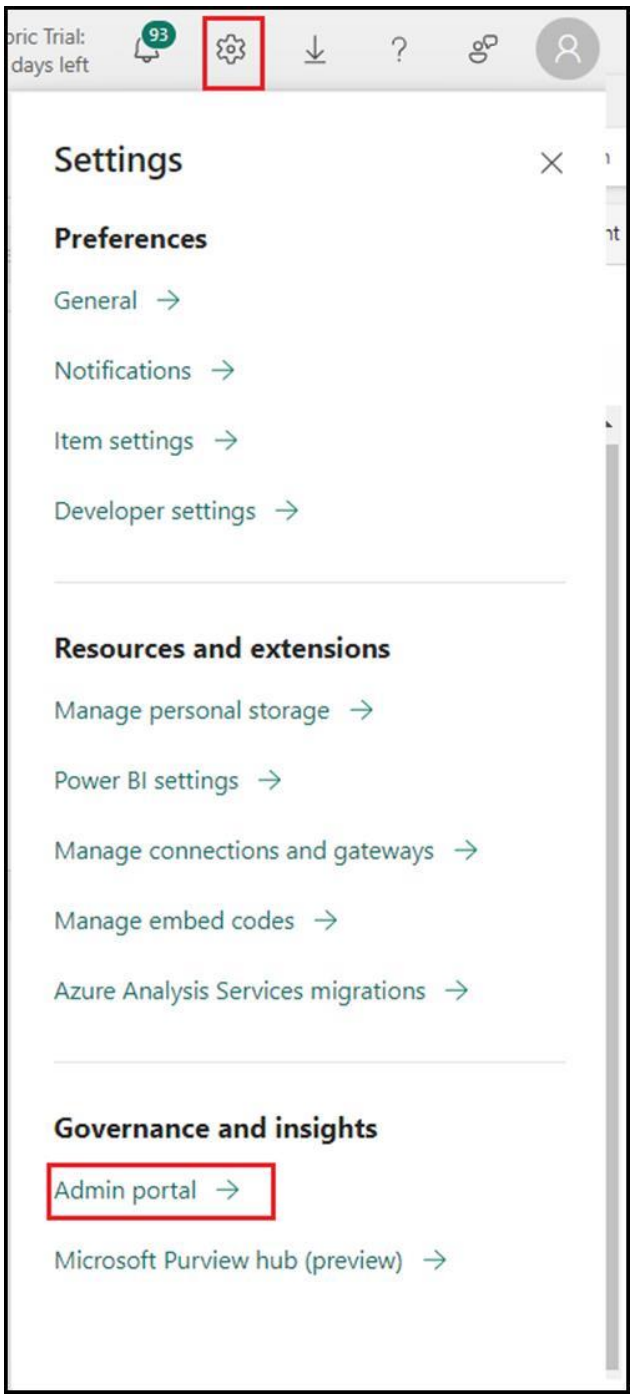
Microsoft Fabric Data Agent (Preview)

With the Microsoft Fabric AI skill, you can make data more accessible to your colleagues. You can configure a generative AI system to generate queries that answer questions about your data. After you configure the AI skill, you can share it with your colleagues, who can then ask their questions in plain English. Based on their questions, the AI generates queries over your data that answer those questions.

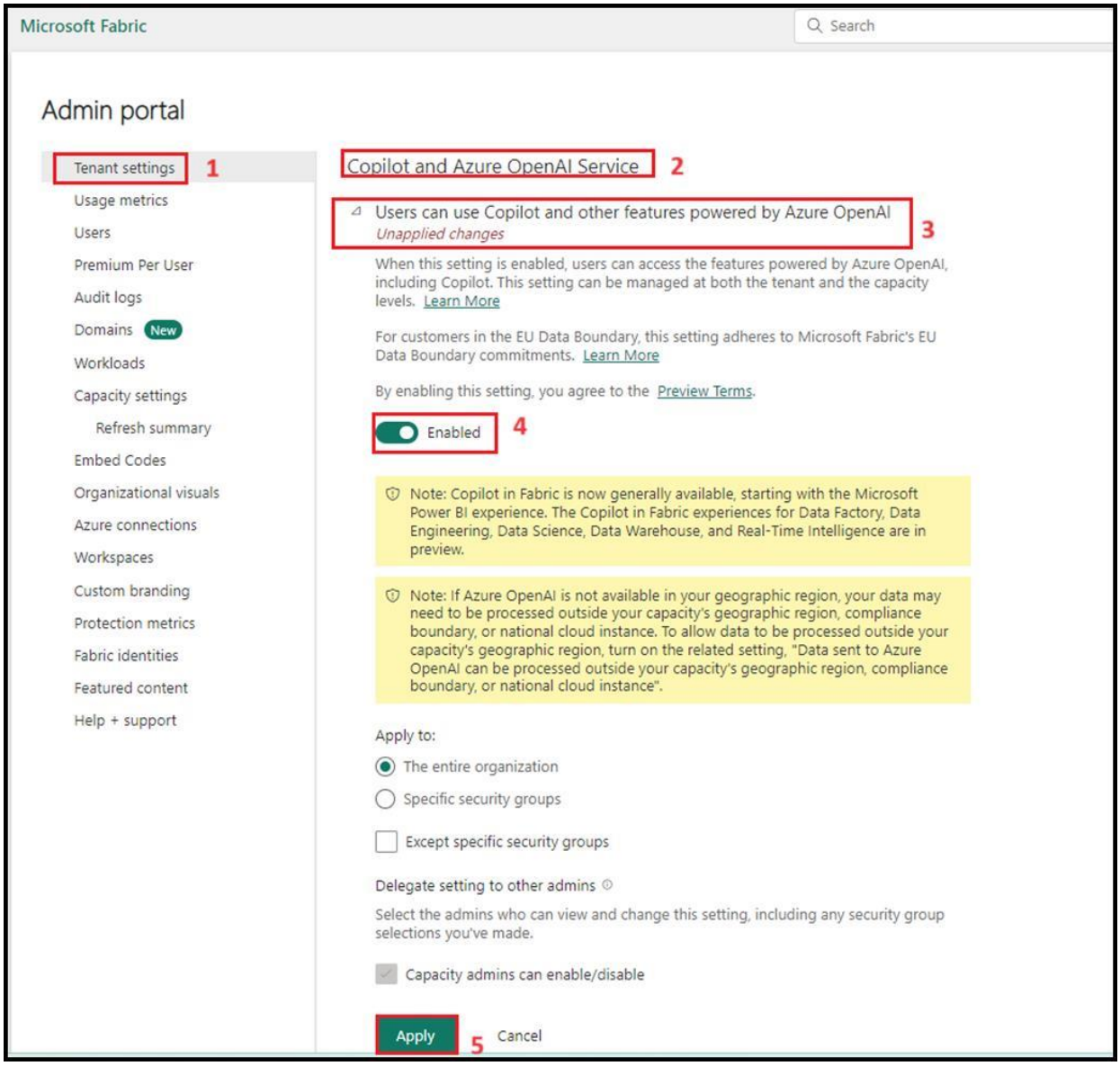
Task 1: Copilot tenant settings (For reference only)

1. On right side of Power BI home page, click on the **Settings** icon.
2. In **Settings** pane, scroll down to **Governance and insights**, then click on **Admin portal** .

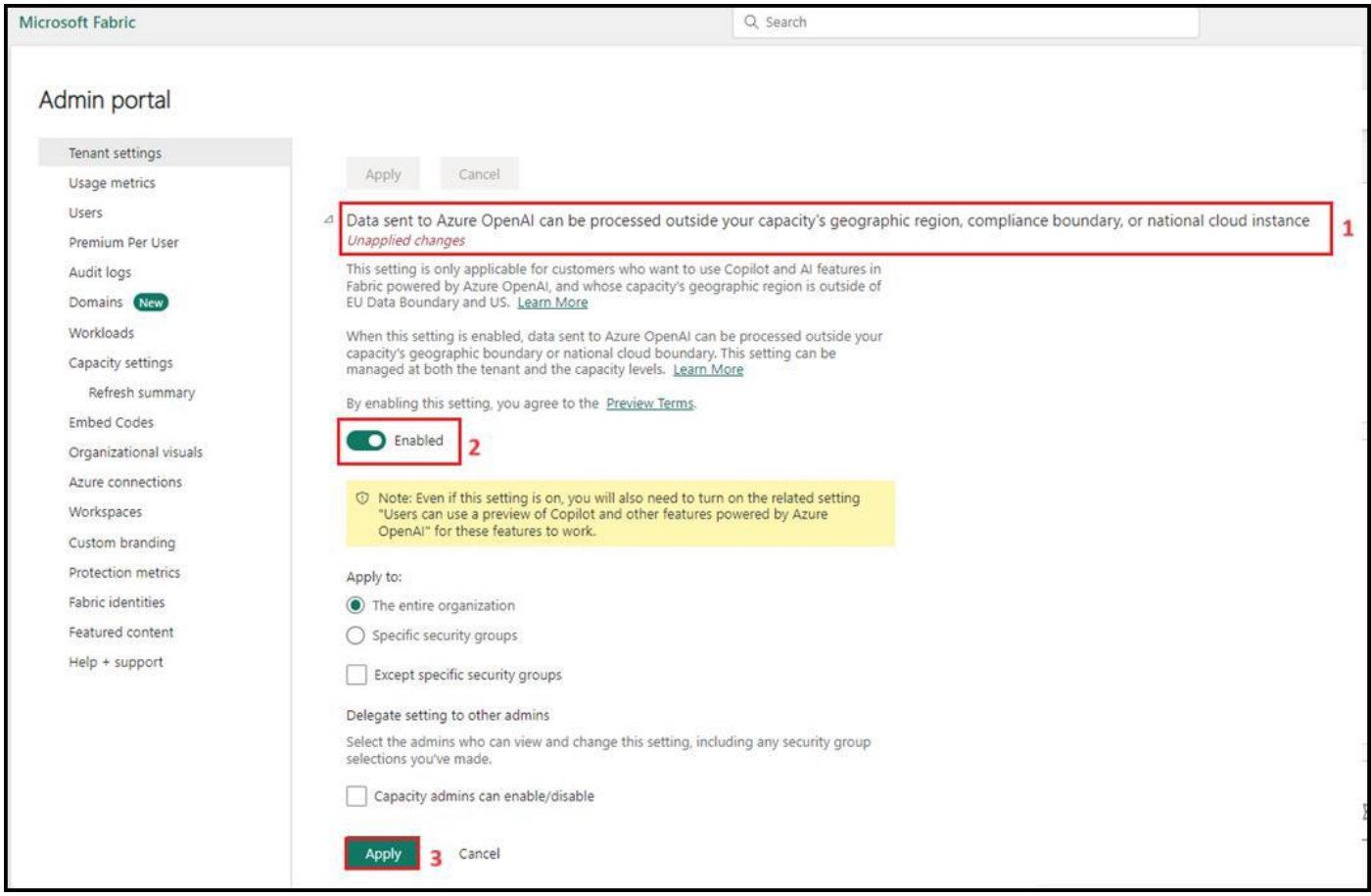


3. In **Admin portal** pane, select **Tenant settings**, scroll down to **Copilot and Azure OpenAI Service** section, click on **Users can use Copilot and other features powered by Azure OpenAI**, then enable it using

the **toggle** button. After **Users can use Copilot and other features powered by Azure OpenAI** were Enabled, click on the **Apply** button.

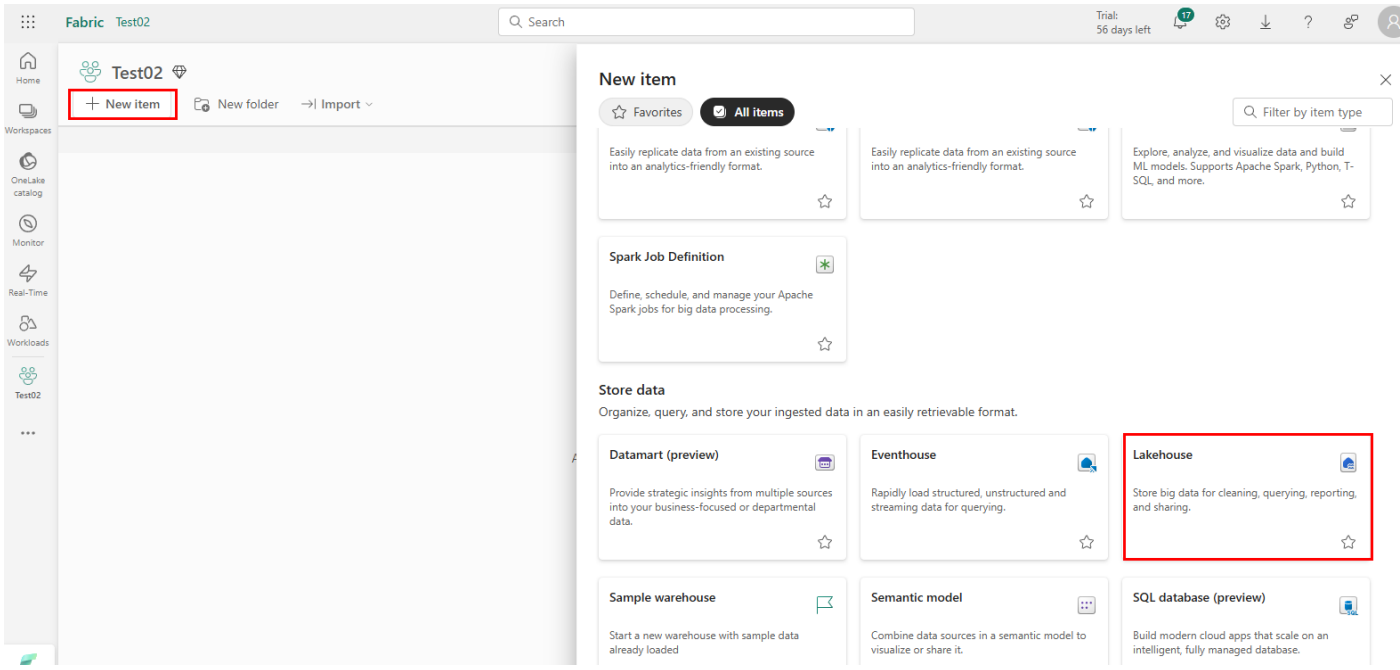


4. In **Admin portal** pane, select **Tenant settings**, scroll down to **Copilot and Azure OpenAI Service** section, click on **Data sent to Azure OpenAI can be processed outside your capacity\'s geographic region, compliance boundary, or national cloud instance**, then enable it using the **toggle** button. After **Data sent to Azure OpenAI can be processed outside your capacity\'s geographic region, compliance boundary, or national cloud instance** were Enabled, click on the **Apply** button.



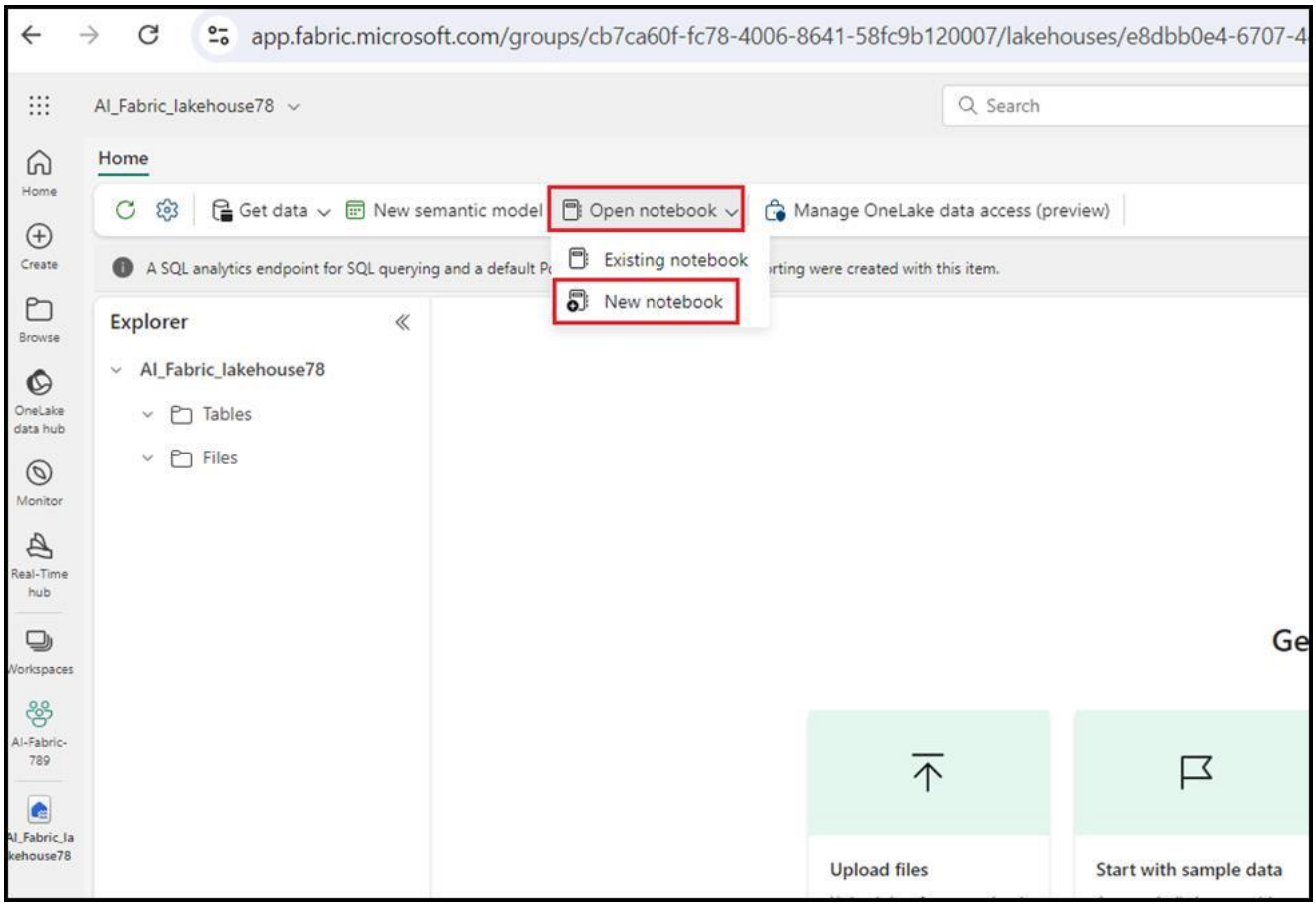
Task 2: Create a lakehouse

1. In the **Your Fabric Workspace** page
2. Click **+ New item**, select **Lakehouse** to create a lakehouse.



3. In the **New lakehouse** dialog box, enter !!**AILHX**!! in the **Name** field, click on the **Create** button and open the new lakehouse.
4. You will see a notification stating **Successfully created SQL endpoint**.

5. Next, create a new notebook to query the table. In the **Home** ribbon, select the drop down for **Open notebook** and choose **New notebook**.

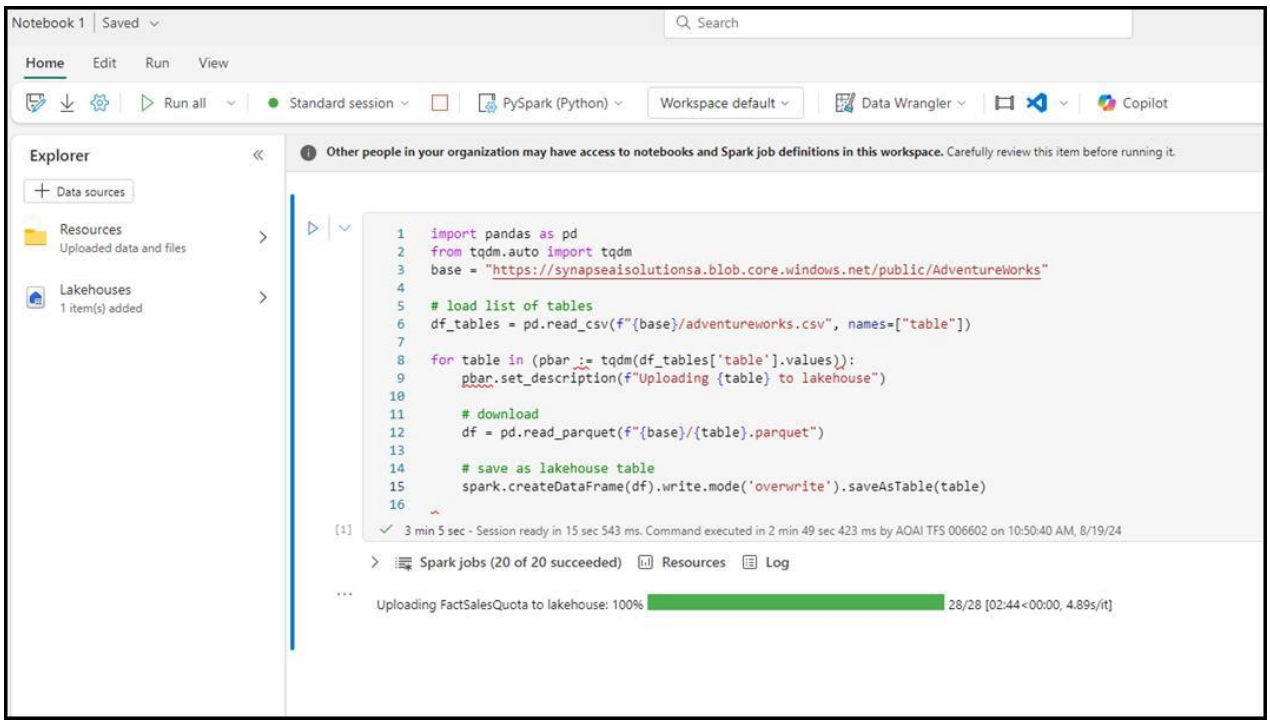


Task 3: Upload AdventureWorksDW data into lakehouse

First, create a lakehouse and populate it with the necessary data.

In the query editor, copy and paste the following code. Select the **Run all** button to execute the query. After the query is completed, you will see the results.

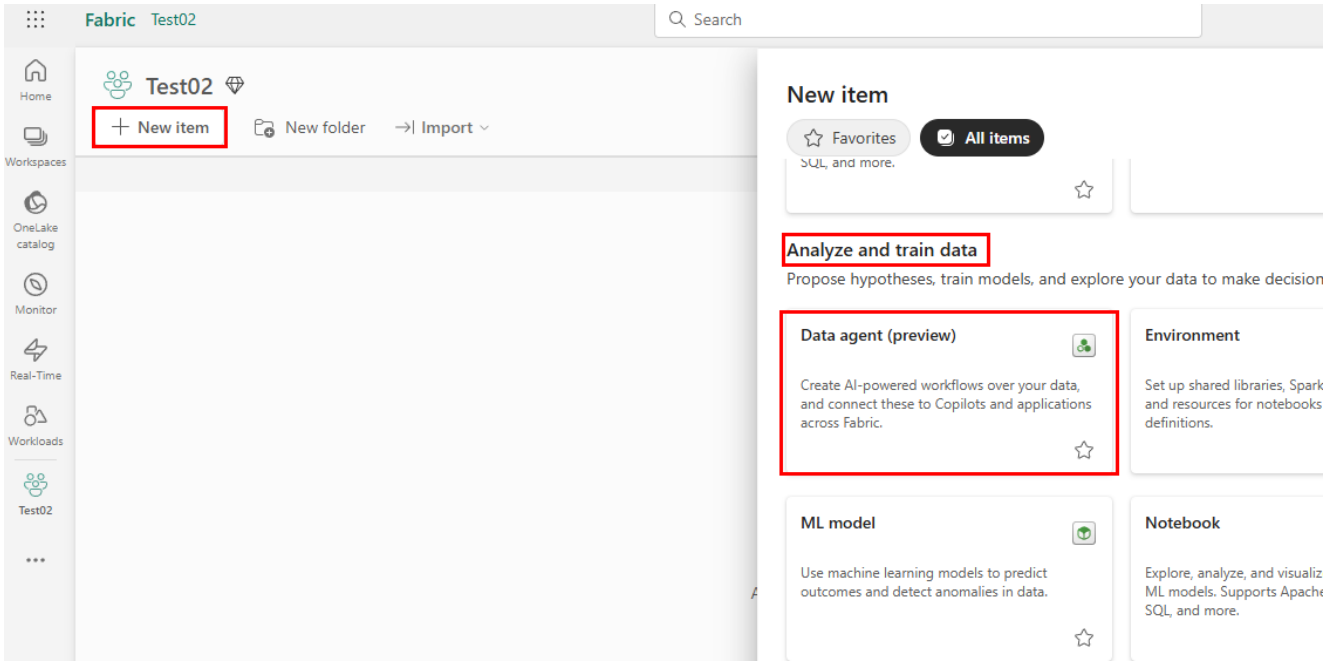
```
import pandas as pd
from tqdm.auto import tqdm
base = "https://synapseaisolutionsa.blob.core.windows.net/public/AdventureWorks"
# load list of tables
df_tables = pd.read_csv(f"{base}/adventureworks.csv", names=["table"])
for table in (pbar := tqdm(df_tables['table'].values)):
    pbar.set_description(f"Uploading {table} to lakehouse")
    # download
    df = pd.read_parquet(f"{base}/{table}.parquet")
    # save as lakehouse table
    spark.createDataFrame(df).write.mode('overwrite').saveAsTable(table)
```



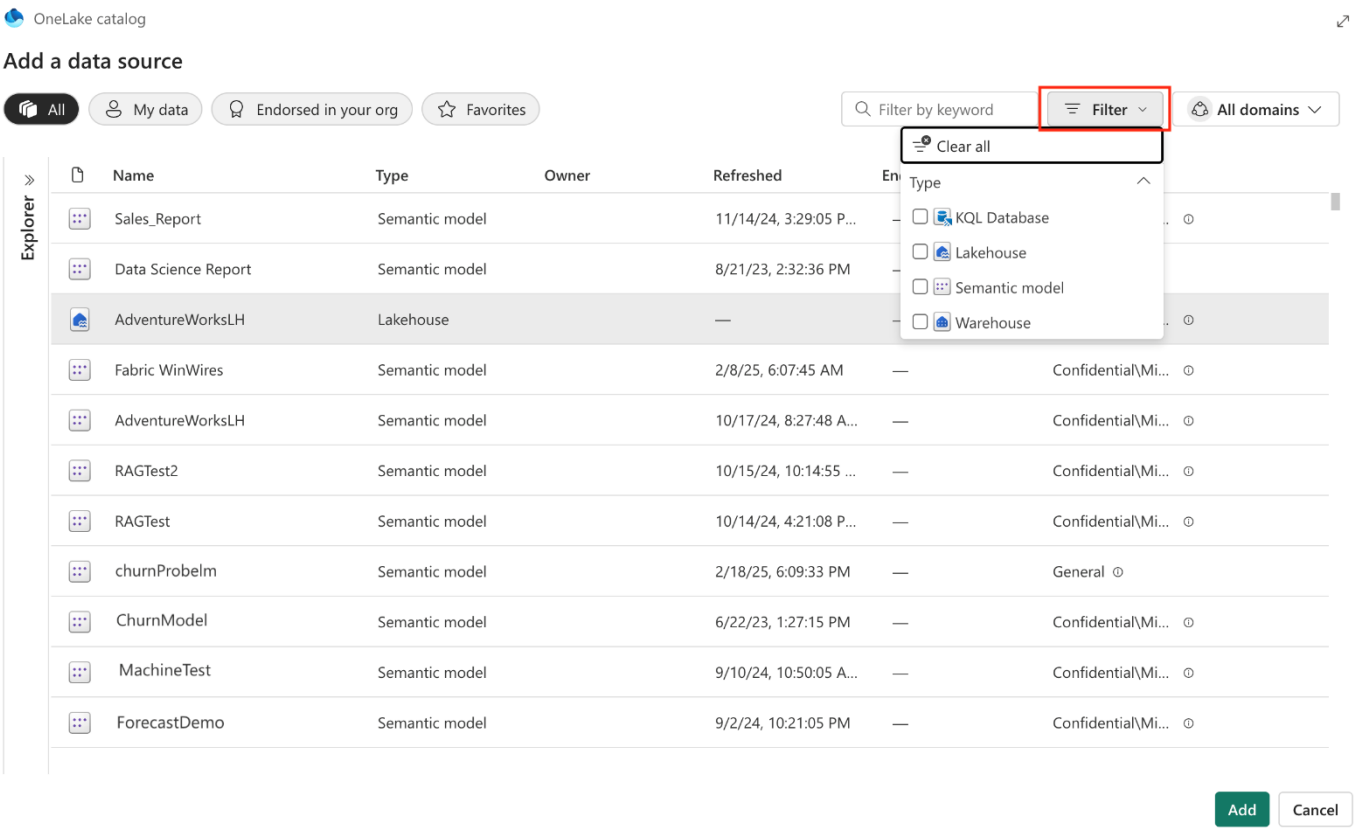
After a few minutes, the lakehouse is populated with the necessary data.

Task 4: Create a Data Agent

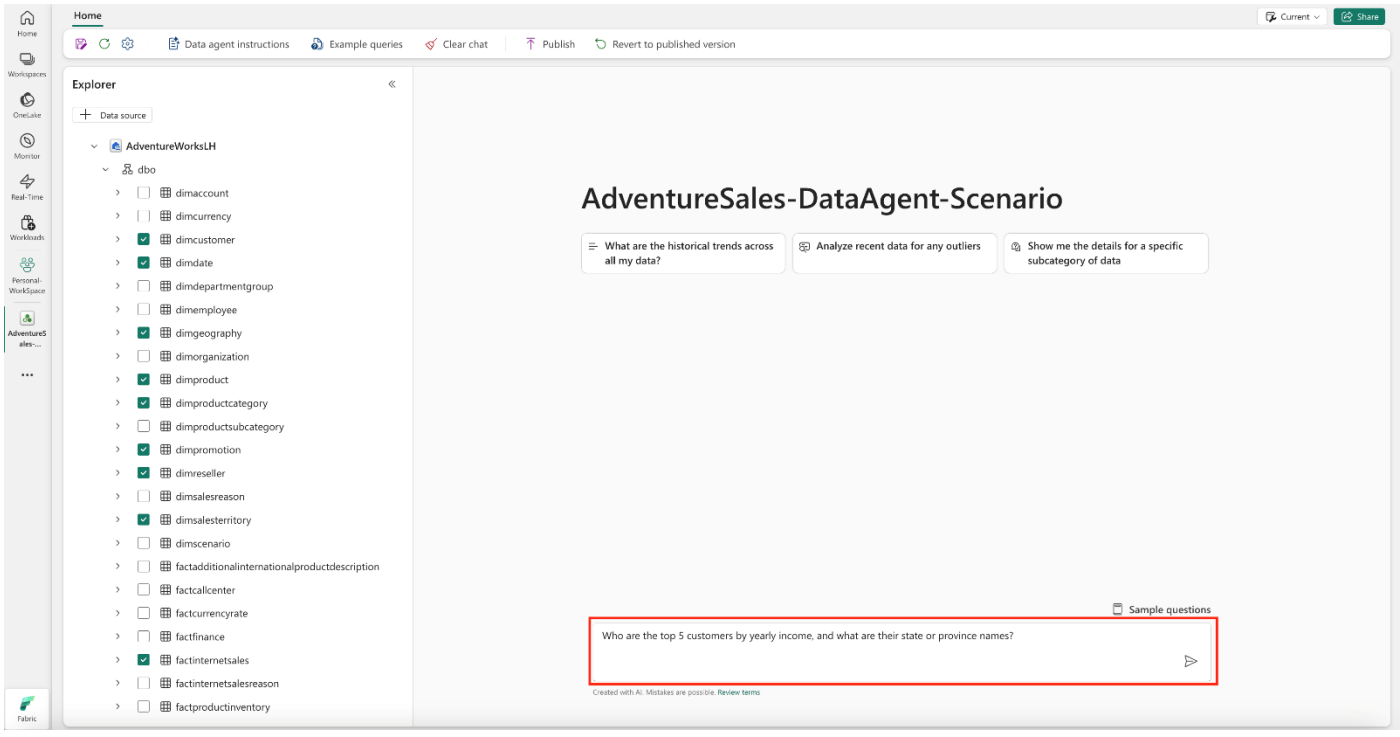
1. To create a new Data Agent, go to **your Workspace,** Click **+ New item and select Data Agent(preview)**



2. In the **Create Data Agent** dialog box, enter **AIDataAgen** in the **Name** field, click on the **Create** button.
3. To add a Data source, select Data Source Option, then select your Lakehouse **AdventureWorksLH**



4. Once your data source is added, expand the AdventureWorksLH.



5. You must then select the tables for which you want the AI skill to have available access.

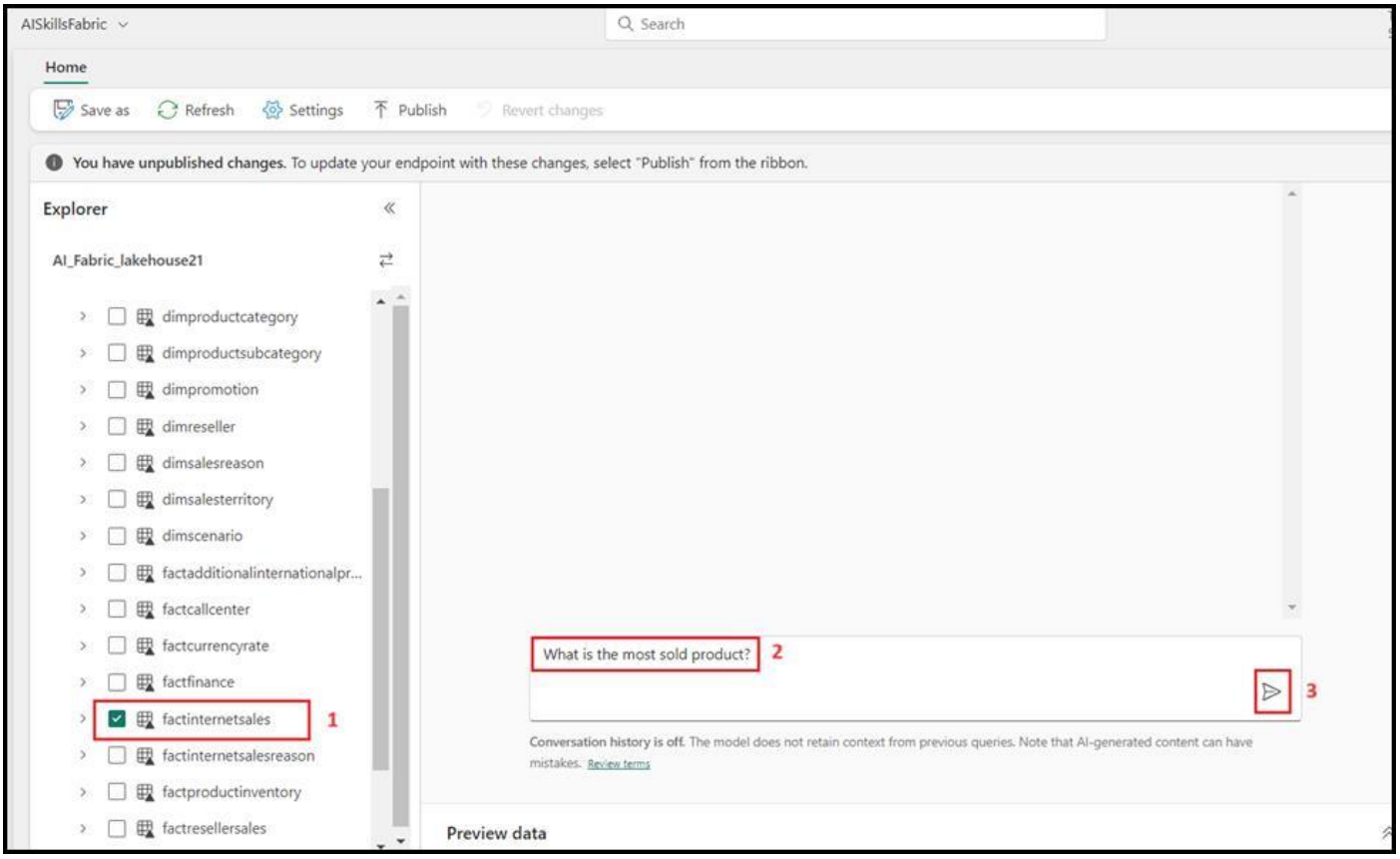
This lab uses these tables:

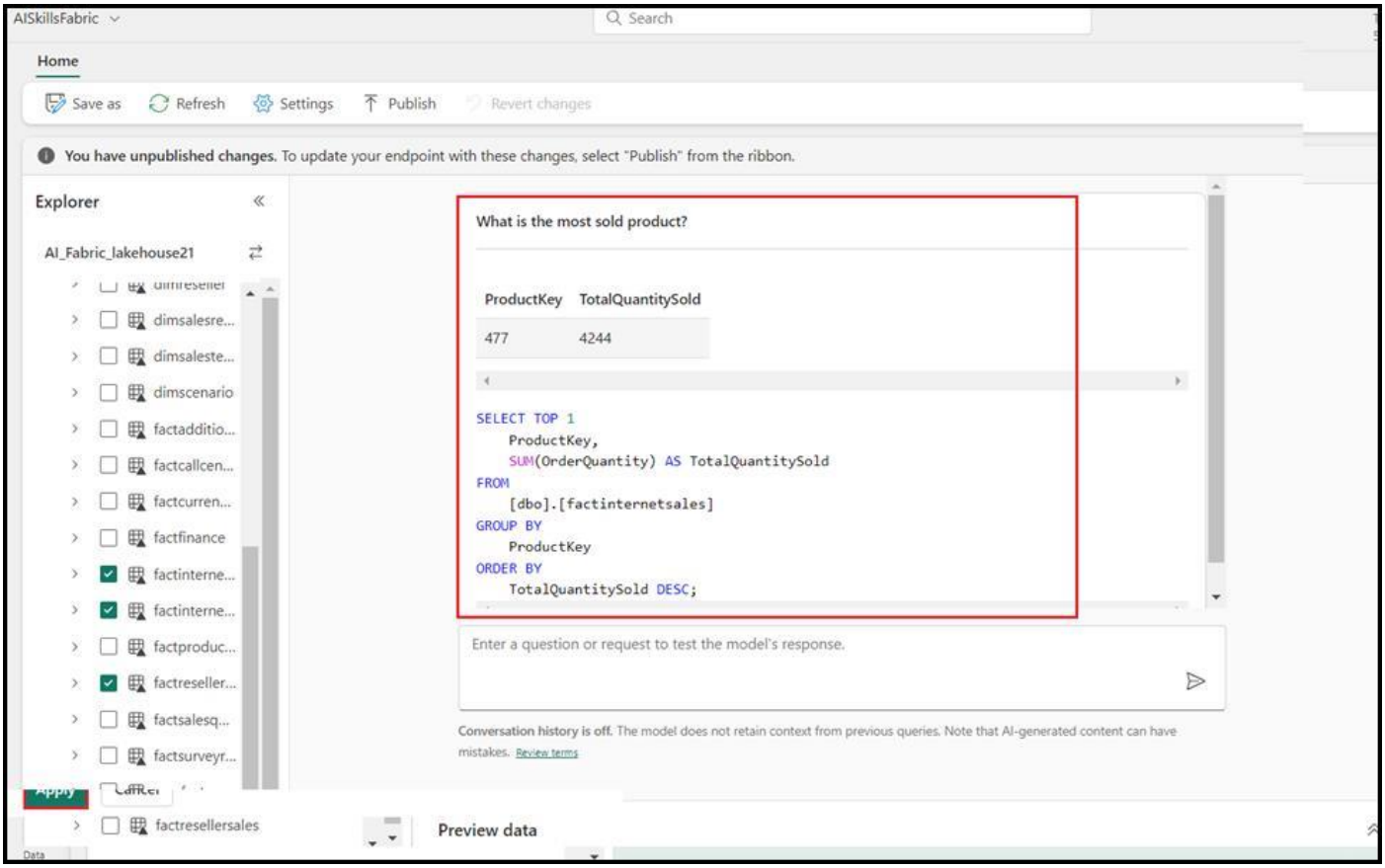
- DimCustomer
- DimDate
- DimGeography

- DimProduct
- DimProductCategory
- DimPromotion
- DimReseller
- DimSalesTerritory
- FactInternetSales
- FactResellerSales

Task 5: Provide instructions

1. When you first ask the AI skill questions with the listed tables select **factinternetsales**, the AI skill answers them fairly well.
2. For instance, for the question **What is the most sold product?**, the AI skill returns:

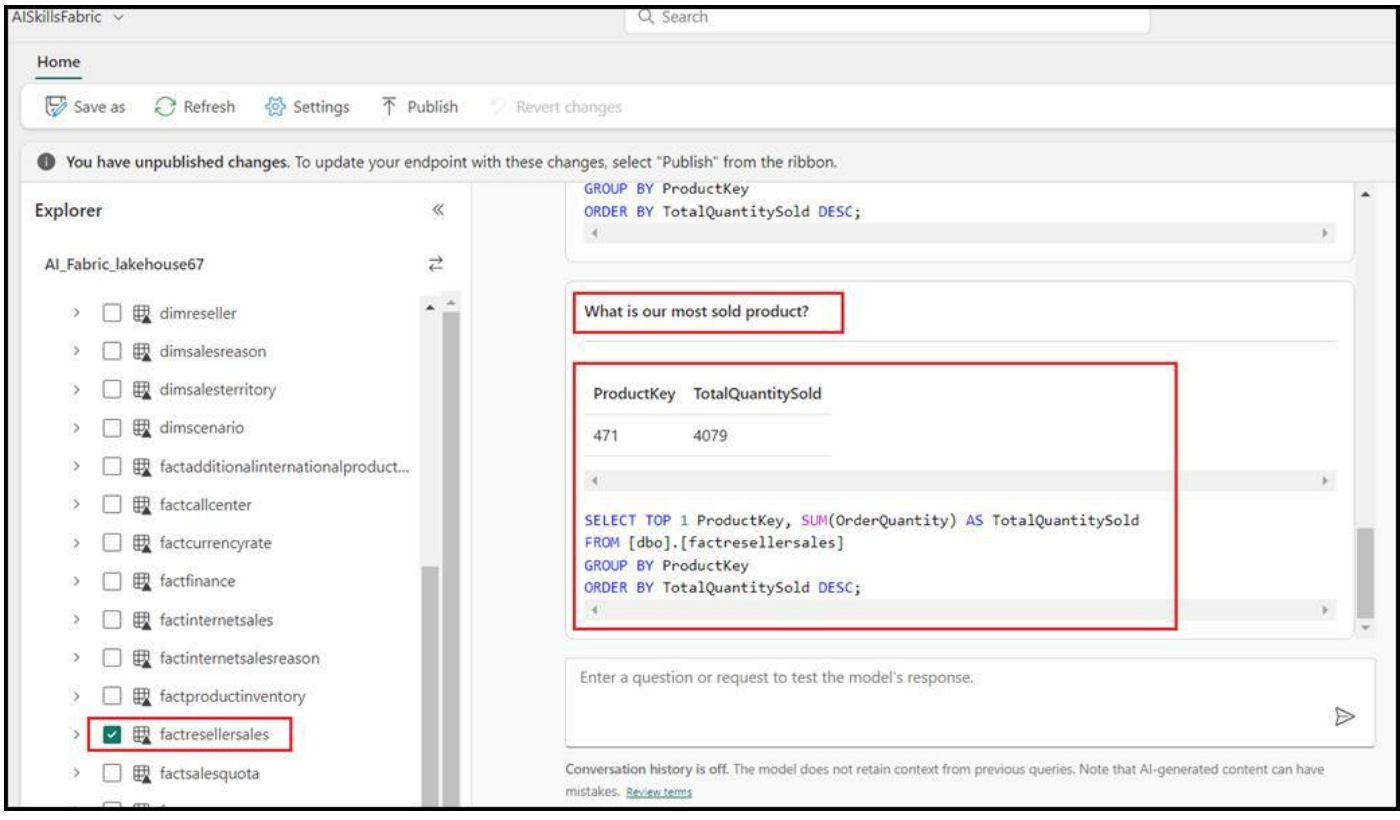




3. Copy the all question and SQL queries and paste them in a notepad and then Save the notepad to use the information in the upcoming tasks

4. Select FactResellerSales and enter the following text and click on the **Submit icon** as shown in the below image.

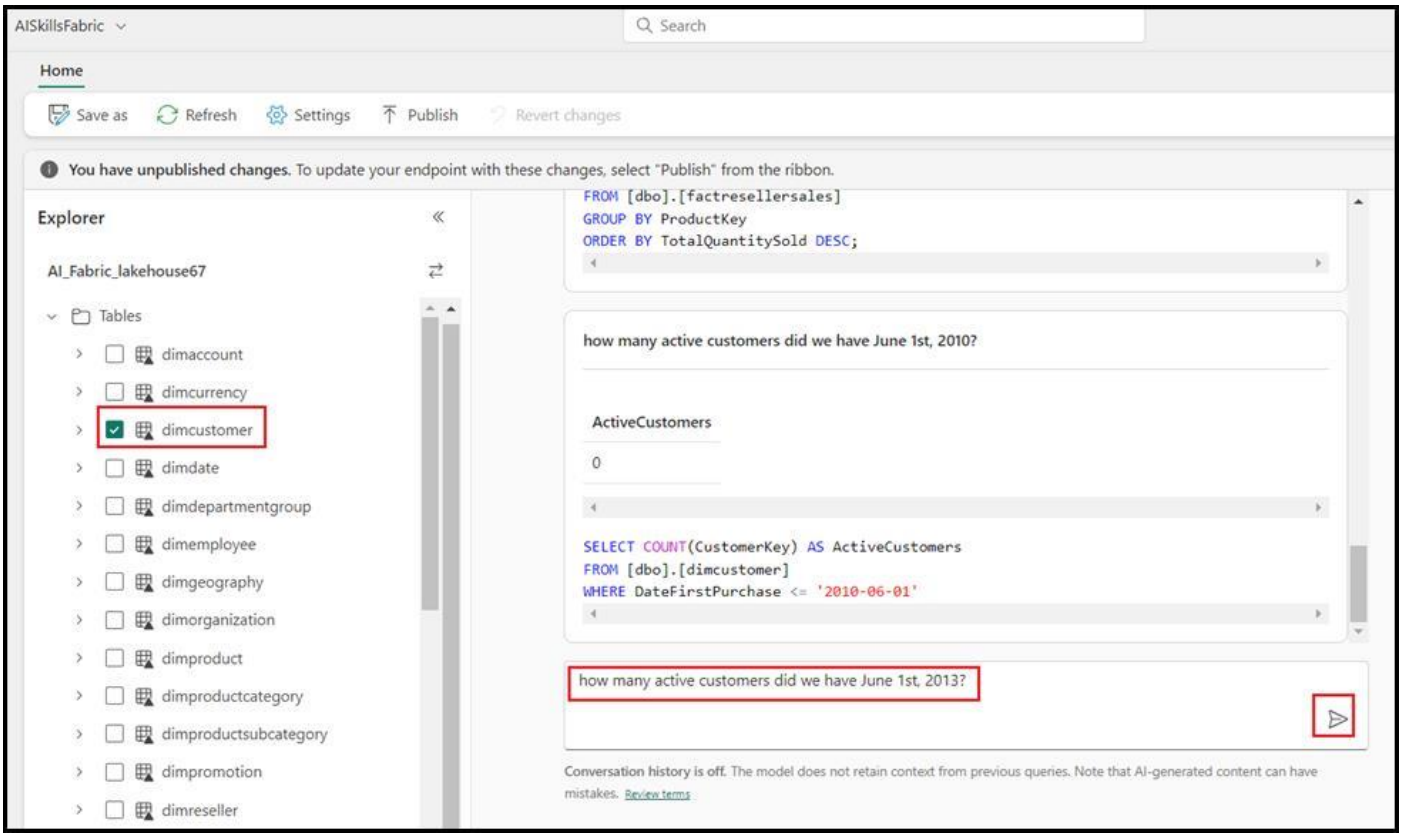
   What is our most sold product?

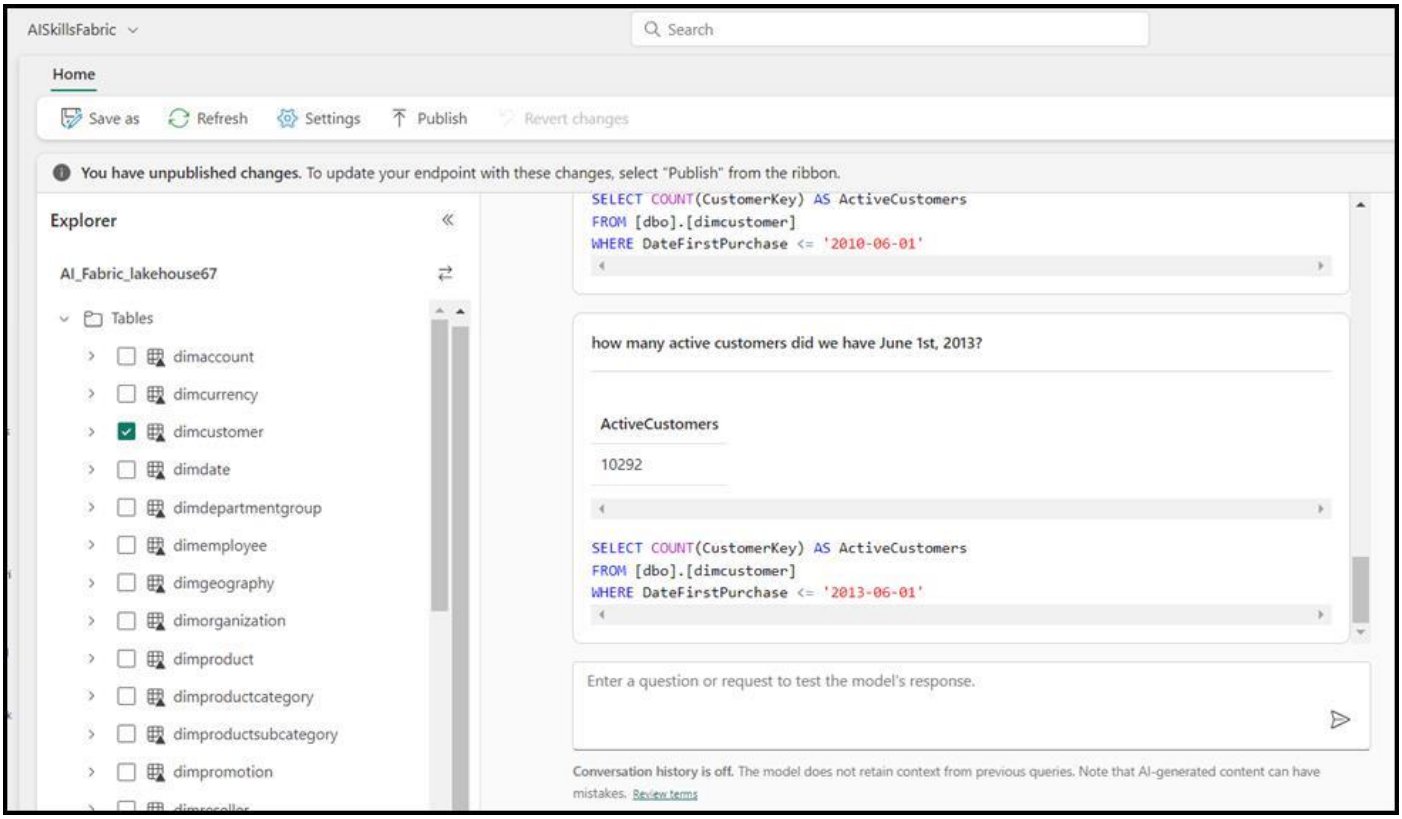


As you continue to experiment with queries, you should add more instructions.

5. Select the **dimcustomer** , enter the following text and click on the **Submit icon**

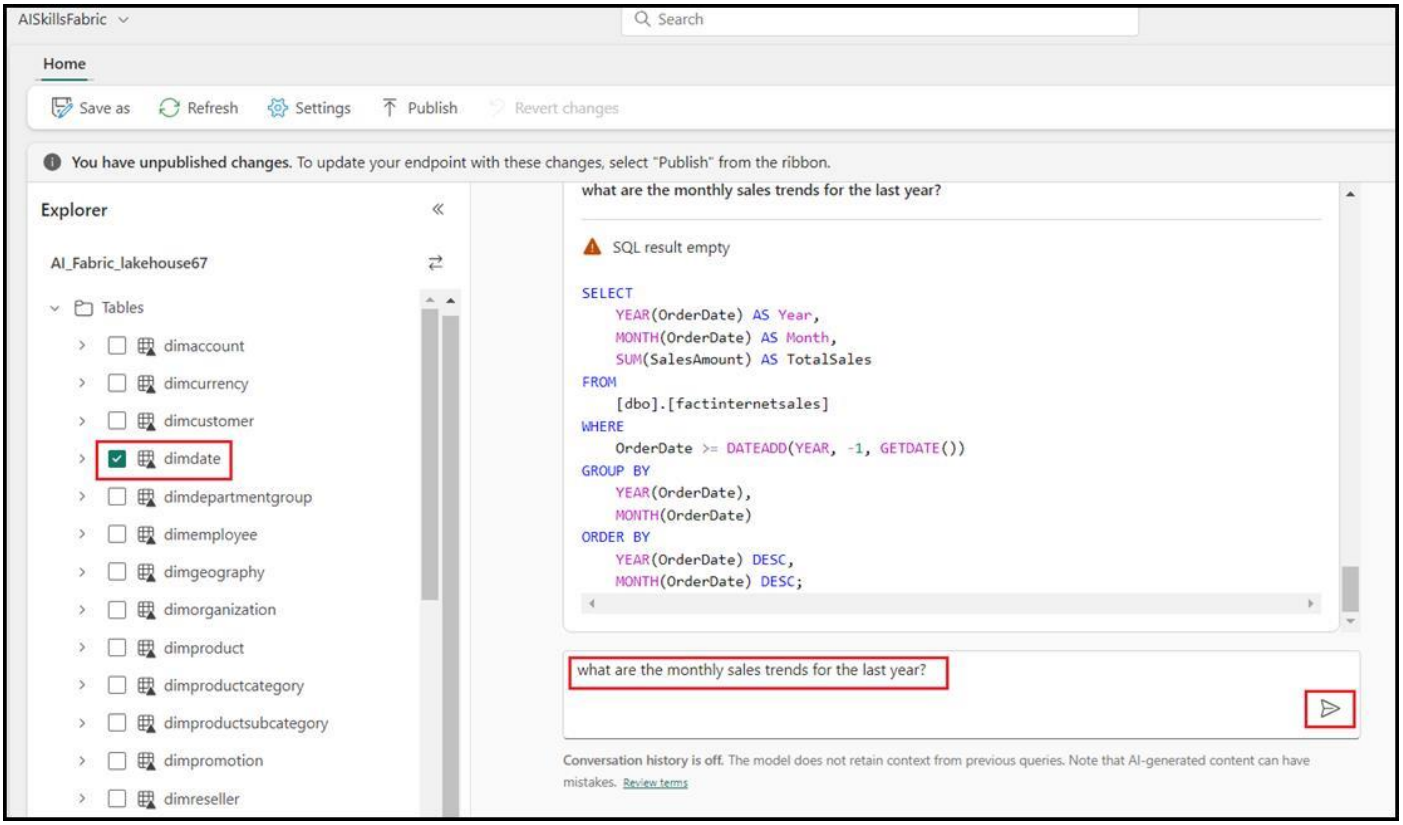
how many active customers did we have June 1st, 2013?

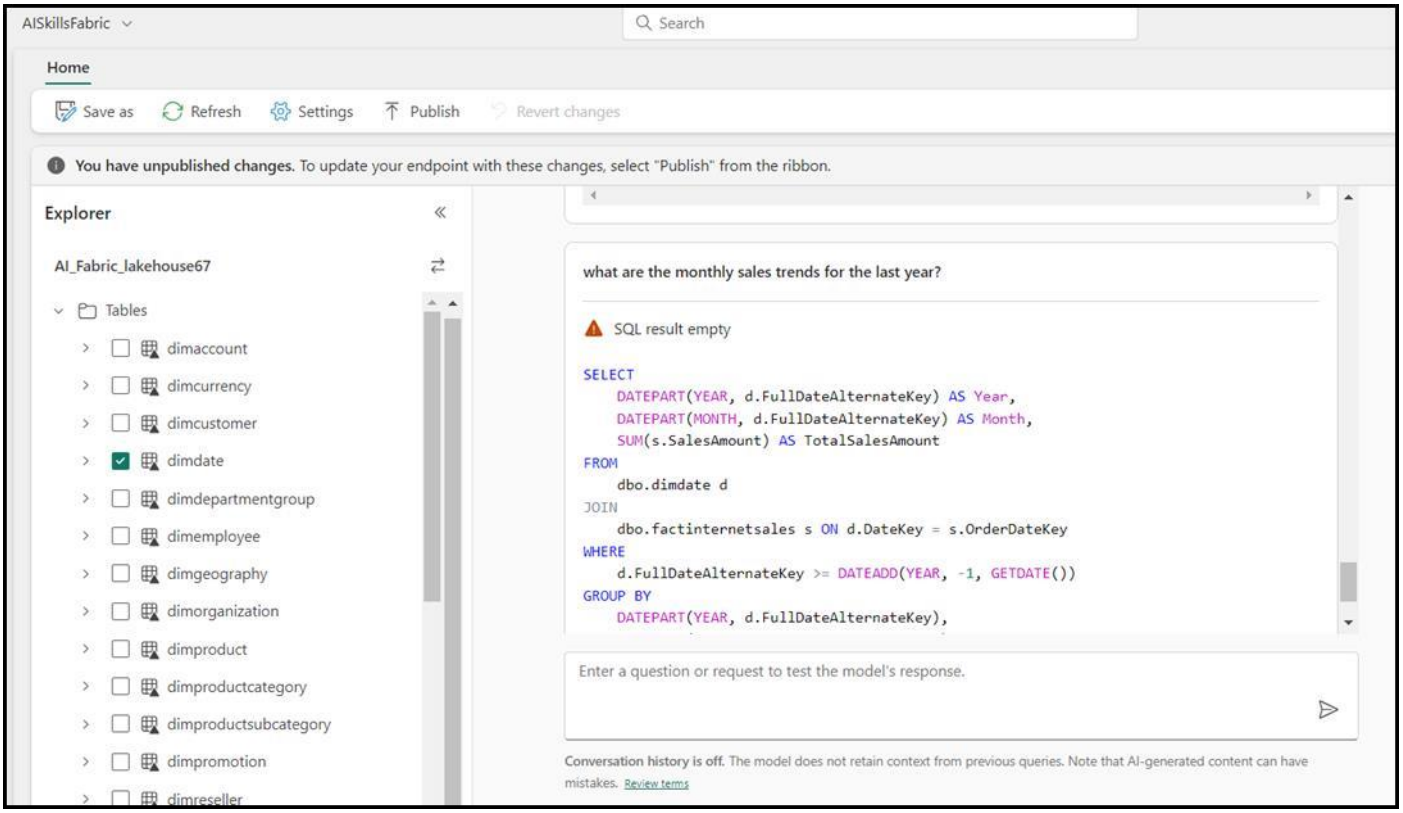




6. Select the **dimdate, FactInternetSales** , enter the following text and click on the **Submit icon**

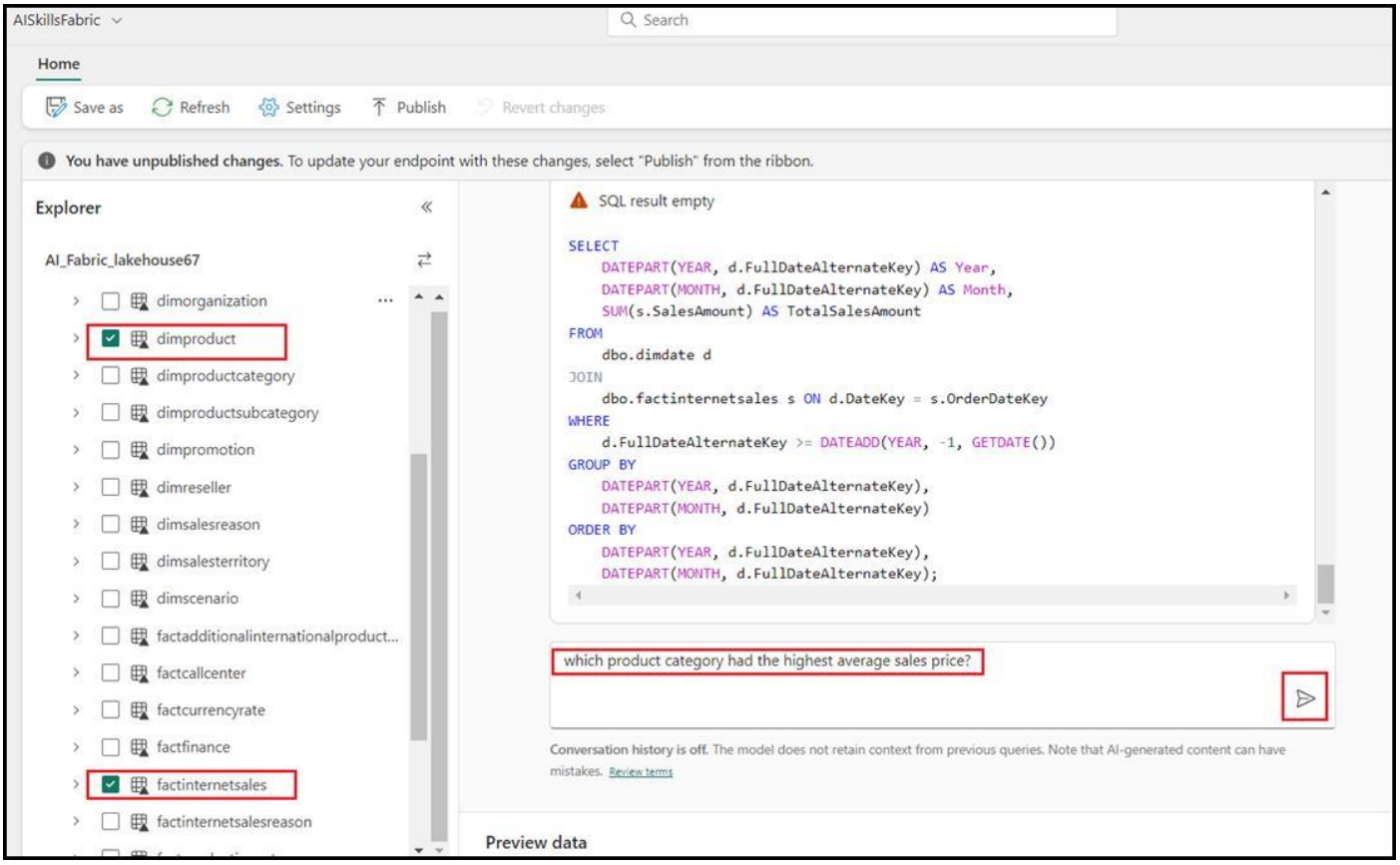
what are the monthly sales trends for the last year?

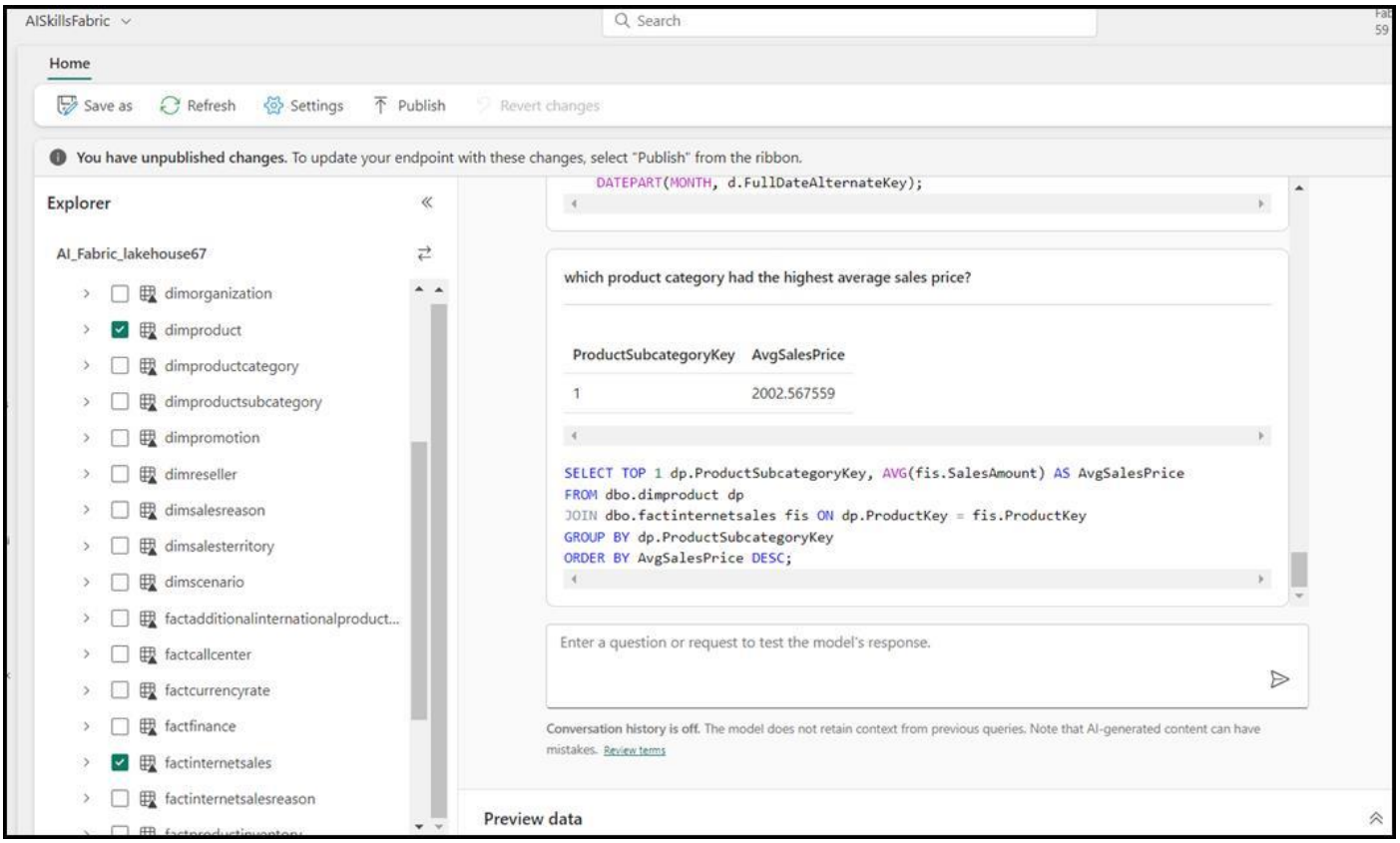




7. Select the **dimproduct, FactInternetSales** , enter the following text and click on the **Submit icon**

which product category had the highest average sales price?

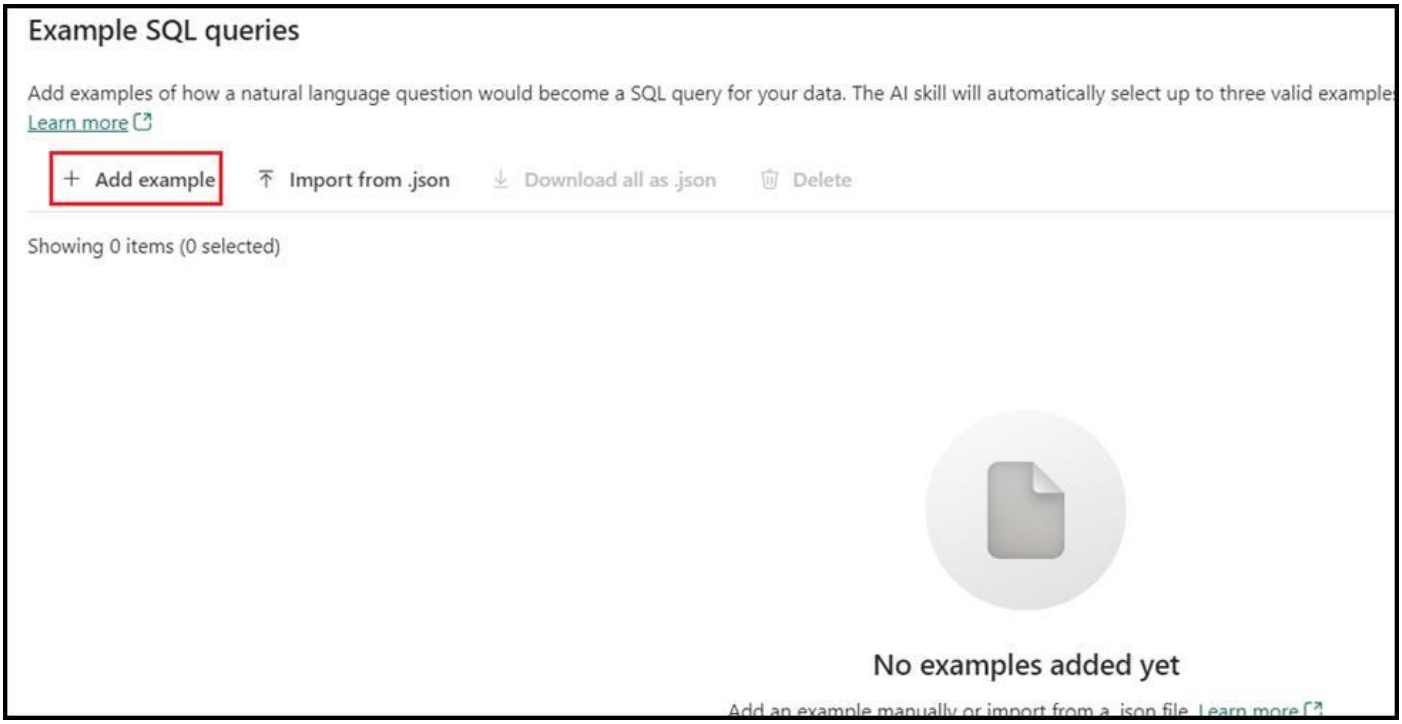




Part of the problem is that "active customer" doesn't have a formal definition. More instructions in the notes to the model text box might help, but users might frequently ask this question. You need to make sure that the AI handles the question correctly

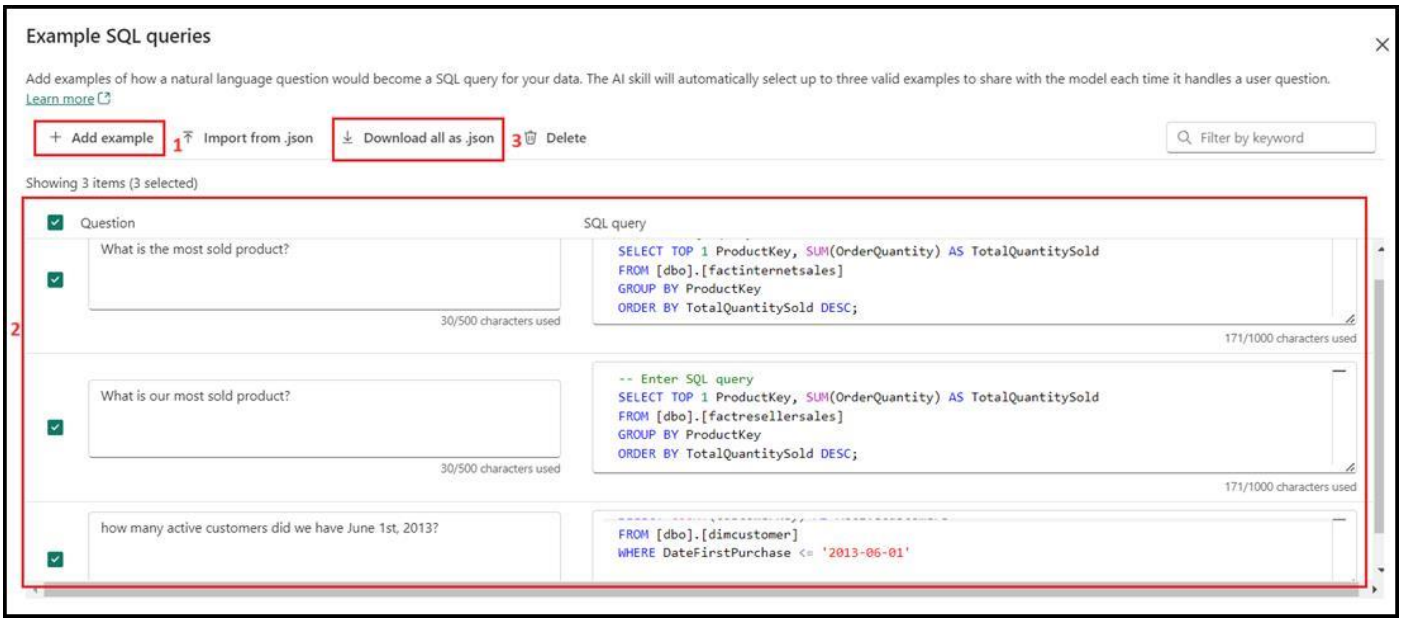
8. The relevant query is moderately complex, so provide an example by selecting the edit button.

9. In the Example SQL queries tab, select the **+Add example.**



10. You can manually add examples, but you can also upload them from a JSON file. Providing examples from a file is helpful when you have many SQL queries that you want to upload all at once, instead of manually uploading the queries one by one.

11. Add all the queries and SQL queries that you have saved in Notepad, and then click on 'Download all as .json'.

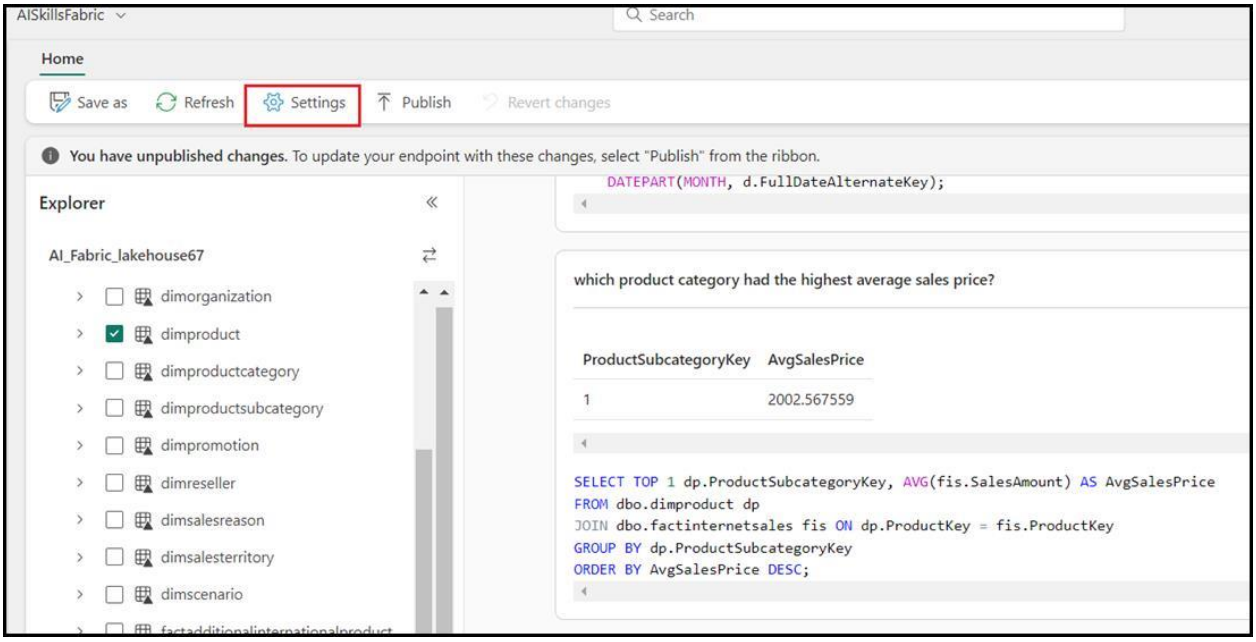


Task 9: Use the AI skill programmatically

Both instructions and examples were added to the AI skill. As testing proceeds, more examples and instructions can improve the AI skill even further. Work with your colleagues to see if you provided examples and instructions that cover the kinds of questions they want to ask.

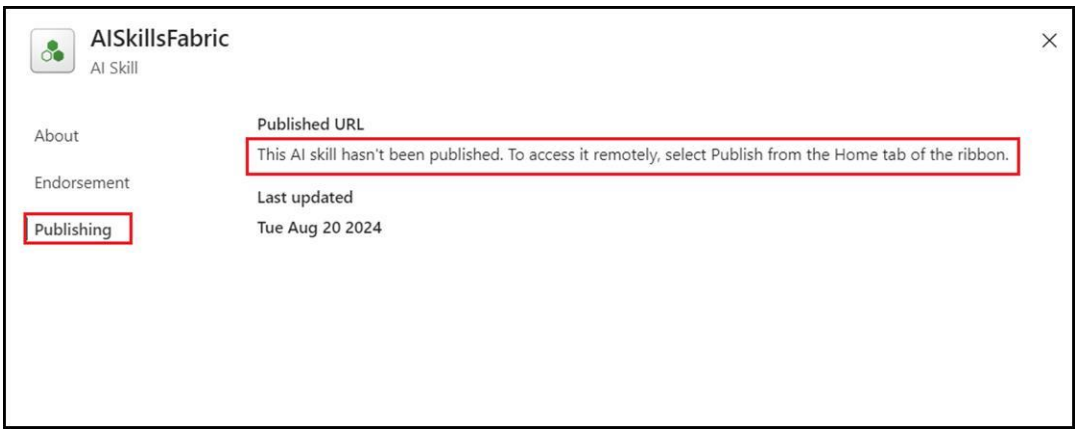
You can use the AI skill programmatically within a Fabric notebook. To determine whether or not the AI skill has a published URL value.

1. In the AISkillFabric page, in the **Home** ribbon select the **Settings**.

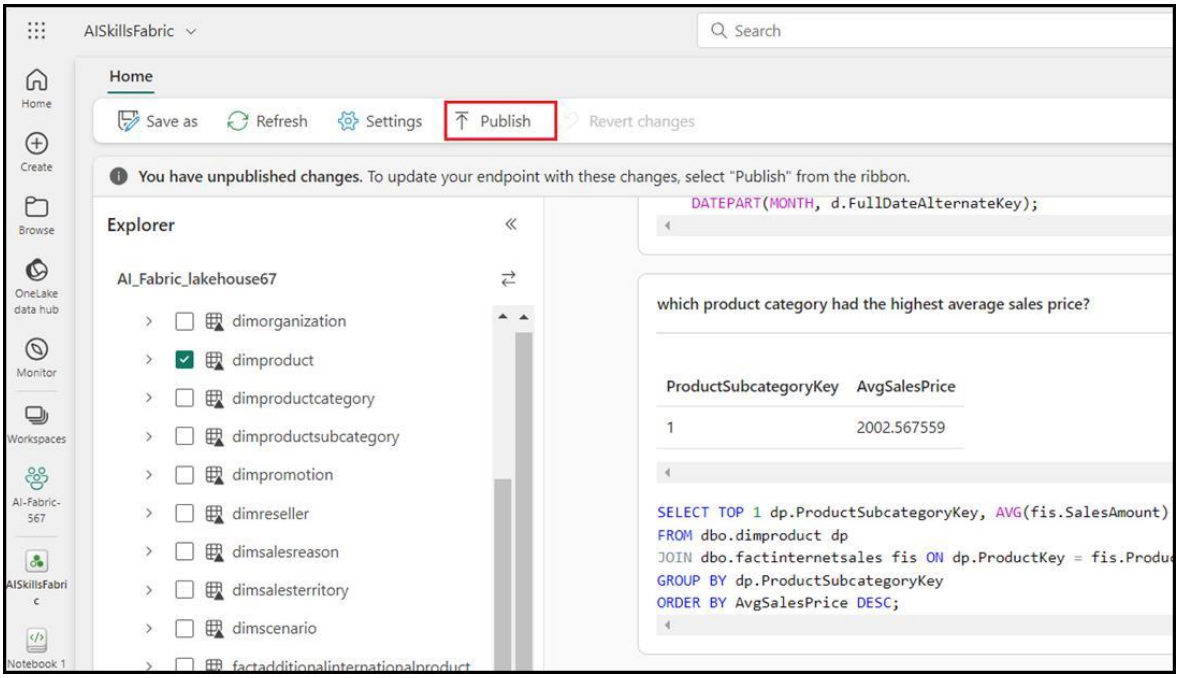


2. Before you publish the AI skill, it doesn\'t have a published URL value, as shown in this screenshot.

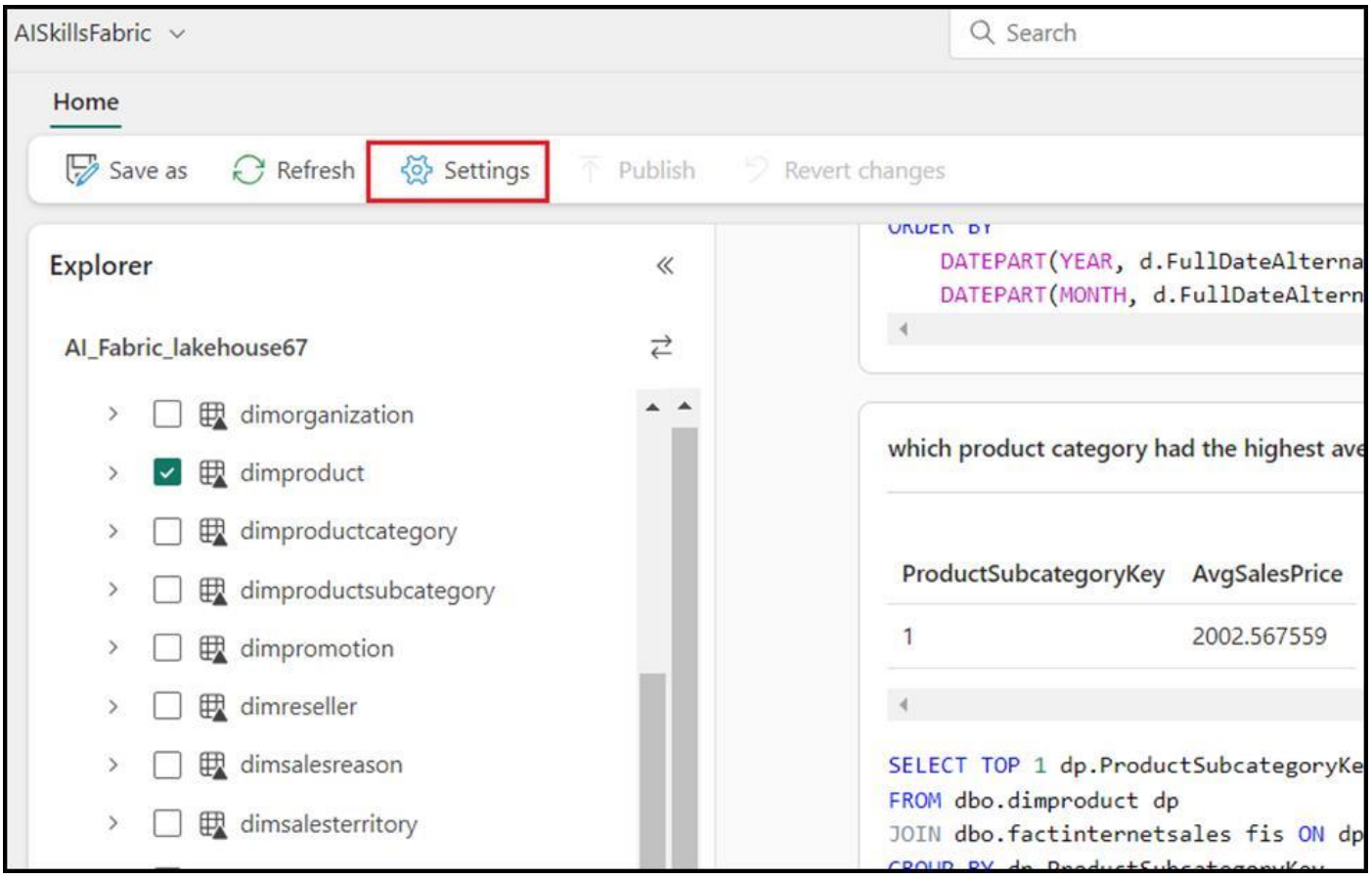
3. Close the AI Skill setting.



4. In the **Home** ribbon, select the **Publish**.



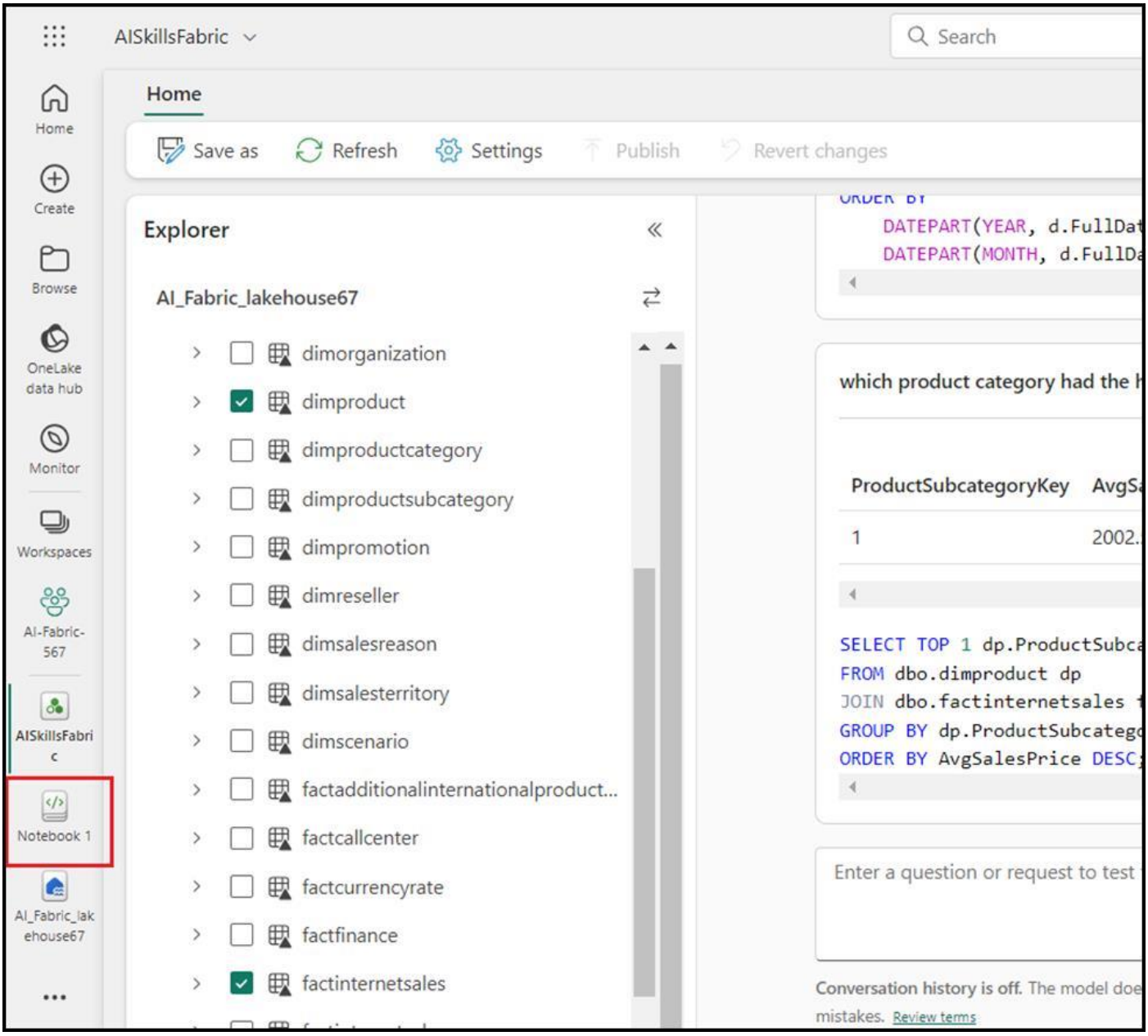
5. After publishing, select 'Settings' from the Home ribbon



6. The published URL for the AI skill appears, as shown in this screenshot.

7. Copy the URL and paste that in a notepad and then Save the notepad to use the information in the upcoming

8. Select **Notebook1** in the left navigation pane.



9. Use the **+ Code** icon below the cell output to add a new code cell to the notebook, enter the following code in it and replace the **URL**. Click on ▷ **Run** button and review the output

```
import requests
import json
import pprint
from synapse.ml.mlflow import get_mlflow_env_config
# the URL could change if the workspace is assigned to a different capacity
url = "https://<generic published URL value>"
configs = get_mlflow_env_config()
headers = {
   "Authorization": f"Bearer {configs.driver_aad_token}",
   "Content-Type": "application/json; charset=utf-8"
}
```

```
question = "{userQuestion: \"what is an example product?\"}"

response = requests.post(url, headers=headers, data = question)

print("RESPONSE: ", response)

print("")

response = json.loads(response.content)

print(response["result"])
```