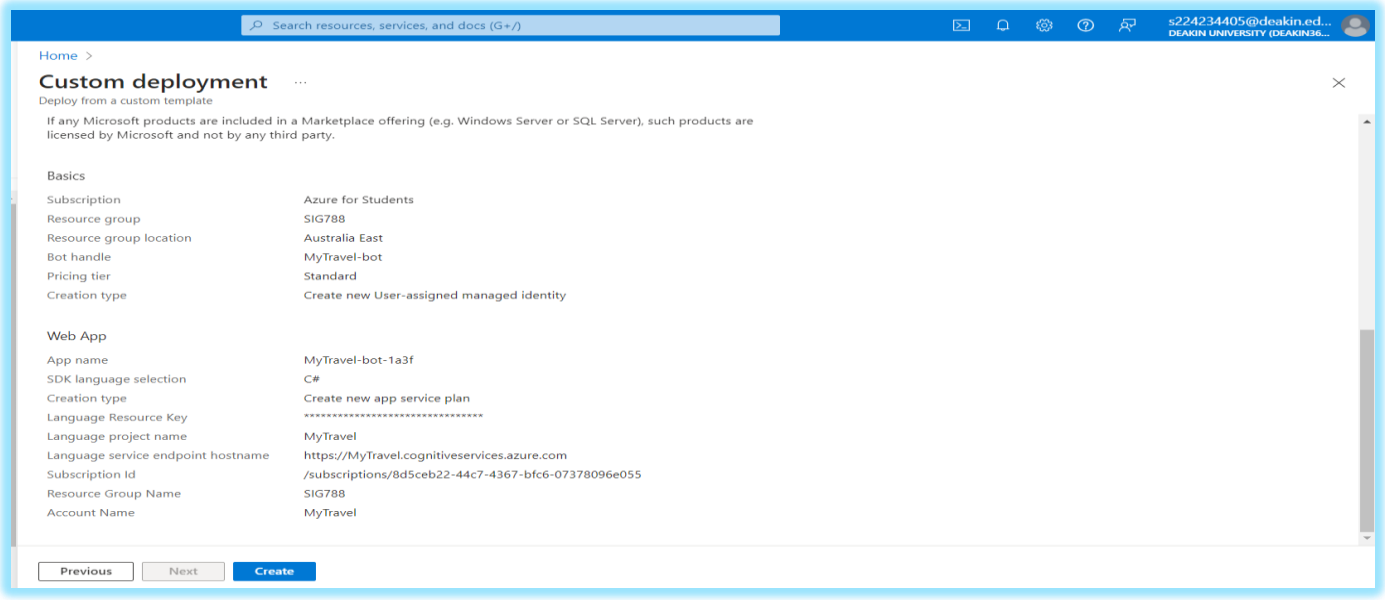
After verifying the test results, click the "**Deploy project**" icon to access the deploy project menu. Once successfully deployed, the project will transition from the test index to a production index in Azure Search. The endpoint can now be used to answer questions in custom application or bot.



8. Create a Bot

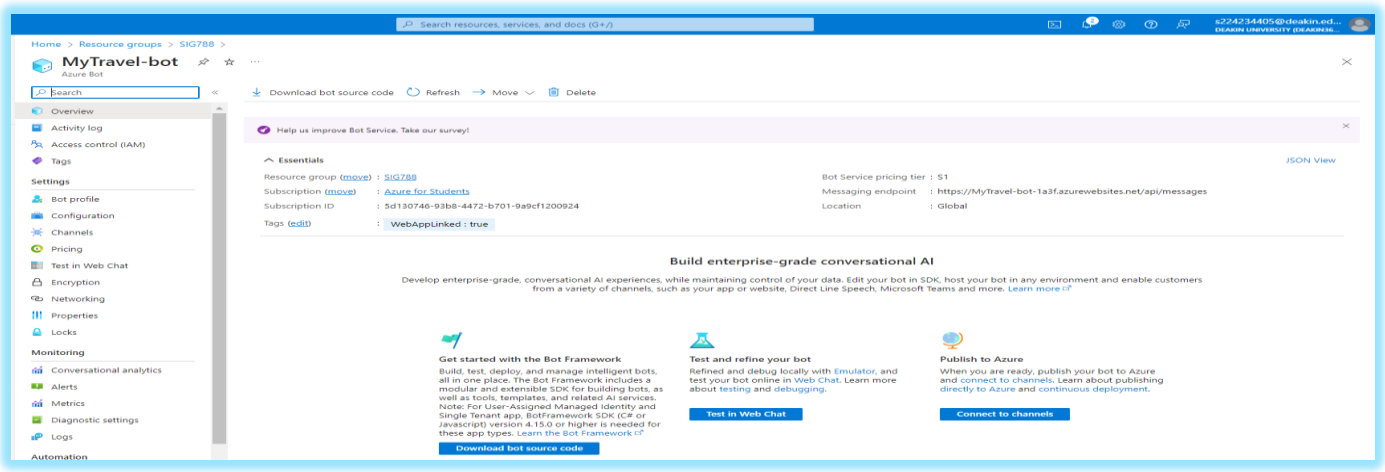
In Language Studio, on the custom question answering Deploy project page, select the "**Create a bot**" option. This action will open a new browser tab for the Azure portal, displaying the Azure AI Bot Service's creation page. Configure the Azure AI Bot Service as needed and then hit the "**Create**"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





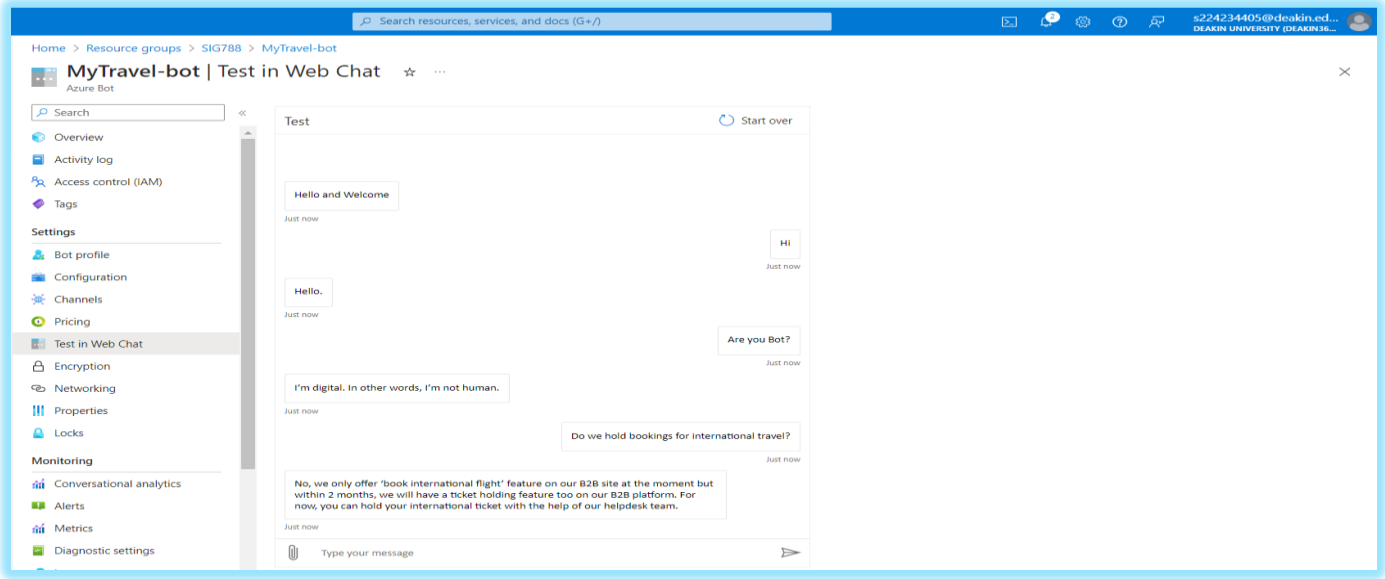
9. Access App Bot

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



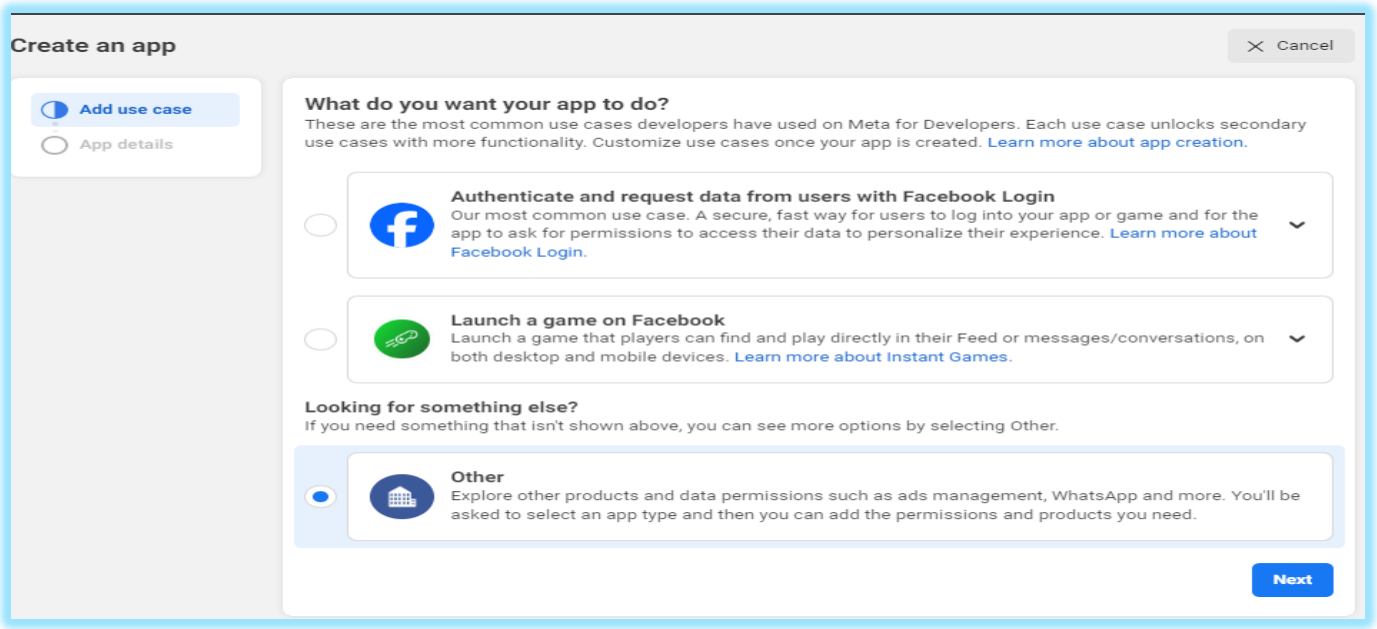
10. Test in Web Chat

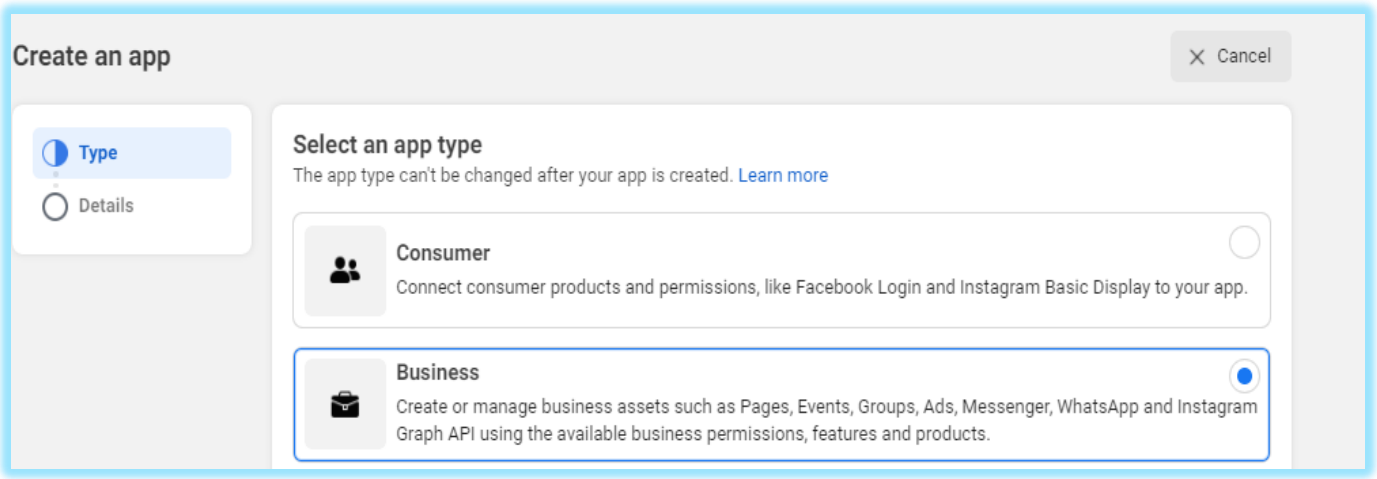
Select '**Test in Web Chat**'. Enter the message "**Do we hold bookings for international travel?**" into the chat prompt. The chatbot will respond with an answer retrieved from the project.

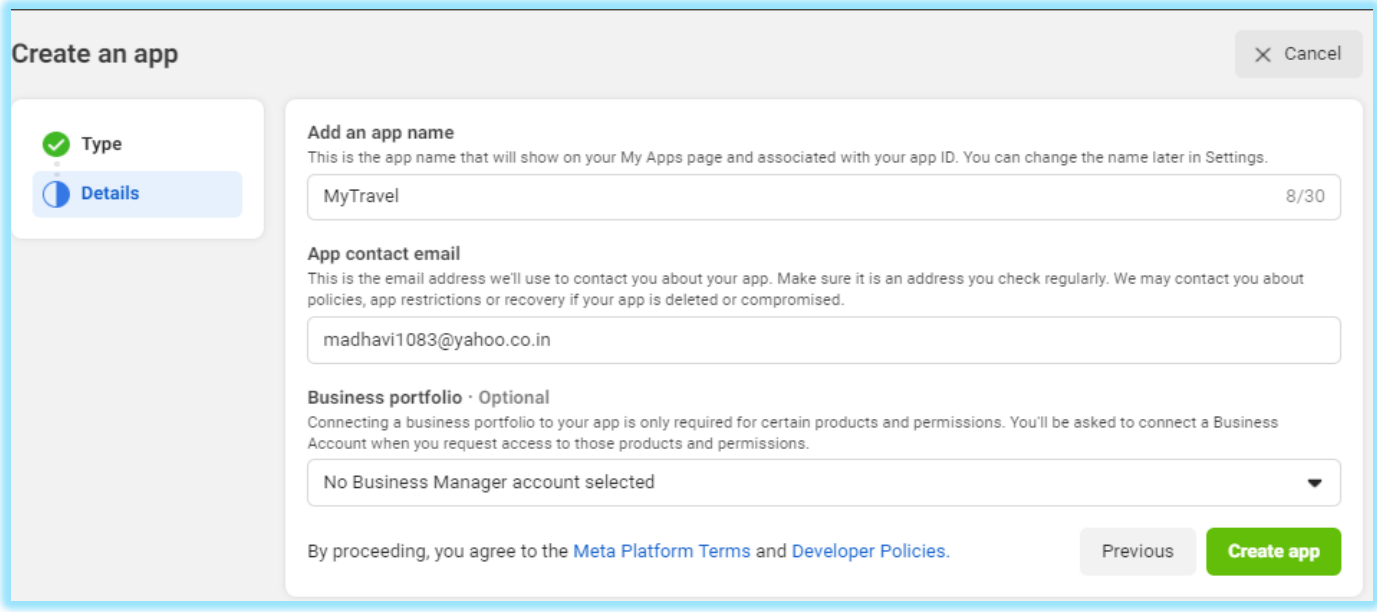


11. Create App in Facebook

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.

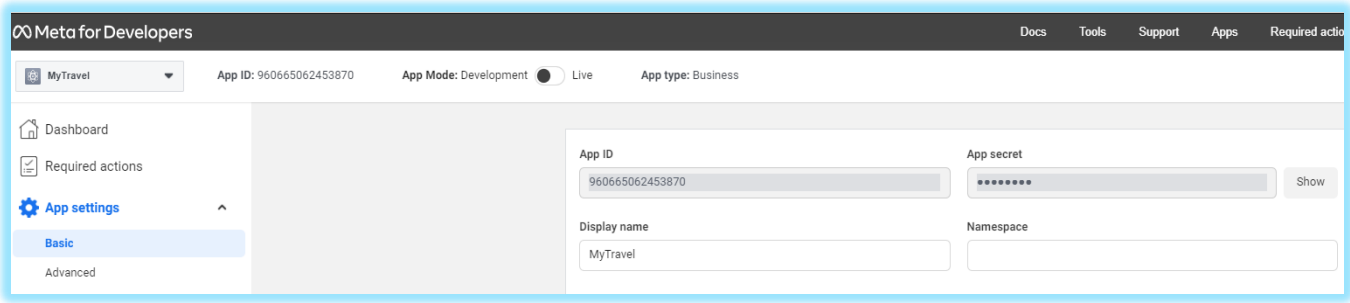






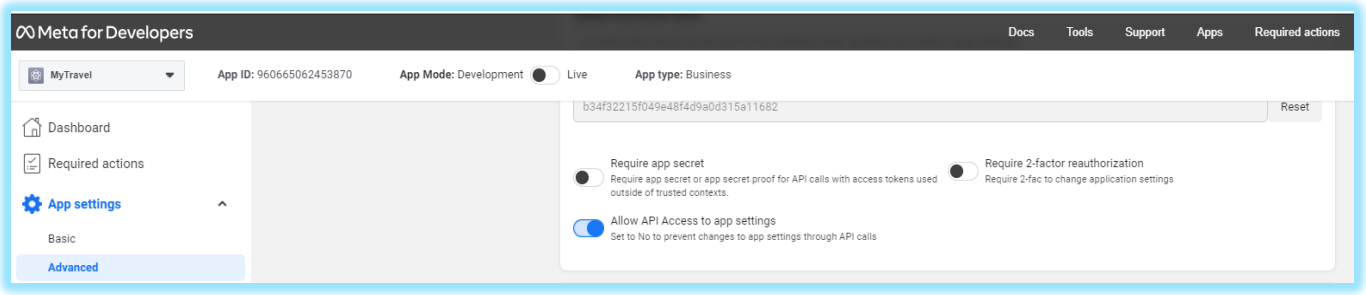
12. Retrieve App ID and App Secret for Facebook Page

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.



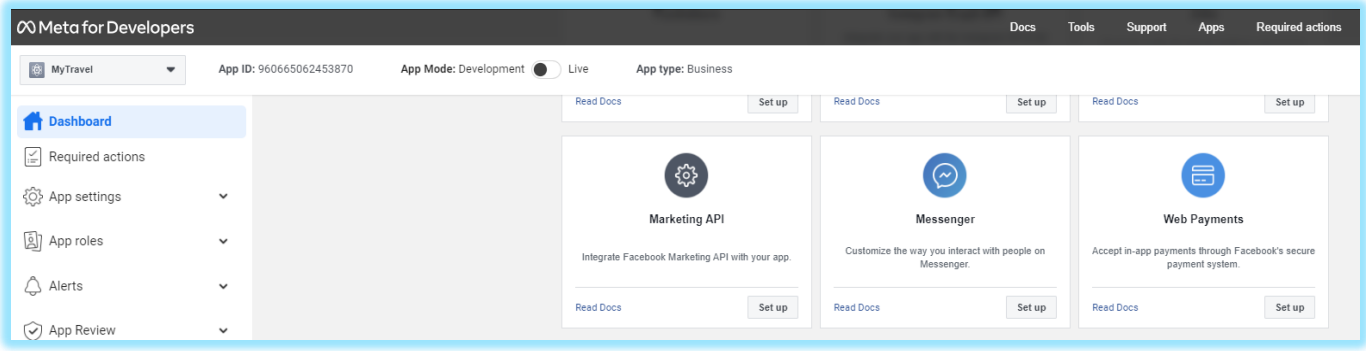
13. Allow API Access

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

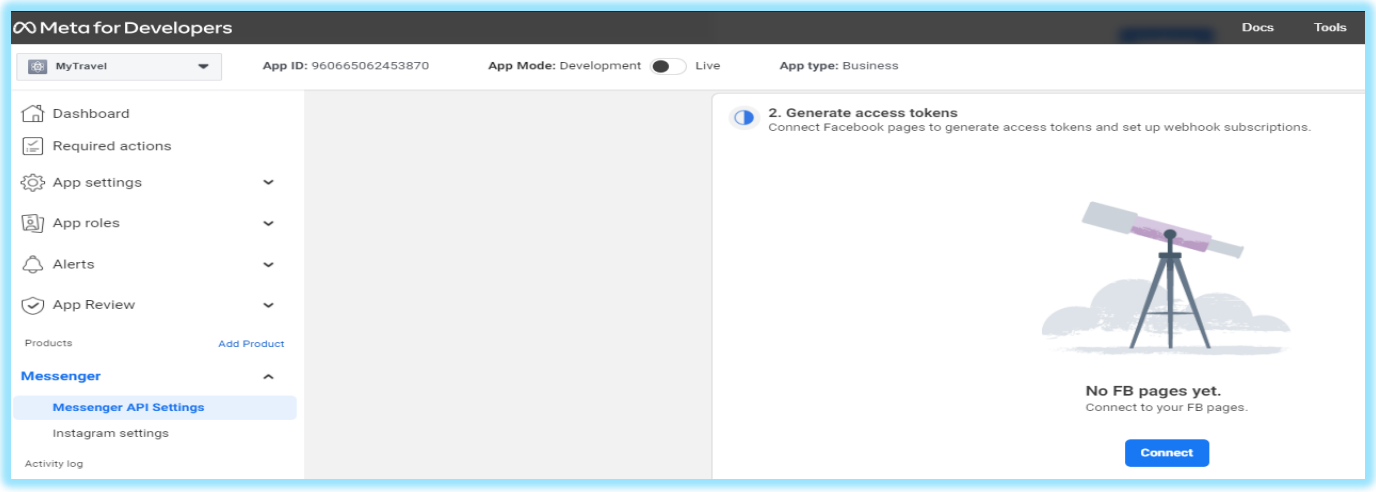


14. Grant Bot 'MyTravel' access to Messenger pages

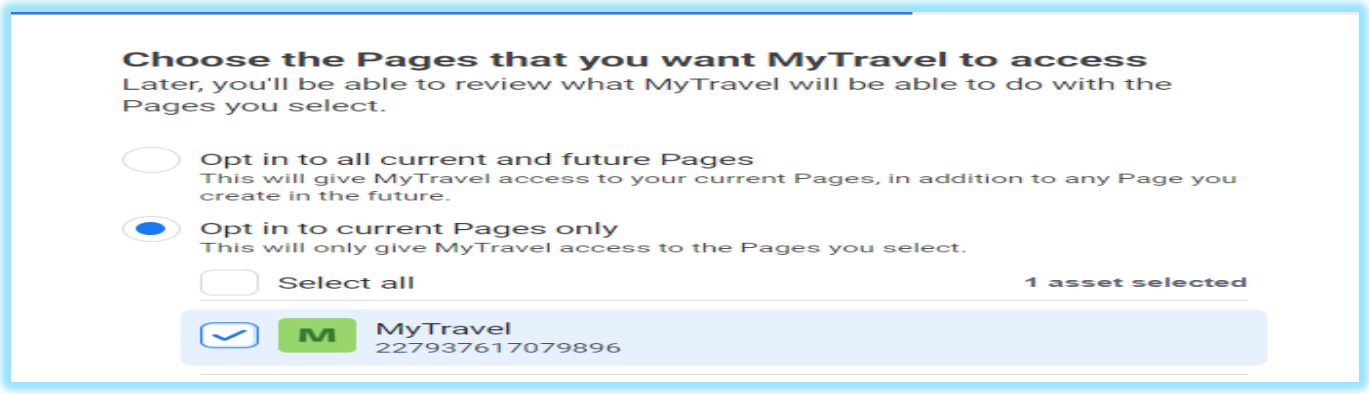
Access the Messenger Setup section in the Facebook Developer Dashboard.



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

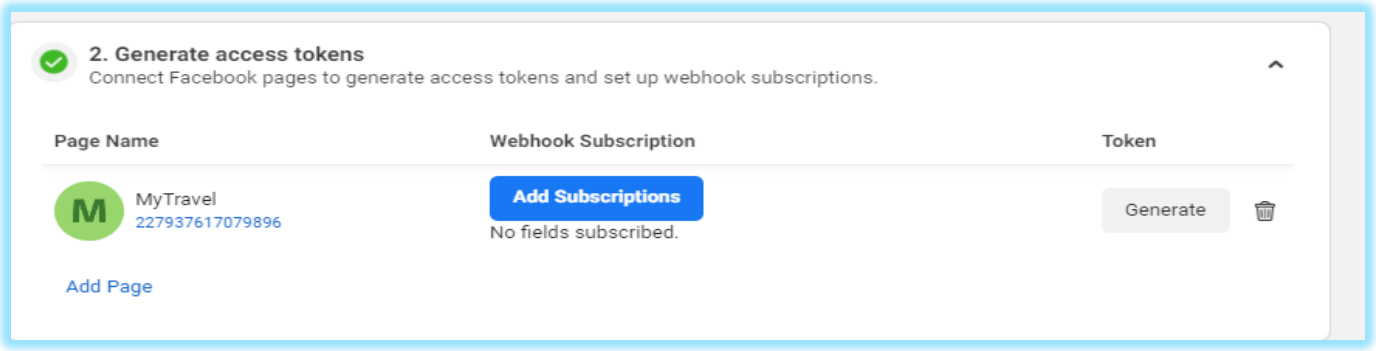


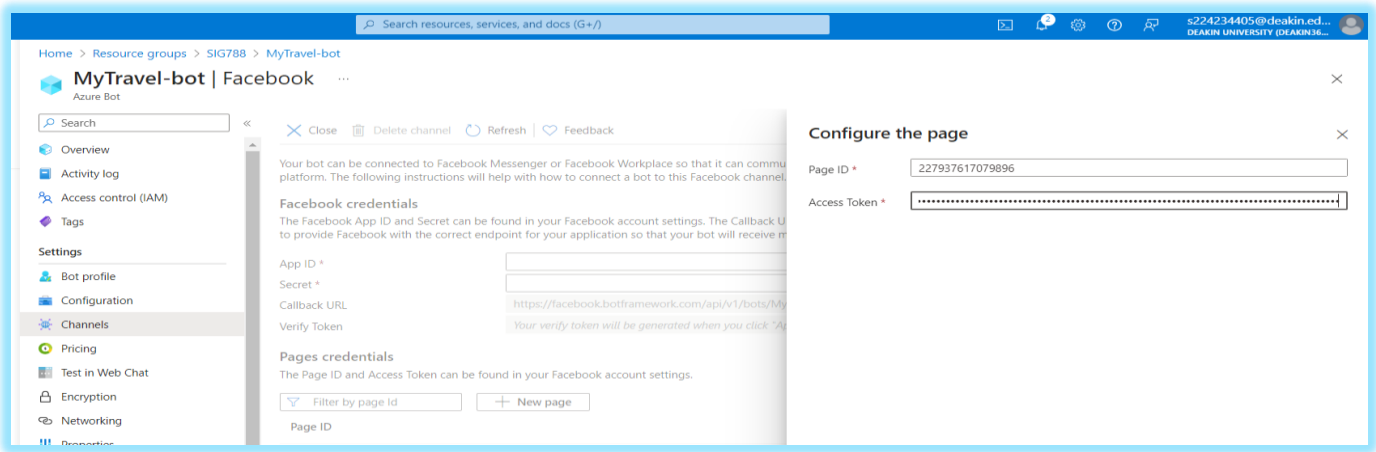
Choose the page that Bot needs to access



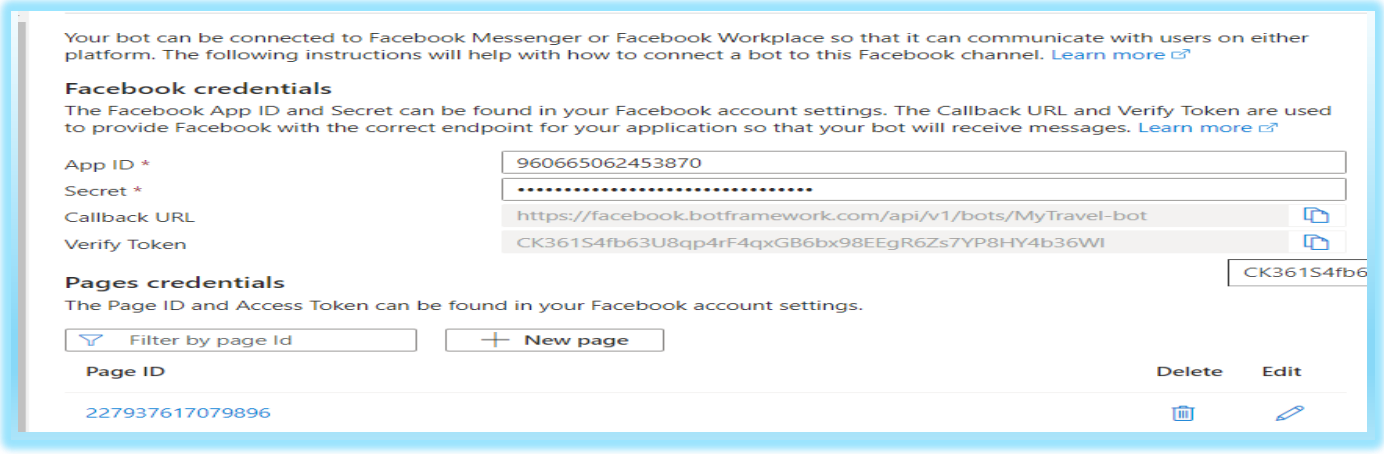
15. Integrate the bot with FB channel

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



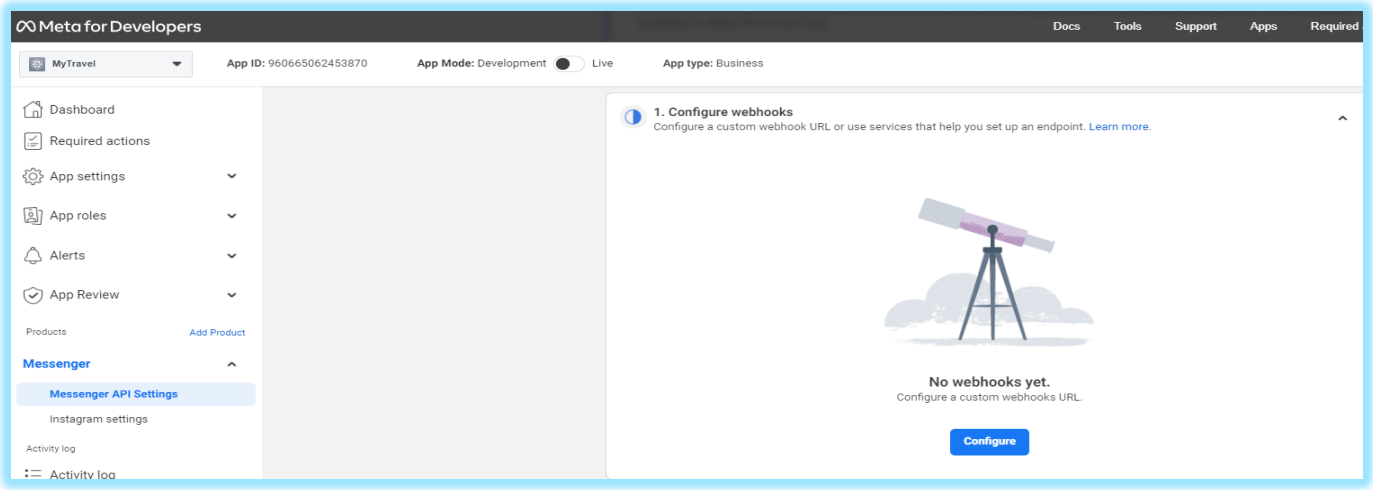


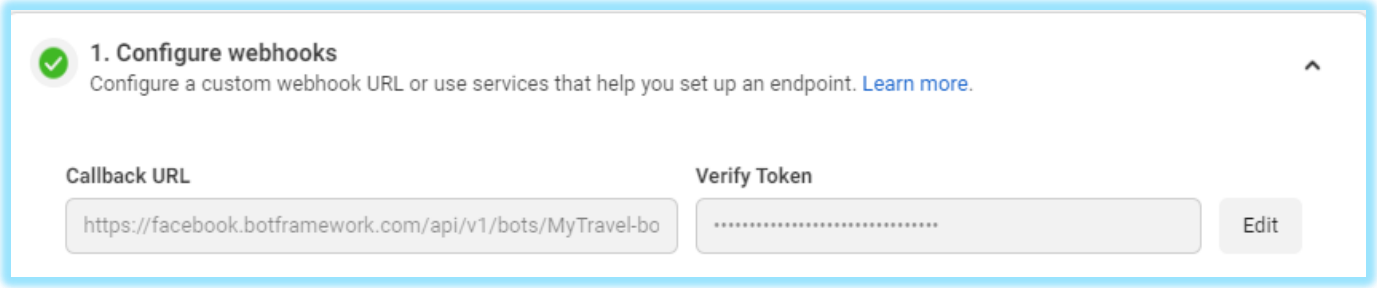
Use the App Id and Secret copied from FB in Step 12 to establish the connection.



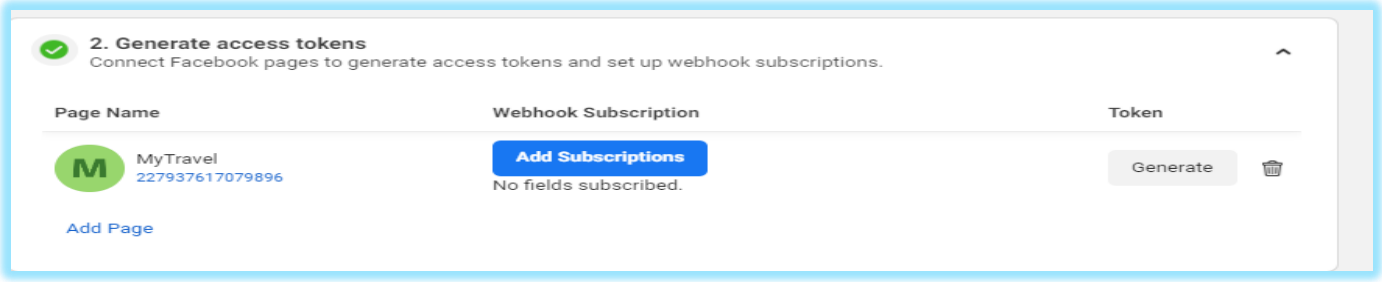
16. Configure webhook and subscription settings in FB developer Dashboard

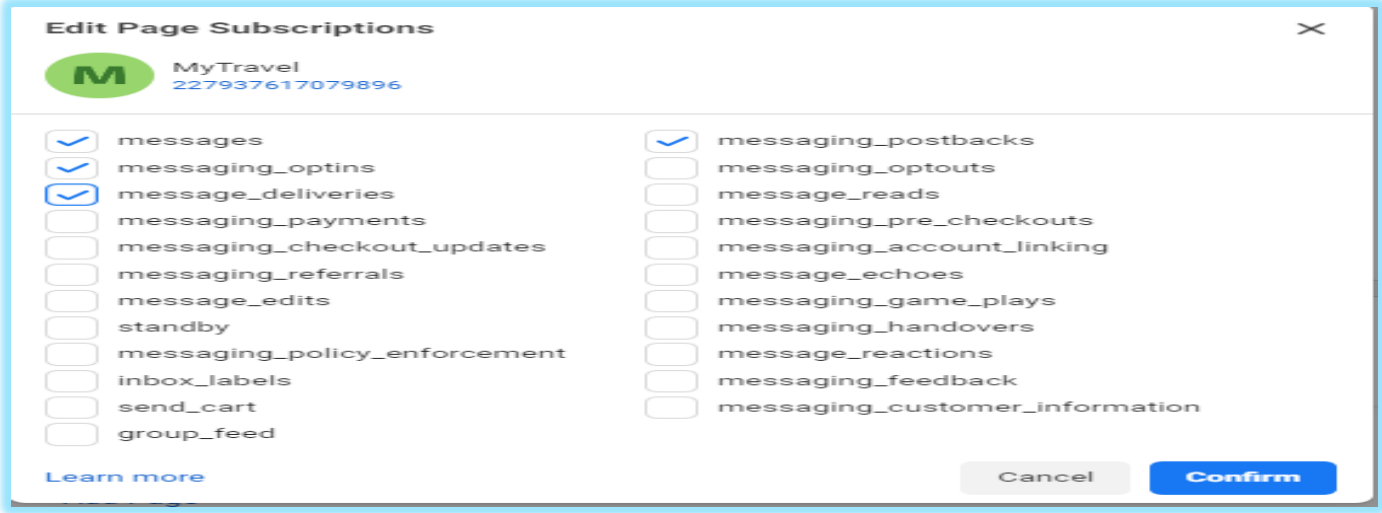
When the Facebook channel is added to the bot, it generates a callback URL and token that will be utilized by Facebook. In FB developer App page, Click on **Messenger API Setting** -> **Configure Webhooks**. Add the URL and token copied in previous step from Bot.





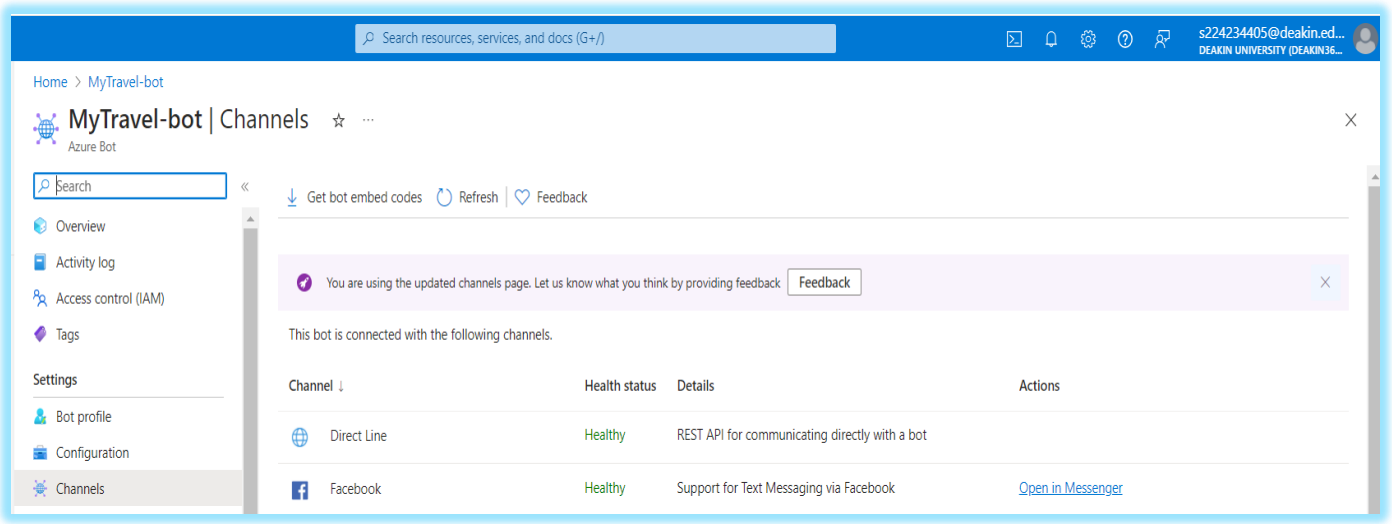
To add Webhook Subscription to the FB page, Click on **Messenger API Setting -> Generate access tokens -> Add Subscriptions**. Enable the necessary options and save.



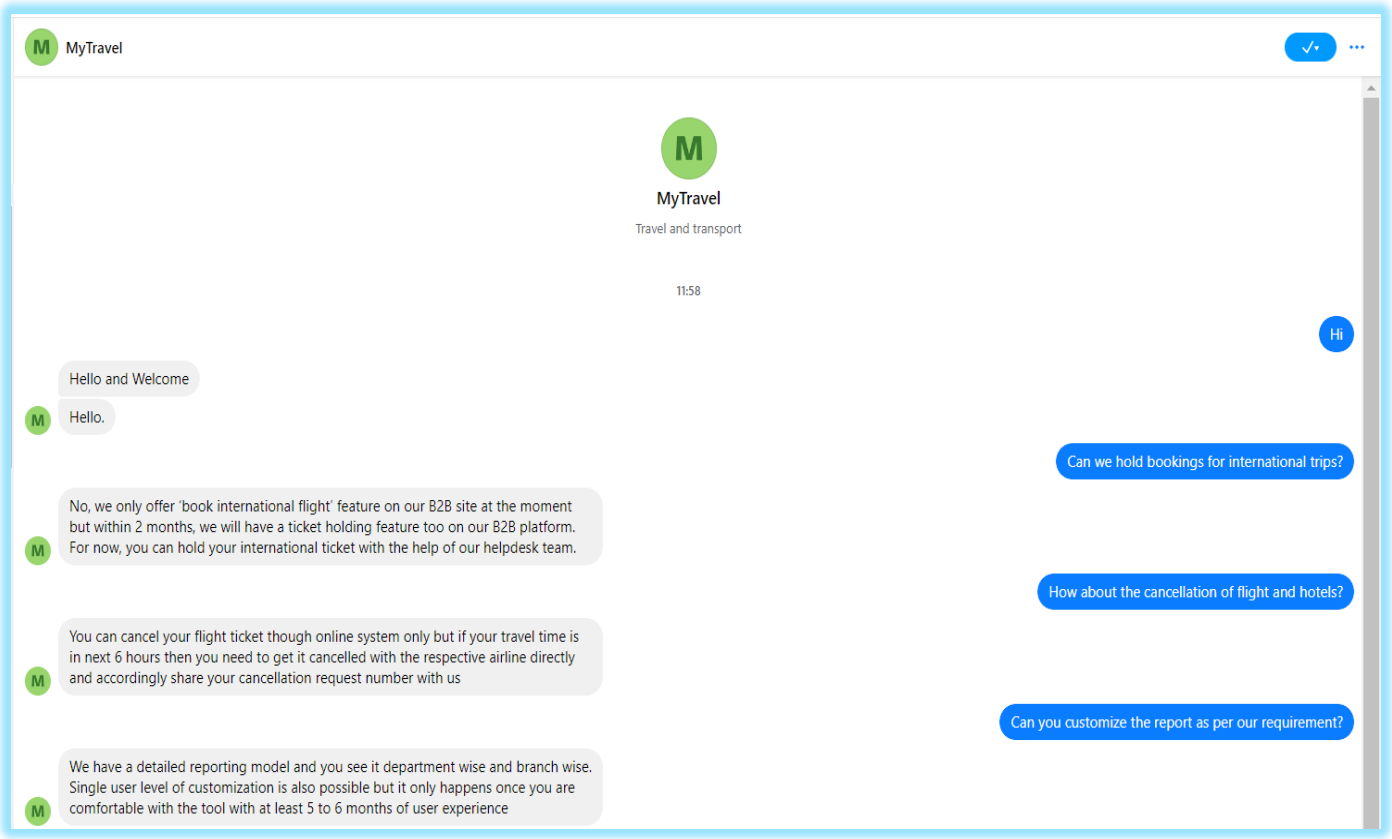


17. Connect to Messenger and test the chatbot

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.

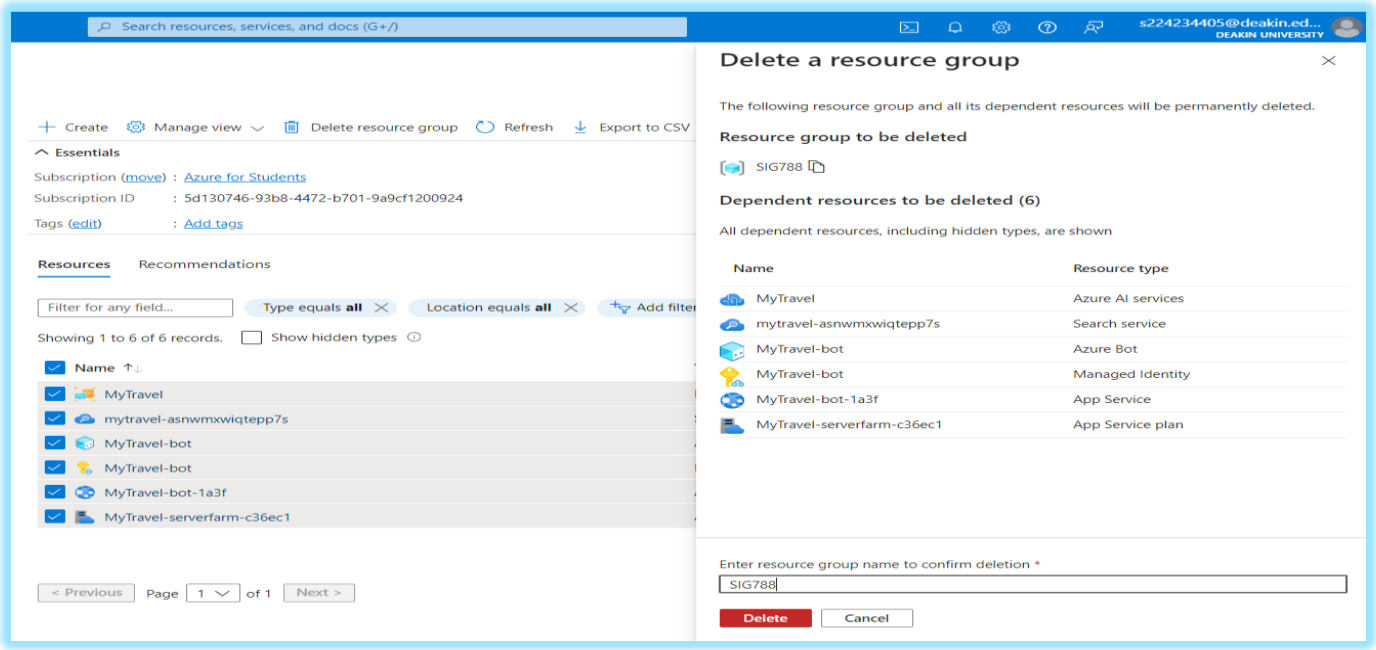


Once the Messenger chat opens, enter the query and test the bot as described. If the responses meet expectations, we can confirm that the connection to the channel is functioning correctly.

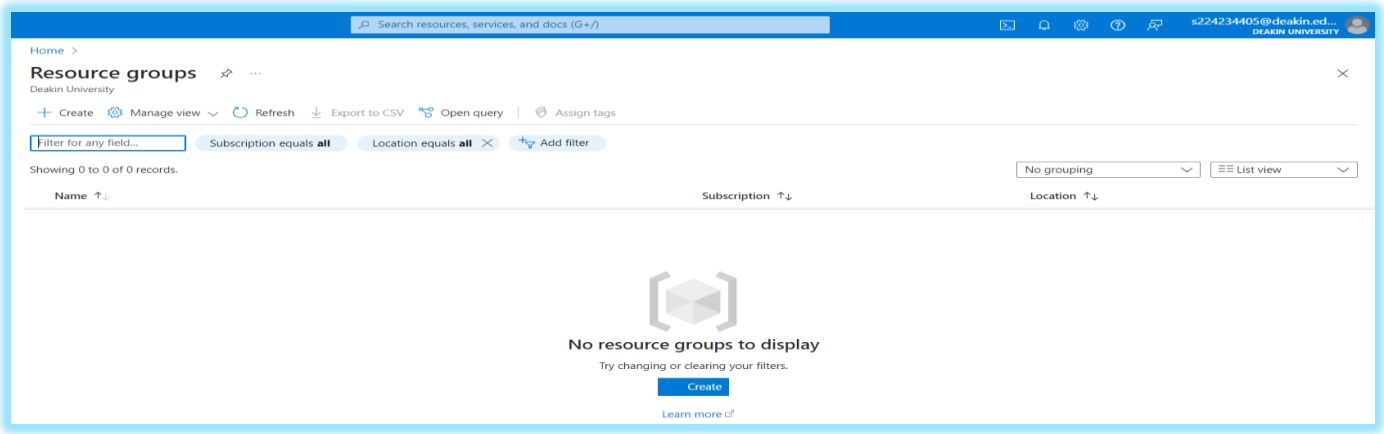


18. Cleanup Resources

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 [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].