Use a prompt flow to manage conversation in a chat app

In this exercise, you'll use Azure AI Foundry portal's prompt flow to create a custom chat app that uses a user prompt and chat history as inputs, and uses a GPT model from Azure OpenAI to generate an output.

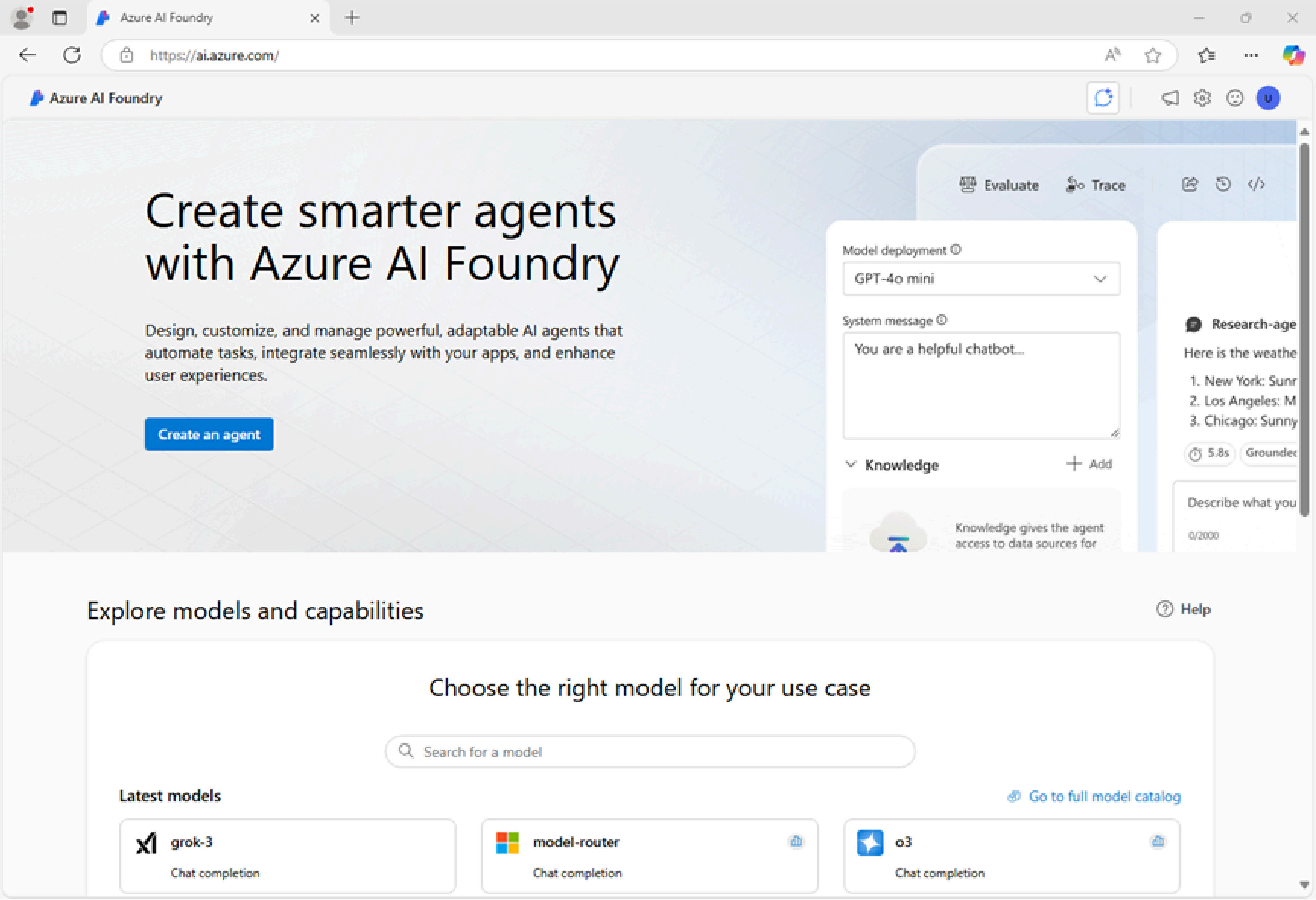
This exercise will take approximately **30** minutes.

> **Note**: Some of the technologies used in this exercise are in preview or in active development. You may experience some unexpected behavior, warnings, or errors.

Create an Azure AI Foundry hub and project

The features of Azure AI Foundry we're going to use in this exercise require a project that is based on an Azure AI Foundry *hub* resource.

1. In a web browser, open the Azure AI Foundry portal at `https://ai.azure.com` and sign in using your Azure credentials. Close any tips or quick start panes that are opened the first time you sign in, and if necessary use the **Azure AI Foundry** logo at the top left to navigate to the home page, which looks similar to the following image (close the **Help** pane if it's open):



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2. In the browser, navigate to `https://ai.azure.com/managementCenter/allResources` and select **Create new**. Then choose the option to create a new **AI hub resource**.
3. In the **Create a project** wizard, enter a valid name for your project, and select the option to create a new hub. Then use the **Rename hub** link to specify a valid name for your new hub, expand **Advanced options**, and specify the following settings for your project:

   - **Subscription**: *Your Azure subscription*
   - **Resource group**: *Create or select a resource group*
   - **Region**: East US 2 or Sweden Central (*In the event of a quota limit being exceeded later in the exercise, you may need to create another resource in a different region.*)

   > **Note**: If you're working in an Azure subscription in which policies are used to restrict allowable resource names, you may need to use the link at the bottom of the **Create a new project** dialog box to create the hub using the Azure portal.

> **Tip**: If the **Create** button is still disabled, be sure to rename your hub to a unique alphanumeric value.

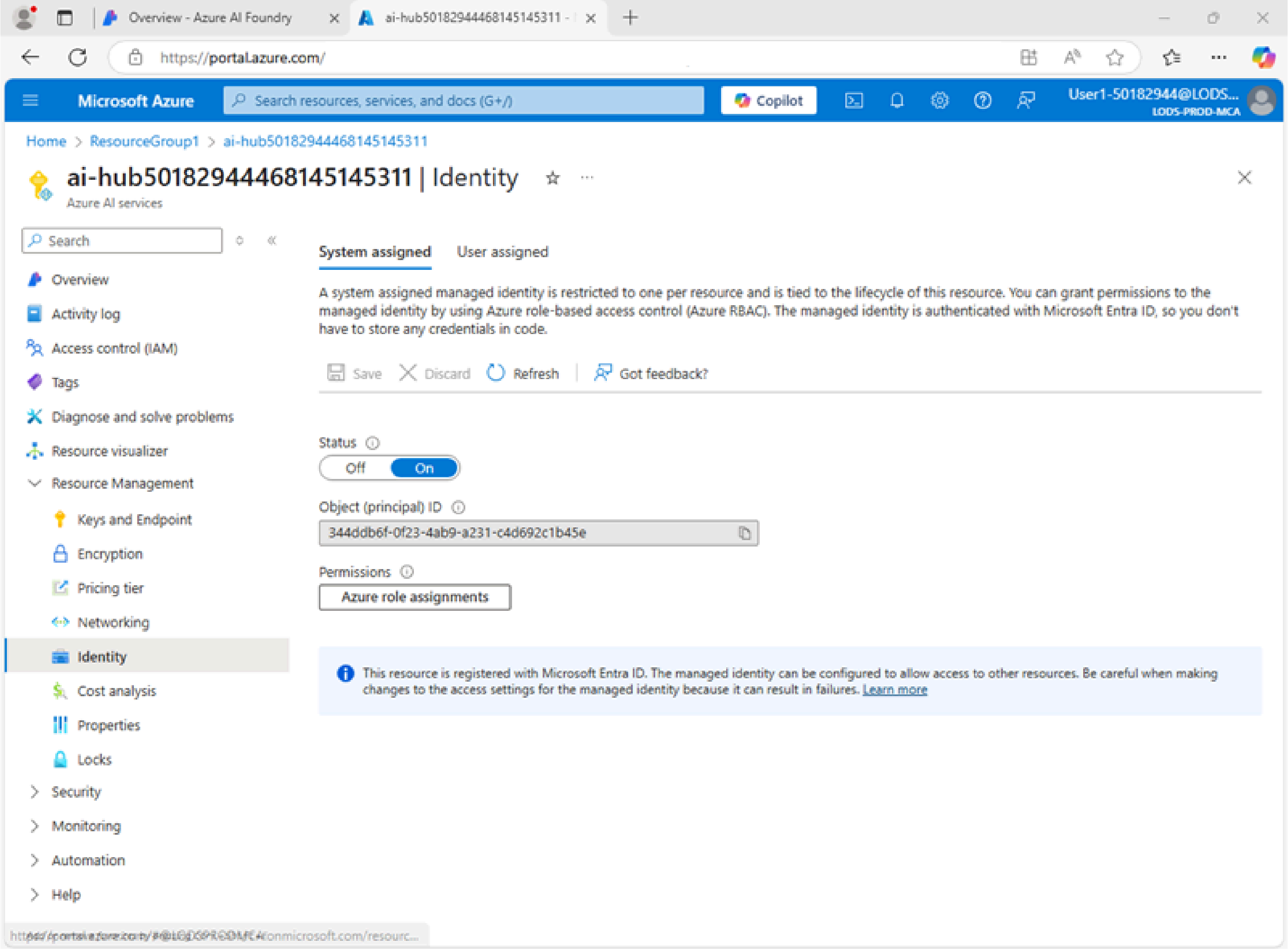
4. Wait for your project to be created.

Configure resource authorization

The prompt flow tools in Azure AI Foundry create file-based assets that define the prompt flow in a folder in blob storage. Before exploring prompt flow, let's ensure that your Azure AI Foundry resource has the required access to the blob store so it can read them.

1. In a new browser tab, open the [Azure portal](https://portal.azure.com) at `https://portal.azure.com`, signing in with your Azure credentials if prompted; and view the resource group containing your Azure AI hub resources.

2. Select the **Azure AI Foundry** resource for your hub to open it. Then expand its **Resource Management** section and select the **Identity** page:



ai-hub50182944468145145311 | Identity

Azure AI services

A system assigned managed identity is restricted to one per resource and is tied to the lifecycle of this resource. You can grant permissions to the managed identity by using Azure role-based access control (Azure RBAC). The managed identity is authenticated with Microsoft Entra ID, so you don't have to store any credentials in code.

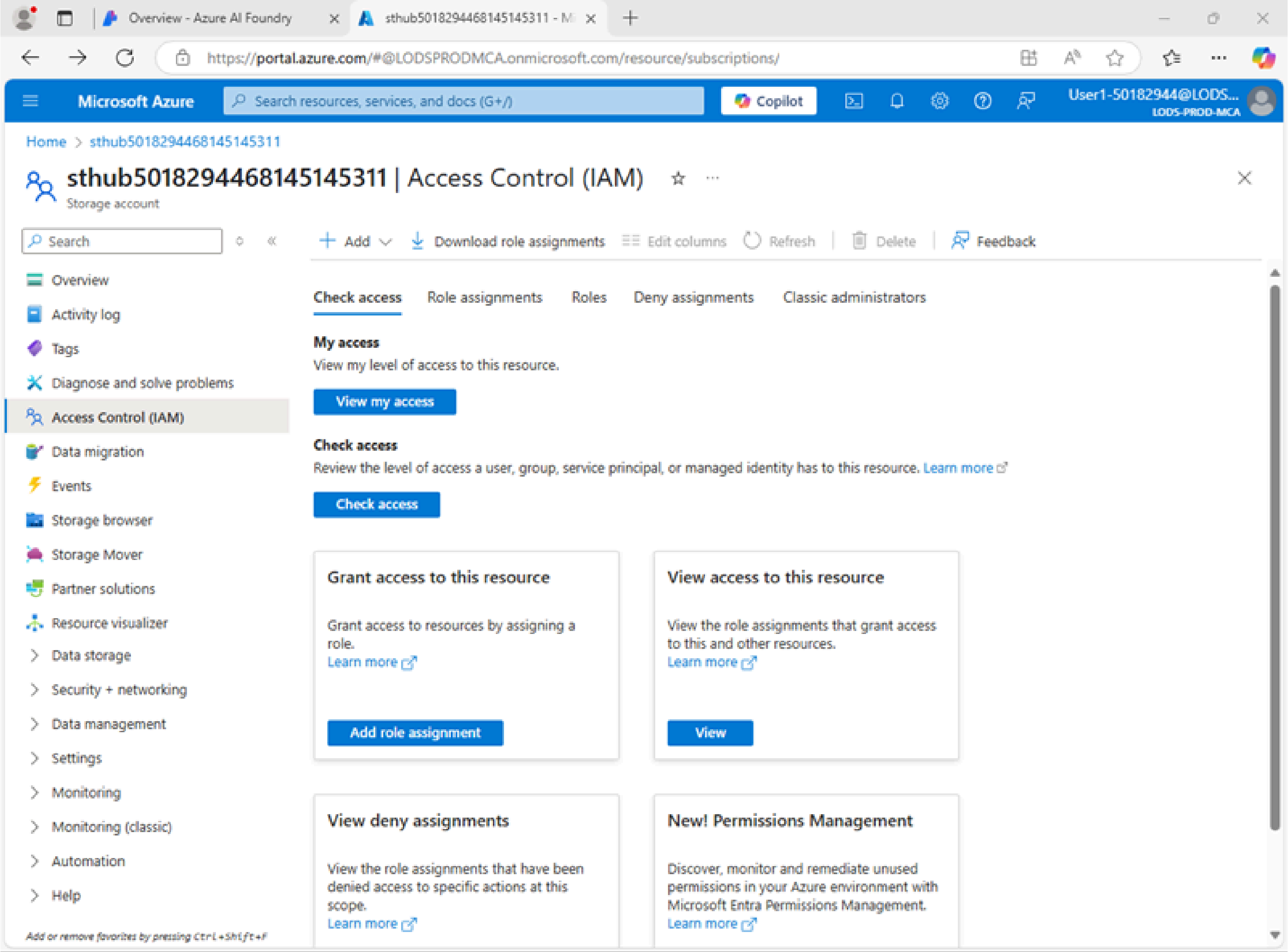
Status: Off [✓ On]

Object (principal) ID: 344ddb6f-0f23-4ab9-a231-c4d692c1b45e

This resource is registered with Microsoft Entra ID. The managed identity can be configured to allow access to other resources. Be careful when making changes to the access settings for the managed identity because it can result in failures. Learn more

3. If the status of the system assigned identity is **Off**, switch it **On** and save your changes. Then wait for the change of status to be confirmed.

4. Return to the resource group page, and then select the **Storage account** resource for your hub and view its **Access Control (IAM)** page:



sthub50182944681451453ll | Access Control (IAM)

Storage account

My access

View my level of access to this resource.

Check access

Review the level of access a user, group, service principal, or managed identity has to this resource. Learn more

Grant access to this resource

Grant access to resources by assigning a role.
Learn more

View access to this resource

View the role assignments that grant access to this and other resources.
Learn more

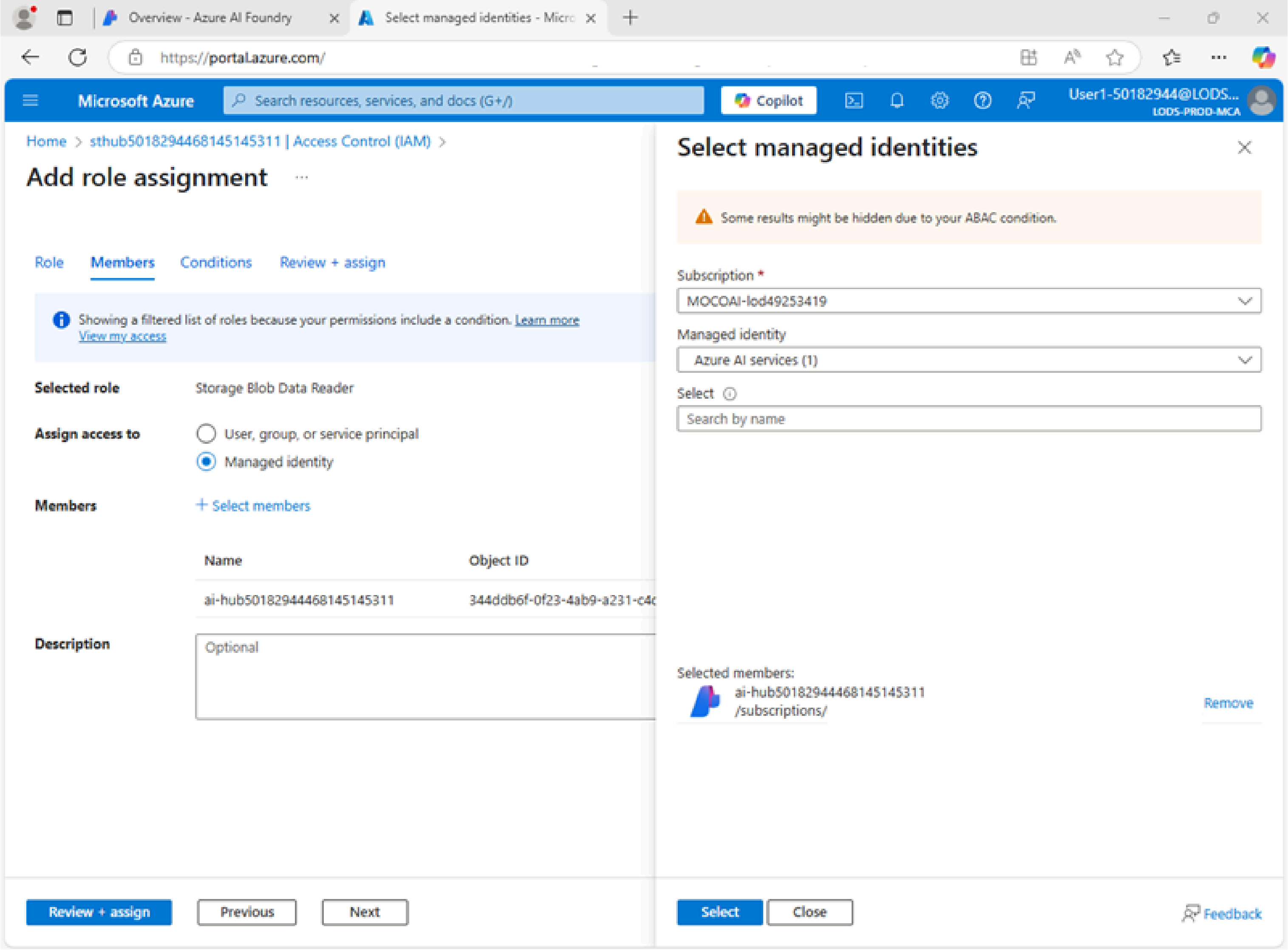
View deny assignments

View the role assignments that have been denied access to specific actions at this scope.
Learn more

New! Permissions Management

Discover, monitor and remediate unused permissions in your Azure environment with Microsoft Entra Permissions Management.
Learn more

5. Add a role assignment to the `Storage blob data reader` role for the managed identity used by your Azure AI Foundry resource:


Overview - Azure AI Foundry
Select managed identities - Micro
https://portal.azure.com/
Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
User1-50182944@LODS...
LODS-PROD-MCA
Home > sthub50182944681451453ll | Access Control (IAM) >
Role
Members
Conditions
Review + assign
Select members
Review + assign
Previous
Next
Select
Close
Feedback
Remove

Add role assignment

Showing a filtered list of roles because your permissions include a condition. Learn more
View my access

Selected role Storage Blob Data Reader

Assign access to
○ User, group, or service principal
● Managed identity

Members + Select members

Name	Object ID
ai-hub50182944468145145311	344ddb6f-0f23-4ab9-a231-c4c

Description Optional

Select managed identities

Some results might be hidden due to your ABAC condition.

Subscription * MOCOAI-lod49253419

Managed identity Azure AI services (1)

Select Search by name

Selected members:
ai-hub50182944468145145311
/subscriptions/

6. When you’ve reviewed and assigned the role access to allow the Azure AI Foundry managed identity to read blobs in the storage account, close the Azure portal tab and return to the Azure AI Foundry portal.

Deploy a generative AI model

Now you’re ready to deploy a generative AI language model to support your prompt flow application.

1. In the pane on the left for your project, in the **My assets** section, select the **Models + endpoints** page.
2. In the **Models + endpoints** page, in the **Model deployments** tab, in the **+ Deploy model** menu, select **Deploy base model**.
3. Search for the **gpt-4o** model in the list, and then select and confirm it.
4. Deploy the model with the following settings by selecting **Customize** in the deployment details:

- **Deployment name**: *A valid name for your model deployment*
- **Deployment type**: Global Standard
- **Automatic version update**: Enabled
- **Model version**: *Select the most recent available version*
- **Connected AI resource**: *Select your Azure OpenAI resource connection*
- **Tokens per Minute Rate Limit (thousands)**: 50K *(or the maximum available in your subscription if less than 50K)*
- **Content filter**: DefaultV2

> **Note**: Reducing the TPM helps avoid over-using the quota available in the subscription you are using. 50,000 TPM should be sufficient for the data used in this exercise. If your available quota is lower than this, you will be able to complete the exercise but you may experience errors if the rate limit is exceeded.

5. Wait for the deployment to complete.

Create a prompt flow

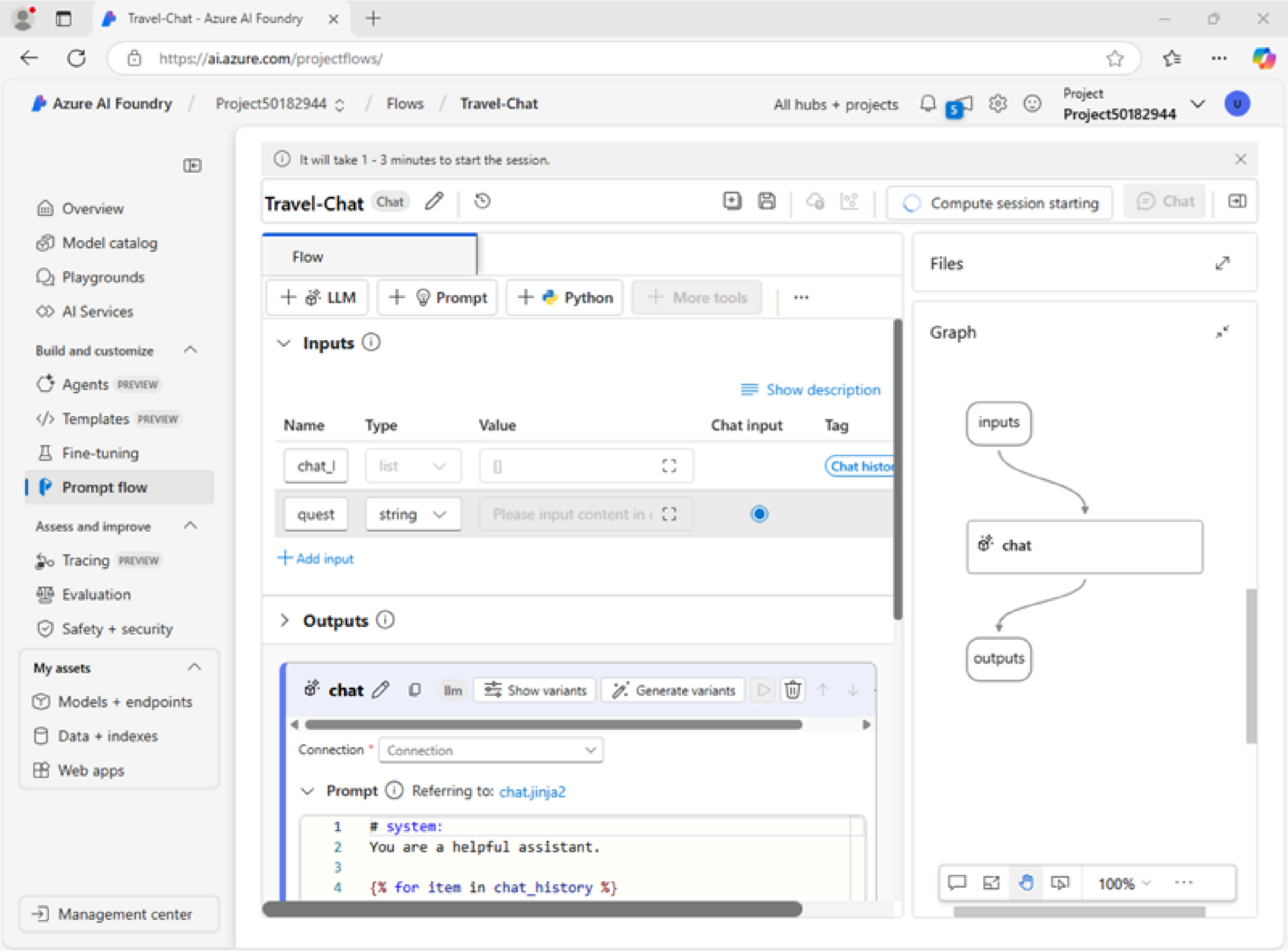
A prompt flow provides a way to orchestrate prompts and other activities to define an interaction with a generative AI model. In this exercise, you'll use a template to create a basic chat flow for an AI assistant in a travel agency.

1. In the Azure AI Foundry portal navigation bar, in the **Build and customize** section, select **Prompt flow**.
2. Create a new flow based on the **Chat flow** template, specifying `Travel-Chat` as the folder name.

   A simple chat flow is created for you.

   > **Tip**: If a permissions error occurs. Wait a few minutes and try again, specifying a different flow name if necessary.

3. To be able to test your flow, you need compute, and it can take a while to start; so select **Start compute session** to get it started while you explore and modify the default flow.
4. View the prompt flow, which consists of a series of *inputs*, *outputs*, and *tools*. You can expand and edit the properties of these objects in the editing panes on the left, and view the overall flow as a graph on the right:



```
# system:
You are a helpful assistant.

{% for item in chat_history %}
```

5. View the **Inputs** pane, and note that there are two inputs (chat history and the user's question)

6. View the **Outputs** pane and note that there's an output to reflect the model's answer.
7. View the **Chat** LLM tool pane, which contains the information needed to submit a prompt to the model.
8. In the **Chat** LLM tool pane, for **Connection**, select the connection for the Azure OpenAI service resource in your AI hub. Then configure the following connection properties:

   - **Api**: chat
   - **deployment_name**: *The gpt-4o model you deployed*
   - **response_format**: {"type":"text"}

9. Modify the **Prompt** field as follows:

   Code Copy

   ```
   # system:
   **Objective**: Assist users with travel-related inquiries, offering tips, advice, and
   recommendations as a knowledgeable travel agent.

   **Capabilities**:
   - Provide up-to-date travel information, including destinations, accommodations,
   transportation, and local attractions.
   - Offer personalized travel suggestions based on user preferences, budget, and travel dates.
   - Share tips on packing, safety, and navigating travel disruptions.
   - Help with itinerary planning, including optimal routes and must-see landmarks.
   - Answer common travel questions and provide solutions to potential travel issues.

   **Instructions**:
   1. Engage with the user in a friendly and professional manner, as a travel agent would.
   2. Use available resources to provide accurate and relevant travel information.
   3. Tailor responses to the user's specific travel needs and interests.
   4. Ensure recommendations are practical and consider the user's safety and comfort.
   5. Encourage the user to ask follow-up questions for further assistance.



   # user:
   ```

   Read the prompt you added so you are familiar with it. It consists of a system message (which includes an objective, a definition of its capabilities, and some instructions), and the chat history (ordered to show each user question input and each previous assistant answer output)
10. In the **Inputs** section for the **Chat** LLM tool (under the prompt), ensure the following variables are set:

    - **question** (string): ${inputs.question}
    - **chat_history** (string): ${inputs.chat_history}

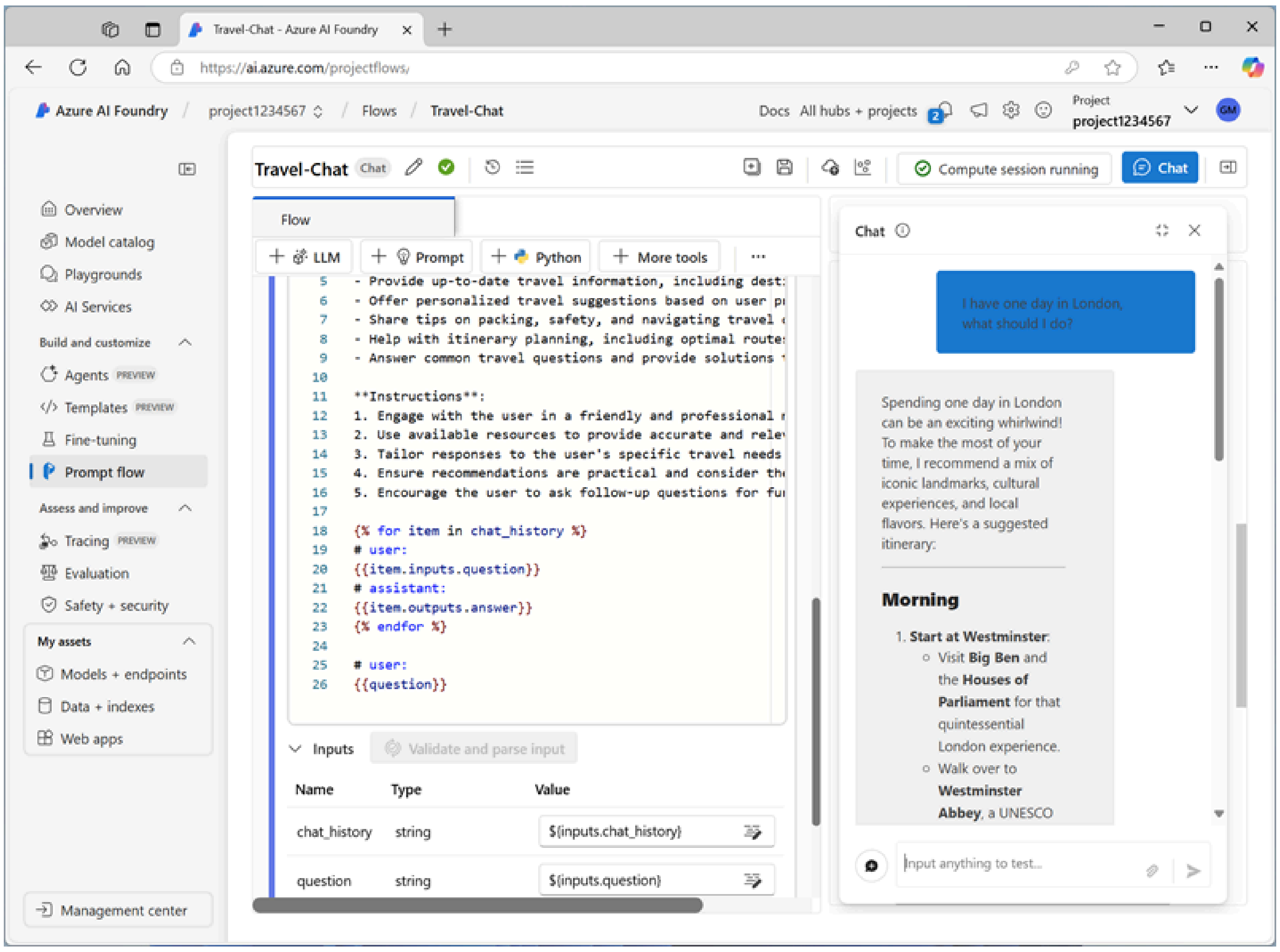
11. Save the changes to the flow.

    > **Note**: In this exercise, we'll stick to a simple chat flow, but note that the prompt flow editor includes many other tools that you could add to the flow, enabling you to create complex logic to orchstrate conversations.

Test the flow

Now that you've developed the flow, you can use the chat window to test it.

1. Ensure the compute session is running. If not, wait for it to start.
2. On the toolbar, select **Chat** to open the **Chat** pane, and wait for the chat to initialize.
3. Enter the query: `I have one day in London, what should I do?` and review the output. The Chat pane should look similar to this:



```
- Provide up-to-date travel information, including dest:
- Offer personalized travel suggestions based on user pı
- Share tips on packing, safety, and navigating travel 
- Help with itinerary planning, including optimal route:
- Answer common travel questions and provide solutions 

**Instructions**:
1. Engage with the user in a friendly and professional 
2. Use available resources to provide accurate and rele
3. Tailor responses to the user's specific travel needs
4. Ensure recommendations are practical and consider th
5. Encourage the user to ask follow-up questions for fu

{% for item in chat_history %}
# user:
{{item.inputs.question}}
# assistant:
{{item.outputs.answer}}
{% endfor %}

# user:
{{question}}
```

Name	Type	Value
chat_history	string	${inputs.chat_history}
question	string	${inputs.question}

I have one day in London, what should I do?

Spending one day in London can be an exciting whirlwind! To make the most of your time, I recommend a mix of iconic landmarks, cultural experiences, and local flavors. Here's a suggested itinerary:

Morning

1. **Start at Westminster**:
   - Visit **Big Ben** and the **Houses of Parliament** for that quintessential London experience.
   - Walk over to **Westminster Abbey**, a UNESCO

Deploy the flow

When you’re satisfied with the behavior of the flow you created, you can deploy the flow.

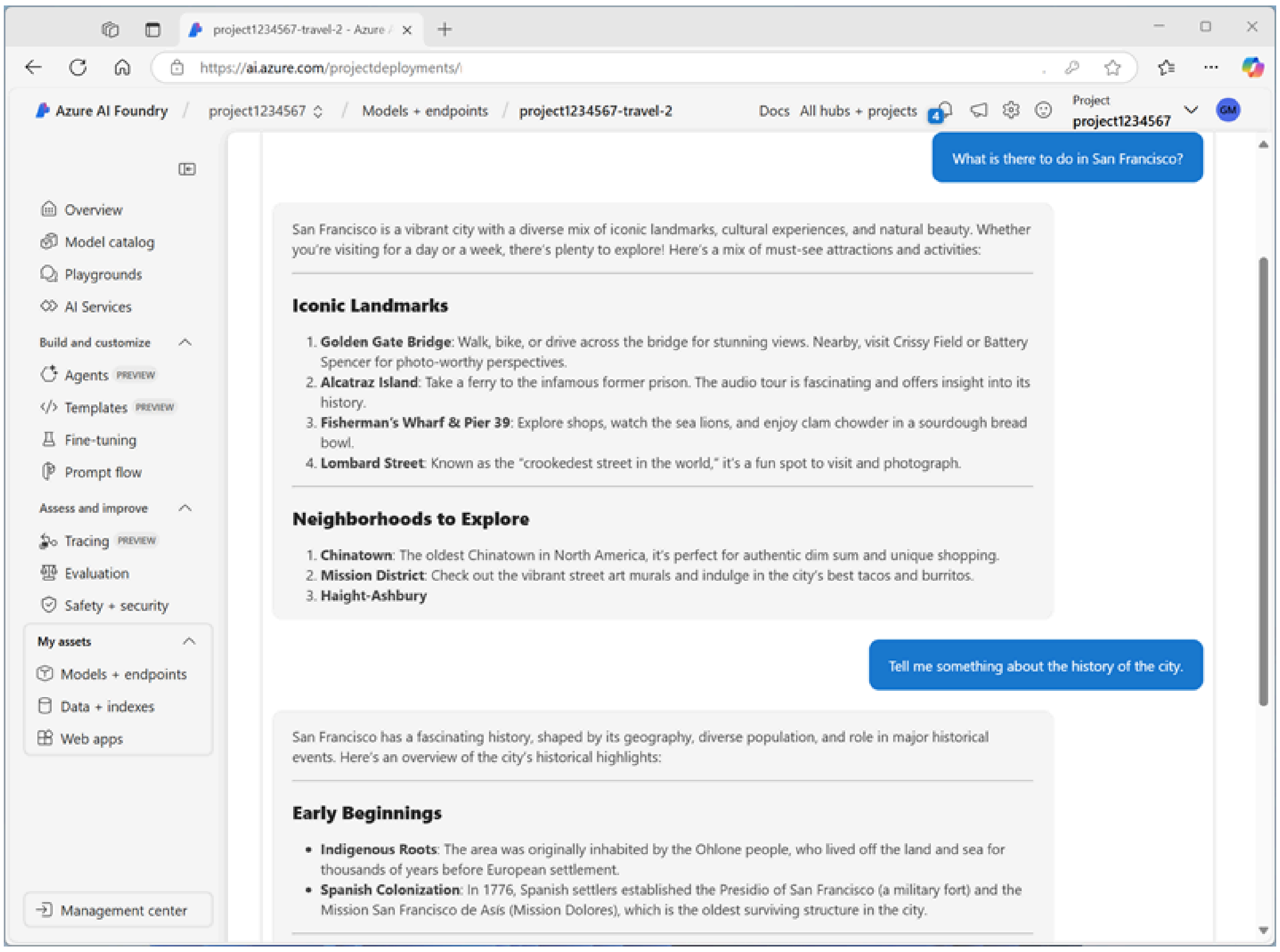
> **Note**: Deployment can take a long time, and can be impacted by capacity constraints in your subscription or tenant.

1. On the toolbar, select **Deploy** and deploy the flow with the following settings:
   - **Basic settings**:
     - **Endpoint**: New
     - **Endpoint name**: *Enter a unique name*
     - **Deployment name**: *Enter a unique name*
     - **Virtual machine**: Standard_DS3_v2
     - **Instance count**: 1
     - **Inferencing data collection**: Disabled
   - **Advanced settings**:
     - *Use the default settings*
2. In Azure AI Foundry portal, in the navigation pane, in the **My assets** section, select the **Models + endpoints** page.

   If the page opens for your gpt-4o model, use its **back** button to view all models and endpoints.
3. Initially, the page may show only your model deployments. It may take some time before the deployment is listed, and even longer before it’s successfully created.
4. When the deployment has *succeeded*, select it. Then, view its **Test** page.

   > **Tip**: If the test page describes the endpoint as unhealthy, return to the **models and endpoints** and wait a minute or so before refreshing the view and selecting the endpoint again.
5. Enter the prompt `What is there to do in San Francisco?` and review the response.
6. Enter the prompt `Tell me something about the history of the city.` and review the response.

The test pane should look similar to this:



What is there to do in San Francisco?

San Francisco is a vibrant city with a diverse mix of iconic landmarks, cultural experiences, and natural beauty. Whether you're visiting for a day or a week, there's plenty to explore! Here's a mix of must-see attractions and activities:

Iconic Landmarks

1. **Golden Gate Bridge**: Walk, bike, or drive across the bridge for stunning views. Nearby, visit Crissy Field or Battery Spencer for photo-worthy perspectives.
2. **Alcatraz Island**: Take a ferry to the infamous former prison. The audio tour is fascinating and offers insight into its history.
3. **Fisherman's Wharf & Pier 39**: Explore shops, watch the sea lions, and enjoy clam chowder in a sourdough bread bowl.
4. **Lombard Street**: Known as the "crookedest street in the world," it's a fun spot to visit and photograph.

Neighborhoods to Explore

1. **Chinatown**: The oldest Chinatown in North America, it's perfect for authentic dim sum and unique shopping.
2. **Mission District**: Check out the vibrant street art murals and indulge in the city's best tacos and burritos.
3. **Haight-Ashbury**

Tell me something about the history of the city.

San Francisco has a fascinating history, shaped by its geography, diverse population, and role in major historical events. Here's an overview of the city's historical highlights:

Early Beginnings

- **Indigenous Roots**: The area was originally inhabited by the Ohlone people, who lived off the land and sea for thousands of years before European settlement.
- **Spanish Colonization**: In 1776, Spanish settlers established the Presidio of San Francisco (a military fort) and the Mission San Francisco de Asís (Mission Dolores), which is the oldest surviving structure in the city.

7. View the **Consume** page for the endpoint, and note that it contains connection information and sample code that you can use to build a client application for your endpoint - enabling you to integrate the prompt flow solution into an application as a generative AI application.

Clean up

When you finish exploring prompt flow, you should delete the resources you've created to avoid unnecessary Azure costs.

- Navigate to the [Azure portal](https://portal.azure.com) at `https://portal.azure.com`.
- In the Azure portal, on the **Home** page, select **Resource groups**.
- Select the resource group that you created for this exercise.
- At the top of the **Overview** page for your resource group, select **Delete resource group**.
- Enter the resource group name to confirm you want to delete it, and select **Delete**.