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CS571- Week 11 Homework 2

Q6 ==> GenAI - Containerized video transcription and chat app

https://hc.labnet.sfbu.edu/~henry/sfbu/course/cloud_computing/genai/slide/exercise_kubernetes.html

Step 1. Containerize your app

1. Open Command Prompt in your Windows

- Create a working directory and navigate inside it(optional).

mkdir video_transcription_chat_app

cd video_transcription_chat_app

- In a terminal, run the following command to clone the sample application's repository.

git clone <https://github.com/Davidnet/docker-genai.git>

```
C:\Users\HP>mkdir video_transcription_chat_app
C:\Users\HP>cd video_transcription_chat_app
C:\Users\HP\video_transcription_chat_app>git clone https://github.com/Davidnet/docker-genai.git
Cloning into 'docker-genai'...
remote: Enumerating objects: 66, done.
remote: Counting objects: 100% (66/66), done.
remote: Compressing objects: 100% (43/43), done.
remote: Total 66 (delta 24), reused 60 (delta 20), pack-reused 0
Receiving objects: 100% (66/66), 114.38 KiB | 880.00 KiB/s, done.
Resolving deltas: 100% (24/24), done.
C:\Users\HP\video_transcription_chat_app>
```

2. Go to the docker-genai directory.

```

C:\Users\HP\video_transcription_chat_app>cd docker-genai

C:\Users\HP\video_transcription_chat_app\docker-genai>dir
Volume in drive C is Windows
Volume Serial Number is E48C-D9EE

Directory of C:\Users\HP\video_transcription_chat_app\docker-genai

07/31/2024  11:32 PM    <DIR>          .
07/31/2024  11:32 PM    <DIR>          ..
07/31/2024  11:32 PM             494 .env.example
07/31/2024  11:32 PM          3,668 .gitignore
07/31/2024  11:32 PM    <DIR>          docker-bot
07/31/2024  11:32 PM          298 docker-compose.yml
07/31/2024  11:32 PM          1,091 LICENSE
07/31/2024  11:32 PM          103 README.md
07/31/2024  11:32 PM    <DIR>          yt-whisper
               5 File(s)              5,654 bytes
               4 Dir(s)      9,444,667,392 bytes free

C:\Users\HP\video_transcription_chat_app\docker-genai>

```

3. Create a copy of the .env.example file, name it .env and edit it in the editor (can use vim, cp, ...) I used notepad

~ [notepad .env](#)

And then check this for a prerequisite and create a personal api key from OpenAI and/or pinecone:

- You have an [OpenAI API Key](#).
- You have a [Pinecone API Key](#).
- You have installed the latest version of Docker Desktop. And open and start the docker app in your desktop
- You have a Git client.

Specify your API keys. In the docker-genai directory, create a text file called .env and specify your API keys inside

```

C:\Users\HP\video_transcription_chat_app\docker-genai>notepad .env

```



```

*.env - Notepad
File Edit Format View Help
#-----
# OpenAI
#-----
# OPENAI_TOKEN = sk-proj-e60yZATJdNf8TZvQBSVZT3B1bkFJ1AFefgheEggMD1ZBmJtD # put your personal API key
#
#-----
# # Pinecone
# #-----
# PINECONE_TOKEN = 06d4cb27-aefb-49db-8803-1f76af1860cc # put your personal API key

```

```

C:\Users\HP\docker-genai>dir
Volume in drive C is Windows
Volume Serial Number is E48C-D9EE

Directory of C:\Users\HP\docker-genai

07/31/2024  11:28 PM    <DIR>          .
07/31/2024  11:28 PM    <DIR>          ..
07/31/2024  11:28 PM                494 .env.example
07/31/2024  11:28 PM            3,668 .gitignore
07/31/2024  11:28 PM    <DIR>          docker-bot
07/31/2024  11:28 PM            298 docker-compose.yml
07/31/2024  11:28 PM            1,091 LICENSE
07/31/2024  11:28 PM            103 README.md
07/31/2024  11:28 PM    <DIR>          yt-whisper
                    5 File(s)          5,654 bytes
                    4 Dir(s)      8,831,819,776 bytes free

```

4. Build and run the application. In a terminal, change directory to your docker-genai directory and run the following command.

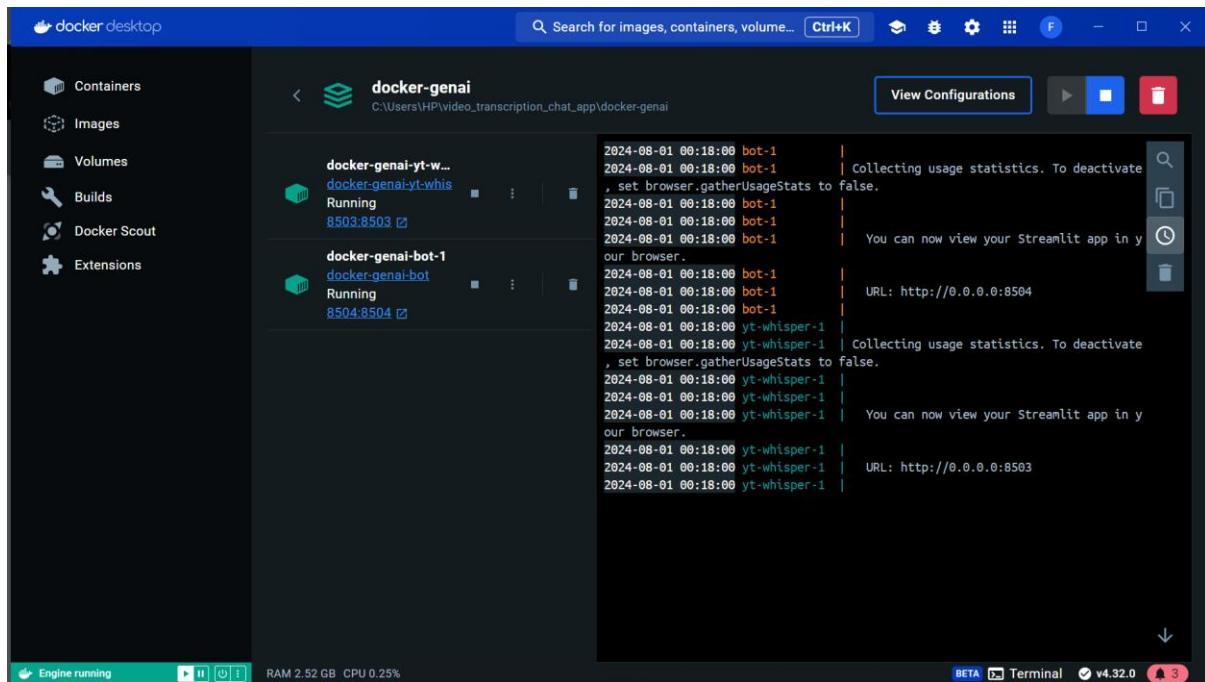
docker compose up --build

```

C:\Users\HP\docker-genai>docker compose up --build
[+] Building 3/3
=> [yt-whisper internal] load .dockerignore 0.2s
=> => transferring context: 2B 0.0s
=> [yt-whisper base 1/5] FROM docker.io/library/python:3.11-sli 0.0s
=> [bot internal] load build context 0.2s
=> => transferring context: 132.54kB 0.1s
=> CACHED [yt-whisper base 2/5] WORKDIR /app 0.0s
=> CACHED [yt-whisper base 3/5] RUN adduser --disabled-pass 0.0s
=> [yt-whisper internal] load build context 0.3s
=> => transferring context: 181.89kB 0.1s
=> [bot base 4/5] RUN --mount=type=cache,target=/root/.cache/p 61.3s
=> [yt-whisper base 4/5] RUN --mount=type=cache,target=/root/. 61.0s
=> [yt-whisper base 5/5] COPY . . 1.2s
=> [bot base 5/5] COPY . . 1.6s
=> [yt-whisper] exporting to image 3.9s
=> => exporting layers 3.5s
=> => writing image sha256:d2f343cda5614e353f0d1a1b5de797f7c5b3 0.1s
=> => naming to docker.io/library/docker-genai-yt-whisper 0.1s
=> [bot] exporting to image 3.9s
=> => exporting layers 3.4s
=> => writing image sha256:81f438fb086e0fb01fd03a61092d17d2ad8 0.1s
=> => naming to docker.io/library/docker-genai-bot 0.1s
[+] Running 3/3
  Network docker-genai_default      Created           0.2s
  Container docker-genai-yt-whisper-1 Created           0.4s
  Container docker-genai-bot-1      Created           0.5s
Attaching to bot-1, yt-whisper-1
bot-1
yt-whisper-1 | Collecting usage statistics. To deactivate, set browser.gatherUsageStats to false.
yt-whisper-1 | Collecting usage statistics. To deactivate, set browser.gatherUsageStats to false.
bot-1
yt-whisper-1 | You can now view your Streamlit app in your browser.
yt-whisper-1 |
yt-whisper-1 | You can now view your Streamlit app in your browser.
yt-whisper-1 | URL: http://0.0.0.0:8503
bot-1
yt-whisper-1 | URL: http://0.0.0.0:8504
bot-1

```

And when viewed from the Docker Desktop (press v to see like this below)



- In the above logs, we can see the services are exposed on ports **8503** and **8504**. The two services are complimentary to each other.
- The yt-whisper service is running on port 8503. This service feeds the Pinecone database with videos that you want to archive.

Step 2: Video transcription and chat

Using the yt-whisper service

5. Open a browser and access the yt-whisper service at.

<http://localhost:8503>

6. Once the application appears, in the Youtube URL field specify a Youtube video URL and select Submit.

7. After processing the video, a video list appears in the web app that informs you which videos have been indexed in Pinecone. It also provides a button to download the transcript.

Using the dockerbot service

8. Open a browser and access the service at.

<http://localhost:8504>

9. The following example asks the question, "What is a sugar cookie?".

10. **Docker Compose** is a tool for defining and running multi-container applications. Here with a single command, it enables to easily run this application simplifies the control of your entire application stack, making it easy to manage all things in a single, comprehensible YAML configuration file.

```
[+] Running 2/0
✓ Container docker-genai-bot-1      Created      0.0s
✓ Container docker-genai-yt-whisper-1 Created      0.0s
Attaching to bot-1, yt-whisper-1
yt-whisper-1 | Collecting usage statistics. To deactivate, set browser.gatherUsageStats to False.
yt-whisper-1 |
yt-whisper-1 | You can now view your Streamlit app in your browser.
yt-whisper-1 |
yt-whisper-1 | URL: http://0.0.0.0:8503
yt-whisper-1 |
bot-1        | Collecting usage statistics. To deactivate, set browser.gatherUsageStats to False.
bot-1        |
bot-1        | You can now view your Streamlit app in your browser.
bot-1        |
bot-1        | URL: http://0.0.0.0:8504
bot-1        |
```

11. To stop the application, we press 'ctrl+C' in the terminal.

```
Gracefully stopping... (press Ctrl+C again to force)
[+] Stopping 2/2
  Container docker-genai-bot-1      Stopped
  Container docker-genai-yt-whisper-1 Stopped
canceled
```