Labs Data & AI Innovation Day

Lab 3: Data Ingestion

This document describes how to use a Python notebook to populate the Azure Cosmos DB for MongoDB collection with sample data

# Pre-requisites

Ensure that you have the following software installed on your system before proceeding with the lab:

* Visual Studio Code: A cross-platform code editor that supports Python development. You can download it from <https://code.visualstudio.com/>
* Python 3.10.11: The latest version of the Python programming language. You can download it from <https://www.python.org/downloads/release/python-31011/>

Note: If you are using a different version of Python, make sure that it is compatible with the libraries and packages used in this lab.

* Azure OpenAI account registered in the Azure subscription used for this lab

# Deploy Azure OpenAI models

Follow these steps to deploy the Azure OpenAI models (GPT 3.5 Turbo and Text-embeddingt-ada-002)

* Login to the Azure Portal
* Connect to the Azure OpenAI account
* In the left menu, select “Model deployments”
* Click “Manage deployments”
* Select the “Deployments” section
* Click on the “Create deployment” button
* Select the “text-embedding-ada-002” model in the dropdown list
* In the deployment name, type text-embedding-ada-002
* Click on the “Create” button to deploy the model

A screenshot of a computer

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* Repeat the previous steps to deploy the gpt-3.5-turbo model

# Prepare Python virtual environment

Run these commands to create a Python virutal environment and install the required libraries:

1. Create a “lab3” folder and navigate to this folder
2. Open Visual Studio Code
3. Using the menu: File > Open Folder > Code
4. Open a new Powershell Teminal > New Terminal
5. Type this command to create a virtual environment: python -m venv .venv
6. Activate the virtual environment with .venv\scripts\activate
7. Install the required libraries with pip install -r requirements.txt

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# Get Azure OpenAI key

* Connect to Azure Portal
* Connect to Azure OpenAI account
* In the left navigation menu, select “Keys and Endpoint”
* Key 1 and endpoint are the values you will need to add to your .env file

A screenshot of a computer

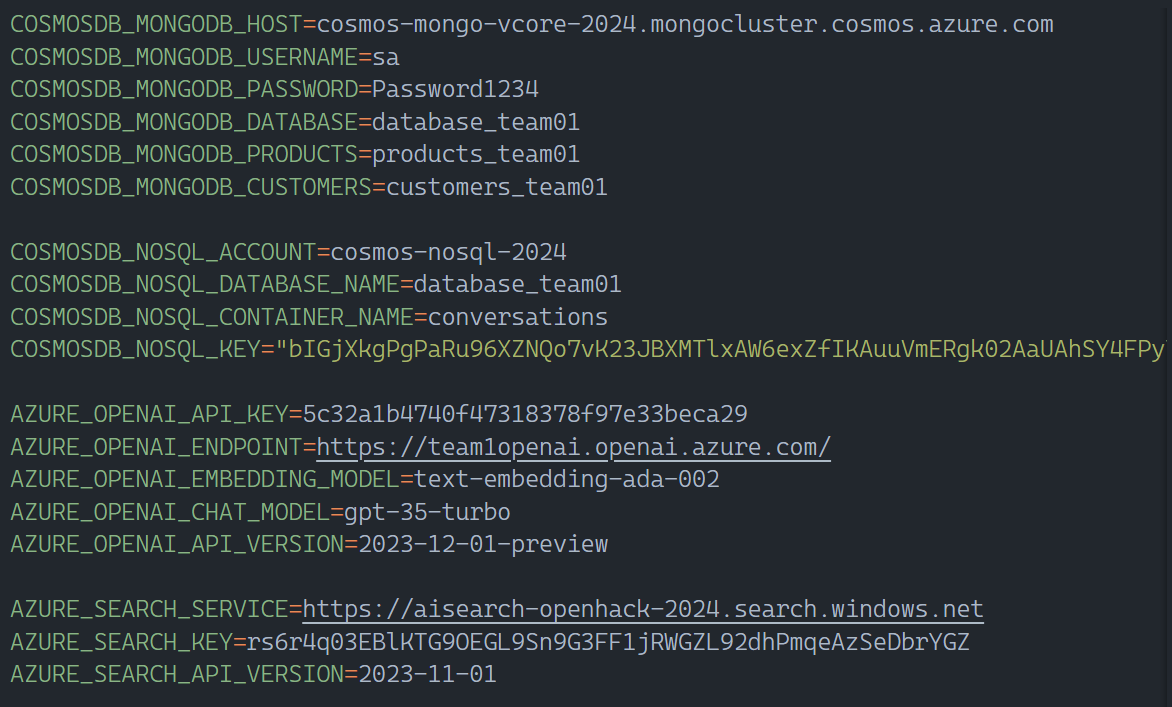
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# Modify environment variables

Rename the “.env template” file to “.env” and modify the variables to reflect your environment

|  |  |  |
| --- | --- | --- |
| COSMOSDB\_MONGODB\_HOST | The name of your Cosmos DB for MongoDB cluster | cosmos-mongo-vcore-2024.mongocluster.cosmos.azure.com |
| COSMOSDB\_MONGODB\_USERNAME | Cluster admin name | sa |
| COSMOSDB\_MONGODB\_PASSWORD | Cluster admin password | Password1234 |
| COSMOSDB\_MONGODB\_DATABASE | Database name | database\_<team\_name>, e.g. database\_team01 |
| COSMOSDB\_MONGODB\_PRODUCTS | Products collection name | products\_<team\_name> |
| COSMOSDB\_MONGODB\_CUSTOMERS | Customers collection name | customers\_<team\_name> |
| OPENAI\_API\_BASE | Azure OpenAI account url | https://<team\_name>openai.openai.azure.com/ |
| OPENAI\_API\_KEY | Azure OpenAI account key |  |
| OPENAI\_EMBEDDING\_MODEL | Name of your embedding model deployment | Defaults to text-embedding-ada-002 |
| OPENAI\_CHAT\_MODEL | Name of your chat model deployment | Defaults to gpt-35-turbo |

Your .env file should look like this:



# Ingest data into Cosmos DB for MongoDB vCore

In this section, you will use the Python notebook to upload sample data to your Azure Cosmos DB for MongoDB vCore collection

1. Download the original data files from https://cosmosdbcosmicworks.blob.core.windows.net/cosmic-works-small/product.json and https://cosmosdbcosmicworks.blob.core.windows.net/cosmic-works-small/customer.json to the lab3 folder on your local machine.
2. Open Visual Studio Code
3. Using the menu: File > Open Folder > Code
4. Open a new Powershell Teminal > New Terminal
5. Activate the virtual environment with .venv\scripts\activate
6. In the files navigation tree, open the file “populate\_cosmosdb\_mongodb.ipynb”
7. Execute each cell one by one or click the “Run all” button in the toolbar to run all cells

At the end of the process, there should be 295 products in the products collection and 1584 customers in the customers collection

A screenshot of a computer program

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# Check ingested data

To connect to the Azure Portal and view data from Azure Cosmos DB for Mongo vCore collection products\_team1, follow these steps:

* Open a web browser and go to https://portal.azure.com
* Sign in with your Azure account credentials
* In the search box, type ’Azure Cosmos DB for MongoDB (vCore)’ and select it from the results
* In the Azure Cosmos DB page, select your account name [cosmos-mongo-vcore-2024](https://portal.azure.com/#@fdpo.onmicrosoft.com/resource/subscriptions/660b7553-5723-4570-824b-7b84126ad4a3/resourceGroups/rg-cosmosdb/providers/Microsoft.DocumentDB/mongoClusters/cosmos-mongo-vcore-098) from the list
* Click on ‘Quick Start’ in the menu
* Click on the ‘Open MongoDB (vCore) shell’ button

Enter Azure Cosmos DB for MongoDB vCore admin password: \*\*\*\*\*\*\*\*\*\*\*\*\*\*

/\* switch to database\_team01 \*/

use database\_team01

/\* count documents in collection products\_team1 \*/

db.products\_team01.countDocuments()

/\* display first document \*/

db.products\_team01.find({}).limit(1)

A screen shot of a computer

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