



# AC215: Advanced Practical Data Science, MLOps

## Exercise 5 - Docker Containers

Harvard University

Fall 2021

Instructor:

Pavlos Protopapas

### Exercise Details

This exercise is to continue your work from the in class tutorial:

<https://edstem.org/us/courses/8582/lessons/21613/slides/137927>

Mega Pipeline App







In this exercise you will to build all the tasks in the **Mega Pipeline App** which does the following:

1. Use the app to **Record** audio using a mic
2. The audio file is then transcribed using **Google Cloud Speech to Text API**
3. The text is used as a prompt to a pre-trained **GPT2** model to **Generate Text** (100 words)
4. The generated text is synthesized to audio using **Google Cloud Text-to-Speech API**
5. The generated text is also **translated** to **French** using **googletrans**
6. The translated text is then synthesized to audio using **Google Cloud Text-to-Speech API**

There are **5 Tasks** to be completed

**Task A** [[transcribe\\_audio](#)]:

-  Task B [generate\_text]:
-  Task C [synthesis\_audio\_en]:
-  Task D [translate\_text]:
-  Task E [synthesis\_audio]:

## Submission Details

Groups: Yingchen Liu, Anita Mahinpei

### Task A: Transcribe Audio

1. Screenshot of your Dockerfile

```
transcribe_audio > Dockerfile > ...
1 FROM python:3.8-slim-buster
2
3 ENV PYENV_SHELL=/bin/bash
4
5 ENV GOOGLE_APPLICATION_CREDENTIALS=secrets/mega-pipeline.json
6
7 RUN set -ex; \
8     apt-get update && \
9     apt-get upgrade -y && \
10    apt-get install -y --no-install-recommends build-essential ffmpeg && \
11    pip install --no-cache-dir --upgrade pip && \
12    pip install pipenv && \
13    mkdir -p /app
14
15 WORKDIR /app
16
17 ADD Pipfile Pipfile.lock /app/
18
19 RUN pipenv sync
20
21 ADD . /app
22
23 ENTRYPOINT ["/bin/bash"]
24
25 CMD ["-c", "pipenv shell"]
```

2. Screenshot of your Pipfile

```

transcribe_audio > ≡ Pipfile
1  [[source]]
2  name = "pypi"
3  url = "https://pypi.org/simple"
4  verify_ssl = true
5
6  [dev-packages]
7
8  [packages]
9  google-cloud-storage = "*"
10 google-cloud-speech = "*"
11 ffmpeg-python = "*"
12
13 [requires]
14 python_version = "3.8"
15

```

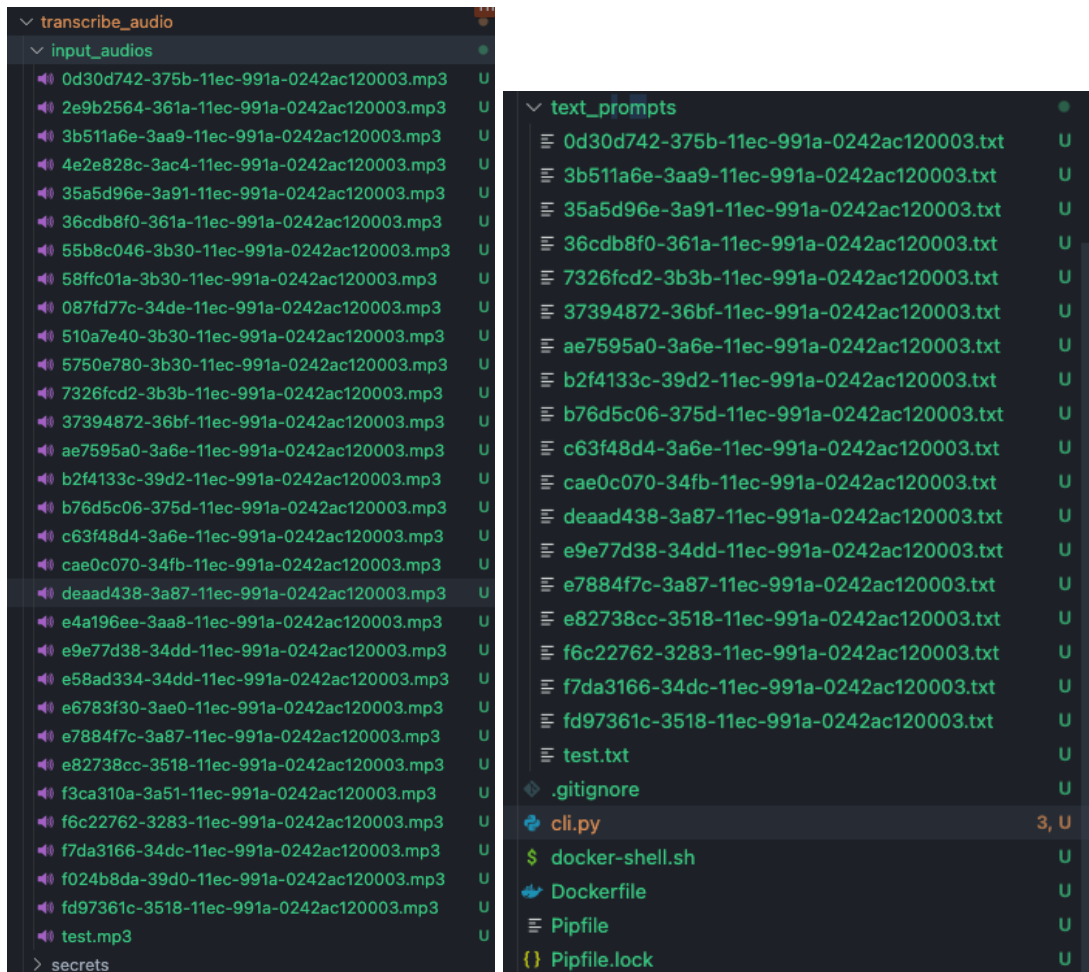
### 3. Screenshot outputs of `python cli.py -d -t -u`

```

(app) root@a30e9185b493:/app# python cli.py -d -t -u
Args: Namespace(download=True, transcribe=True, upload=True)
download
input_audios/087fd77c-34de-11ec-991a-0242ac120003.mp3
input_audios/0d30d742-375b-11ec-991a-0242ac120003.mp3
input_audios/2e9b2564-361a-11ec-991a-0242ac120003.mp3
input_audios/35a5d96e-3a91-11ec-991a-0242ac120003.mp3
input_audios/36cdb8f0-361a-11ec-991a-0242ac120003.mp3
input_audios/37394872-36bf-11ec-991a-0242ac120003.mp3
input_audios/3b511a6e-3aa9-11ec-991a-0242ac120003.mp3
input_audios/4e2e828c-3ac4-11ec-991a-0242ac120003.mp3
input_audios/510a7e40-3b30-11ec-991a-0242ac120003.mp3
input_audios/55b8c046-3b30-11ec-991a-0242ac120003.mp3
input_audios/5750e780-3b30-11ec-991a-0242ac120003.mp3
input_audios/58ffc01a-3b30-11ec-991a-0242ac120003.mp3
input_audios/7326fcd2-3b3b-11ec-991a-0242ac120003.mp3
input_audios/ae7595a0-3a6e-11ec-991a-0242ac120003.mp3
input_audios/b2f4133c-39d2-11ec-991a-0242ac120003.mp3
input_audios/b76d5c06-375d-11ec-991a-0242ac120003.mp3
input_audios/c63f48d4-3a6e-11ec-991a-0242ac120003.mp3
input_audios/cae0c070-34fb-11ec-991a-0242ac120003.mp3
input_audios/deaad438-3a87-11ec-991a-0242ac120003.mp3
input_audios/e4a196ee-3aa8-11ec-991a-0242ac120003.mp3
input_audios/e58ad334-34dd-11ec-991a-0242ac120003.mp3
input_audios/e6783f30-3ae0-11ec-991a-0242ac120003.mp3
input_audios/e7884f7c-3a87-11ec-991a-0242ac120003.mp3
input_audios/e82738cc-3518-11ec-991a-0242ac120003.mp3
input_audios/e9e77d38-34dd-11ec-991a-0242ac120003.mp3
input_audios/f024b8da-39d0-11ec-991a-0242ac120003.mp3
input_audios/f3ca310a-3a51-11ec-991a-0242ac120003.mp3
input_audios/f6c22762-3283-11ec-991a-0242ac120003.mp3
input_audios/f7da3166-34dc-11ec-991a-0242ac120003.mp3
input_audios/fd97361c-3518-11ec-991a-0242ac120003.mp3
input_audios/test.mp3
transcribe
upload

```

4. Screenshot of your input and output folders with files downloaded & generated



## Task B: Generate Text

1. Screenshot of your Dockerfile

```
generate_text > Dockerfile > FROM
1 FROM python:3.8-slim-buster
2
3 ENV PYENV_SHELL=/bin/bash
4
5 ENV GOOGLE_APPLICATION_CREDENTIALS=secrets/mega-pipeline.json
6
7 RUN set -ex; \
8     apt-get update && \
9     apt-get upgrade -y && \
10    apt-get install -y --no-install-recommends build-essential && \
11    pip install --no-cache-dir --upgrade pip && \
12    pip install pipenv && \
13    mkdir -p /app
14
15 WORKDIR /app
16
17 ADD Pipfile Pipfile.lock /app/
18
19 RUN pipenv sync
20
21 ADD . /app
22
23 ENTRYPOINT ["/bin/bash"]
24
25 CMD ["-c", "pipenv shell"]
```

2. Screenshot of your Pipfile

```
generate_text > Pipfile
1 [[source]]
2 name = "pypi"
3 url = "https://pypi.org/simple"
4 verify_ssl = true
5
6 [dev-packages]
7
8 [packages]
9 google-cloud-storage = "*"
10 tensorflow = {file = "https://storage.googleapis.com/tensorflow/mac/cpu/tensorflow-1.9.0-py3-none-any.whl"}
11 transformers = "*"
12
13 [requires]
14 python_version = "3.8"
15
```

### 3. Screenshot outputs of **python cli.py -d -g -u**

```
"Everyone needs a great game now, no matter how small or small we can be. The competition in China is fierce and I'm looking forward to welcoming the best players from North America and then going to go home."

It also shows the game's passion for sport as well as the players the community works with.

There is now a new Premier League, which includes the Championship and the Europa League.

"That's the real opportunity
chz_dead438-3a87-11ec-991a-0242ac120003.txt
I just had a nice Sunday lunch and I was getting into work I thought they had a special treat for me this way I would get some rest. I had seen them all and they used to keep things fresh. They also have a nice store at the front where they will carry their new toy. The store was located just outside of my house and it was quite busy. On that Sunday this Sunday I went to buy my own lunch at the store. I tried the soup though I can't remember
chz_e4a196ee-3aa8-11ec-991a-0242ac120003.txt
chz_e58ad334-34dd-11ec-991a-0242ac120003.txt
chz_e6783f30-3ae0-11ec-991a-0242ac120003.txt
chz_e7884f7c-3a87-11ec-991a-0242ac120003.txt
I just had a nice Sunday lunch with my family. We got the dog I was supposed to bring in."

She said her partner has a special breed of bull by the leash that she's been looking for in years.

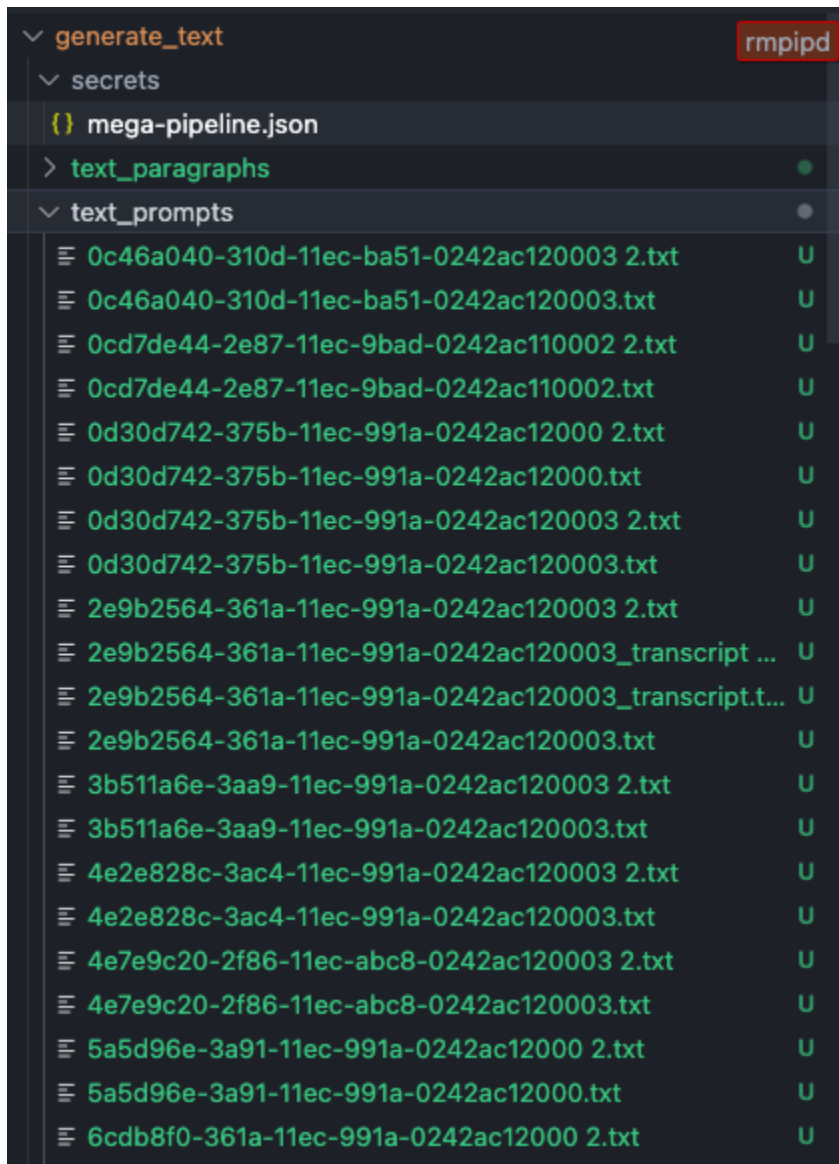
She said she could't have done it without her dog.

"I don't want him on the leash, for good," she said.

"But they're my dogs. I wanted to be safe, so every other dog I could think
chz_e82738cc-3518-11ec-991a-0242ac120003.txt
hello today is Friday for all the good things to come!
```

```
I feel
That's hard I said,
I felt
That's not real you said
You knew that before this he had
I've never seen him so happy all night
upload
(app) root@3e38c5002a51:/app#
```

4. Screenshot of your input and output folders with files downloaded & generated



generate_text	rmpipd
secrets	
mega-pipeline.json	
text_paragraphs	
0c46a040-310d-11ec-ba51-0242ac120003.txt	U
0cd7de44-2e87-11ec-9bad-0242ac110002.txt	U
0d30d742-375b-11ec-991a-0242ac12000.txt	U
0d30d742-375b-11ec-991a-0242ac120003.txt	U
3b511a6e-3aa9-11ec-991a-0242ac120003.txt	U
4e7e9c20-2f86-11ec-abc8-0242ac120003.txt	U
5a5d96e-3a91-11ec-991a-0242ac12000.txt	U
6cdb8f0-361a-11ec-991a-0242ac12000.txt	U
13fe6cd0-3b50-11ec-991a-0242ac120003.txt	U
36cdb8f0-361a-11ec-991a-0242ac120003_transcript.txt	U
36cdb8f0-361a-11ec-991a-0242ac120003.txt	U
73daa872-30f5-11ec-ba51-0242ac120003.txt	U
7326fcd2-3b3b-11ec-991a-0242ac120003.txt	U
63123b88-2f86-11ec-abc8-0242ac120003.txt	U
514350c6-2ebf-11ec-87f8-0242ac110002.txt	U
7394872-36bf-11ec-991a-0242ac12000.txt	U
8303187c-310c-11ec-ba51-0242ac120003.txt	U
37394872-36bf-11ec-991a-0242ac120003_transcript.txt	U
37394872-36bf-11ec-991a-0242ac120003.txt	U
ae7595a0-3a6e-11ec-991a-0242ac120003.txt	U
b2f4133c-39d2-11ec-991a-0242ac12000.txt	U
b2f4133c-39d2-11ec-991a-0242ac120003.txt	U
b76d5c06-375d-11ec-991a-0242ac12000.txt	U
b76d5c06-375d-11ec-991a-0242ac120003.txt	U



## Task C: Synthesis Audio (English)

1. Screenshot of your Dockerfile

```
synthesis_audio_en > Dockerfile > ...
1  # Use the official Debian-hosted Python image
2  FROM python:3.8-slim-buster
3
4  # Tell pipenv where the shell is.
5  # This allows us to use "pipenv shell" as a container entry point.
6  ENV PYENV_SHELL=/bin/bash
7
8  ENV GOOGLE_APPLICATION_CREDENTIALS=secrets/mega-pipeline.json
9
10 # Ensure we have an up to date baseline, install dependencies
11 RUN set -ex; \
12     apt-get update && \
13     apt-get upgrade -y && \
14     apt-get install -y --no-install-recommends build-essential && \
15     pip install --no-cache-dir --upgrade pip && \
16     pip install pipenv && \
17     mkdir -p /app
18
19 WORKDIR /app
20
21 # Add Pipfile, Pipfile.lock
22 ADD Pipfile Pipfile.lock /app/
23
24 RUN pipenv sync
25
26 # Source code
27 ADD . /app
28
29 # Entry point
30 ENTRYPOINT ["/bin/bash"]
31
32 # Get into the pipenv shell
33 CMD ["-c", "pipenv shell"]
```

## 2. Screenshot of your Pipfile

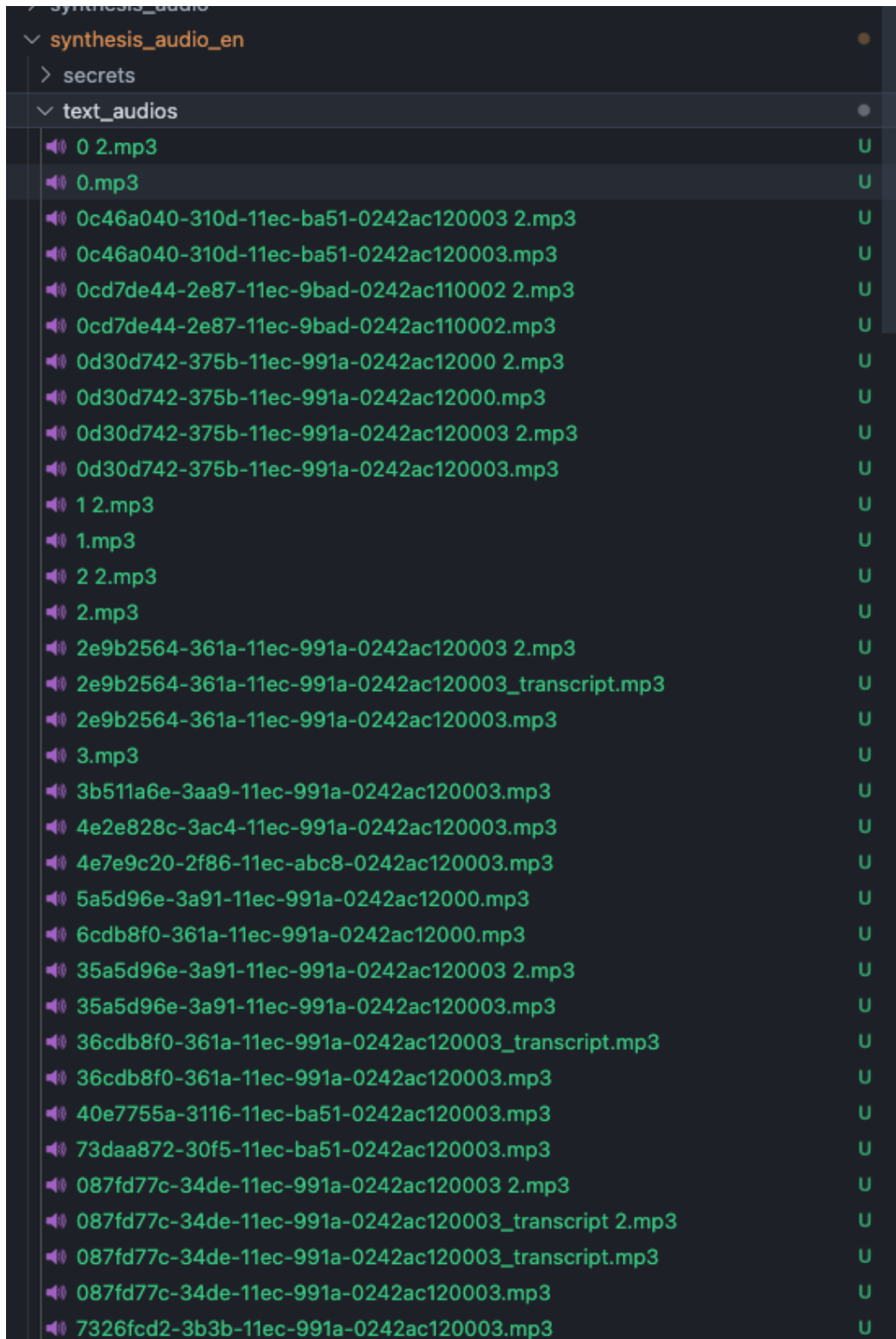
```
synthesis_audio_en > ≡ Pipfile
1  [[source]]
2  name = "pypi"
3  url = "https://pypi.org/simple"
4  verify_ssl = true
5
6  [dev-packages]
7
8  [packages]
9  google-cloud-storage = "*"
10 google-cloud-texttospeech = "*"
11
12 [requires]
13 python_version = "3.8"
14
```

3. Screenshot outputs of **python cli.py -d -s -u**

```
(app) root@acec61c3095e:/app# python cli.py -d -s -u
Args: Namespace(download=True, synthesis=True, upload=True)
download
text_paragraphs/0.txt
text_paragraphs/087fd77c-34de-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/087fd77c-34de-11ec-991a-0242ac120003.txt
text_paragraphs/087fd77c-34de-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/0c46a040-310d-11ec-ba51-0242ac120003.txt
text_paragraphs/0cd7de44-2e87-11ec-9bad-0242ac110002.txt
text_paragraphs/0d30d742-375b-11ec-991a-0242ac120000.txt
text_paragraphs/0d30d742-375b-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/0d30d742-375b-11ec-991a-0242ac120003.txt
text_paragraphs/1.txt
text_paragraphs/2.txt
text_paragraphs/2e9b2564-361a-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/2e9b2564-361a-11ec-991a-0242ac120003.txt
text_paragraphs/2e9b2564-361a-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/3.txt
text_paragraphs/35a5d96e-3a91-11ec-991a-0242ac120003.txt
text_paragraphs/36cdb8f0-361a-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/36cdb8f0-361a-11ec-991a-0242ac120003.txt
text_paragraphs/36cdb8f0-361a-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/37394872-36bf-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/37394872-36bf-11ec-991a-0242ac120003.txt
text_paragraphs/37394872-36bf-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/3b511a6e-3aa9-11ec-991a-0242ac120003.txt
text_paragraphs/40e7755a-3116-11ec-ba51-0242ac120003.txt
text_paragraphs/4e2e828c-3ac4-11ec-991a-0242ac120003.txt
text_paragraphs/4e7e9c20-2f86-11ec-abc8-0242ac120003.txt
text_paragraphs/514350c6-2ebf-11ec-87f8-0242ac110002.txt
text_paragraphs/5a5d96e-3a91-11ec-991a-0242ac120000.txt
text_paragraphs/63123b88-2f86-11ec-abc8-0242ac120003.txt
text_paragraphs/6cdb8f0-361a-11ec-991a-0242ac120000.txt
text_paragraphs/7326fcd2-3b3b-11ec-991a-0242ac120003.txt
text_paragraphs/7394872-36bf-11ec-991a-0242ac120000.txt
text_paragraphs/73daa872-30f5-11ec-ba51-0242ac120003.txt
text_paragraphs/82738cc-3518-11ec-991a-0242ac120000.txt
text_paragraphs/82738cc-3518-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/82738cc-3518-11ec-991a-0242ac120003.txt
text_paragraphs/82738cc-3518-11ec-991a-0242ac120003_transcri.txt
```

```
text_paragraphs/f024b8da-39d0-11ec-991a-0242ac120003.txt
text_paragraphs/f3ca310a-3a51-11ec-991a-0242ac120003.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120000.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120003.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120003_transcri.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/f7da3166-34dc-11ec-991a-0242ac120000.txt
text_paragraphs/f7da3166-34dc-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/f7da3166-34dc-11ec-991a-0242ac120003.txt
text_paragraphs/f7da3166-34dc-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/fd97361c-3518-11ec-991a-0242ac120000.txt
text_paragraphs/fd97361c-3518-11ec-991a-0242ac120003.mp3.txt
text_paragraphs/fd97361c-3518-11ec-991a-0242ac120003.txt
text_paragraphs/fd97361c-3518-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/test.txt
synthesis
upload
```

4. Screenshot of your input and output folders with files downloaded & generated



▼ text_paragraphs		
≡ 0.txt		U
≡ 0c46a040-310d-11ec-ba51-0242ac120003.txt		U
≡ 0cd7de44-2e87-11ec-9bad-0242ac110002.txt		U
≡ 0d30d742-375b-11ec-991a-0242ac12000.txt		U
≡ 0d30d742-375b-11ec-991a-0242ac120003.mp3.txt		U
≡ 0d30d742-375b-11ec-991a-0242ac120003.txt		U
≡ 1.txt		U
≡ 2.txt		U
≡ 2e9b2564-361a-11ec-991a-0242ac120003_transcript.txt		U
≡ 2e9b2564-361a-11ec-991a-0242ac120003.mp3.txt		U
≡ 2e9b2564-361a-11ec-991a-0242ac120003.txt		U
≡ 3.txt		U
≡ 3b511a6e-3aa9-11ec-991a-0242ac120003.txt		U
≡ 4e2e828c-3ac4-11ec-991a-0242ac120003.txt		U
≡ 4e7e9c20-2f86-11ec-abc8-0242ac120003.txt		U
≡ 5a5d96e-3a91-11ec-991a-0242ac12000.txt		U
≡ 6cdb8f0-361a-11ec-991a-0242ac12000.txt		U
≡ 35a5d96e-3a91-11ec-991a-0242ac120003.txt		U
≡ 36cdb8f0-361a-11ec-991a-0242ac120003_transcript.txt		U
≡ 36cdb8f0-361a-11ec-991a-0242ac120003.mp3.txt		U
≡ 36cdb8f0-361a-11ec-991a-0242ac120003.txt		U
≡ 40e7755a-3116-11ec-ba51-0242ac120003.txt		U
≡ 73daa872-30f5-11ec-ba51-0242ac120003.txt		U
≡ 087fd77c-34de-11ec-991a-0242ac120003_transcript.txt		U
≡ 087fd77c-34de-11ec-991a-0242ac120003.mp3.txt		U
≡ 087fd77c-34de-11ec-991a-0242ac120003.txt		U
≡ 7326fcd2-3b3b-11ec-991a-0242ac120003.txt		U
≡ 63123b88-2f86-11ec-abc8-0242ac120003.txt		U
≡ 82738cc-3518-11ec-991a-0242ac12000.txt		U
≡ 82738cc-3518-11ec-991a-0242ac120003_transcri.txt		U

## Task D: Translate Text (English -> French)

1. Screenshot of your Dockerfile

```
translate_text > Dockerfile > FROM
1  FROM python:3.8-slim-buster
2
3  ENV PYENV_SHELL=/bin/bash
4
5  ENV GOOGLE_APPLICATION_CREDENTIALS=secrets/mega-pipeline.json
6
7  RUN set -ex; \
8      apt-get update && \
9      apt-get upgrade -y && \
10     apt-get install -y --no-install-recommends build-essential && \
11     pip install --no-cache-dir --upgrade pip && \
12     pip install pipenv && \
13     mkdir -p /app
14
15 WORKDIR /app
16
17 ADD Pipfile Pipfile.lock /app/
18
19 RUN pipenv sync
20
21 ADD . /app
22
23 ENTRYPOINT ["/bin/bash"]
24
25 CMD ["-c", "pipenv shell"]
```

2. Screenshot of your Pipfile

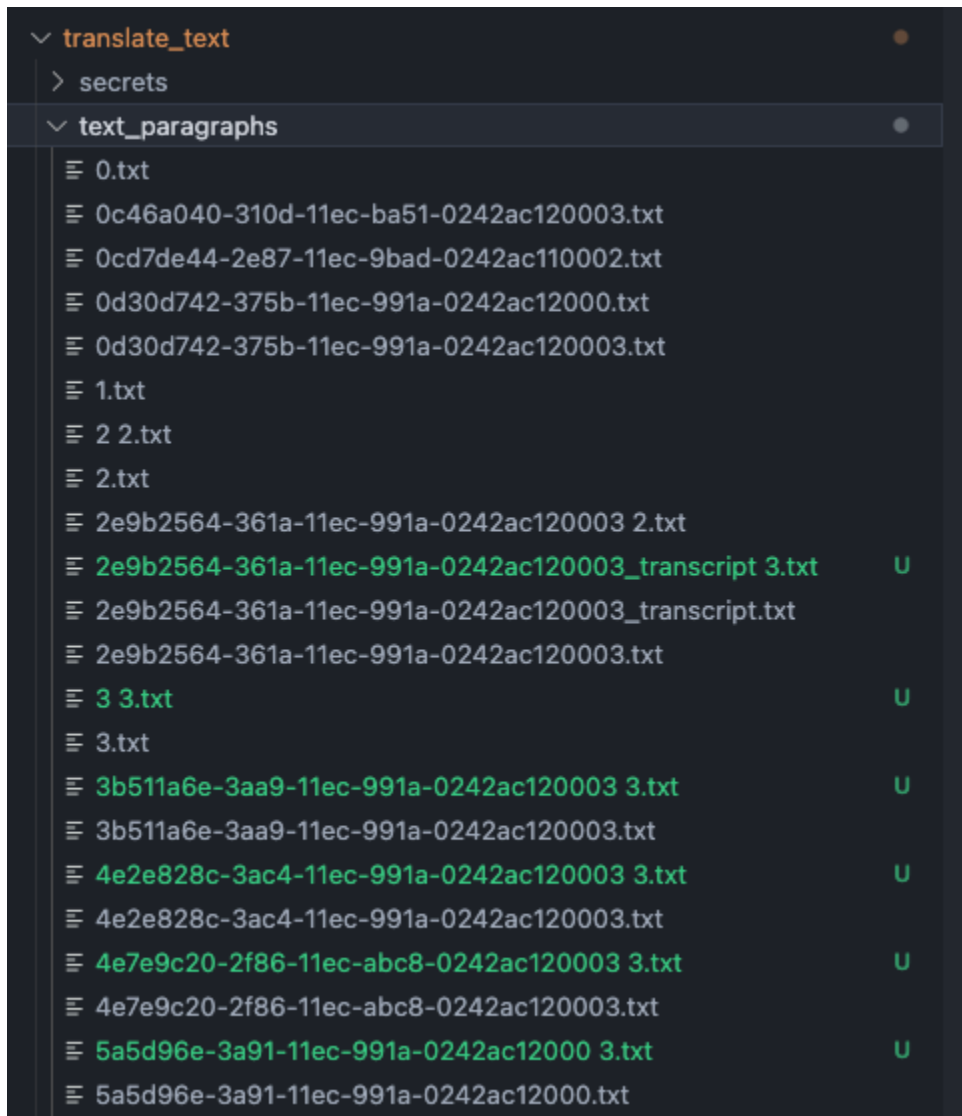
```
translate_text > Pipfile
1  [[source]]
2  name = "pypi"
3  url = "https://pypi.org/simple"
4  verify_ssl = true
5
6  [dev-packages]
7
8  [packages]
9  google-cloud-storage = "*"
10 googletrans= "==4.0.0rc1"
11
12 [requires]
13 python_version = "3.8"
14
```

3. Screenshot outputs of **python cli.py -d -t -u**

```
(app) root@16d679bc7fa0:/app# python cli.py -d -t -u
Args: Namespace(download=True, translate=True, upload=True)
download
text_paragraphs/0.txt
text_paragraphs/087fd77c-34de-11ec-991a-0242ac120003.txt
text_paragraphs/087fd77c-34de-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/0c46a040-310d-11ec-ba51-0242ac120003.txt
text_paragraphs/0cd7de44-2e87-11ec-9bad-0242ac110002.txt
text_paragraphs/0d30d742-375b-11ec-991a-0242ac12000.txt
text_paragraphs/0d30d742-375b-11ec-991a-0242ac120003.txt
text_paragraphs/1.txt
text_paragraphs/2.txt
text_paragraphs/2e9b2564-361a-11ec-991a-0242ac120003.txt
text_paragraphs/2e9b2564-361a-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/3.txt
text_paragraphs/35a5d96e-3a91-11ec-991a-0242ac120003.txt
text_paragraphs/36cdb8f0-361a-11ec-991a-0242ac120003.txt
text_paragraphs/36cdb8f0-361a-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/37394872-36bf-11ec-991a-0242ac120003.txt
text_paragraphs/37394872-36bf-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/3b511a6e-3aa9-11ec-991a-0242ac120003.txt
text_paragraphs/40e7755a-3116-11ec-ba51-0242ac120003.txt
text_paragraphs/4e2e828c-3ac4-11ec-991a-0242ac120003.txt
text_paragraphs/4e7e9c20-2f86-11ec-abc8-0242ac120003.txt
text_paragraphs/514350c6-2ebf-11ec-87f8-0242ac110002.txt
text_paragraphs/5a5d96e-3a91-11ec-991a-0242ac12000.txt

text_paragraphs/emil_0d30d742-375b-11ec-991a-0242ac120003.txt
text_paragraphs/f024b8da-39d0-11ec-991a-0242ac120003.txt
text_paragraphs/f3ca310a-3a51-11ec-991a-0242ac120003.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac12000.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120003.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120003_transcri.txt
text_paragraphs/f6c22762-3283-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/f7da3166-34dc-11ec-991a-0242ac12000.txt
text_paragraphs/f7da3166-34dc-11ec-991a-0242ac120003.txt
text_paragraphs/f7da3166-34dc-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/fd97361c-3518-11ec-991a-0242ac12000.txt
text_paragraphs/fd97361c-3518-11ec-991a-0242ac120003.txt
text_paragraphs/fd97361c-3518-11ec-991a-0242ac120003_transcript.txt
text_paragraphs/test.txt
translate
upload
(app) root@16d679bc7fa0:/app#
```

4. Screenshot of your input and output folders with files downloaded & generated





translate_text	
> secrets	
> text_paragraphs	
text_translated	
≡ 0.txt	U
≡ 0c46a040-310d-11ec-ba51-0242ac120003.txt	U
≡ 0cd7de44-2e87-11ec-9bad-0242ac110002.txt	U
≡ 0d30d742-375b-11ec-991a-0242ac12000.txt	U
≡ 0d30d742-375b-11ec-991a-0242ac120003.txt	U
≡ 1.txt	U
≡ 2.txt	U
≡ 2e9b2564-361a-11ec-991a-0242ac120003_transcript.txt	U
≡ 2e9b2564-361a-11ec-991a-0242ac120003.txt	U
≡ 3.txt	U
≡ 3b511a6e-3aa9-11ec-991a-0242ac120003.txt	U
≡ 4e2e828c-3ac4-11ec-991a-0242ac120003.txt	U
≡ 4e7e9c20-2f86-11ec-abc8-0242ac120003.txt	U
≡ 5a5d96e-3a91-11ec-991a-0242ac12000.txt	U
≡ 6cdb8f0-361a-11ec-991a-0242ac12000.txt	U
≡ 35a5d96e-3a91-11ec-991a-0242ac120003.txt	U

## Task E: Synthesis Audio (French)

1. Screenshot of your Dockerfile

```
synthesis_audio > Dockerfile > ...
1  # Use the official Debian-hosted Python image
2  FROM python:3.8-slim-buster
3
4  # Tell pipenv where the shell is.
5  # This allows us to use "pipenv shell" as a container entry point.
6  ENV PYENV_SHELL=/bin/bash
7
8  ENV GOOGLE_APPLICATION_CREDENTIALS=secrets/mega-pipeline.json
9
10 # Ensure we have an up to date baseline, install dependencies
11 RUN set -ex; \
12     apt-get update && \
13     apt-get upgrade -y && \
14     apt-get install -y --no-install-recommends build-essential && \
15     pip install --no-cache-dir --upgrade pip && \
16     pip install pipenv && \
17     mkdir -p /app
18
19 WORKDIR /app
20
21 # Add Pipfile, Pipfile.lock
22 ADD Pipfile Pipfile.lock /app/
23
24 RUN pipenv sync
25
26 # Source code
27 ADD . /app
28
```

2. Screenshot of your Pipfile

```

synthesis_audio > ≡ Pipfile
1  [[source]]
2  name = "pypi"
3  url = "https://pypi.org/simple"
4  verify_ssl = true
5
6  [dev-packages]
7
8  [packages]
9  google-cloud-storage = "*"
10 google-cloud-texttospeech = "*"
11
12 [requires]
13 python_version = "3.8"
14

```

### 3. Screenshot outputs of `python cli.py -d -s -u`

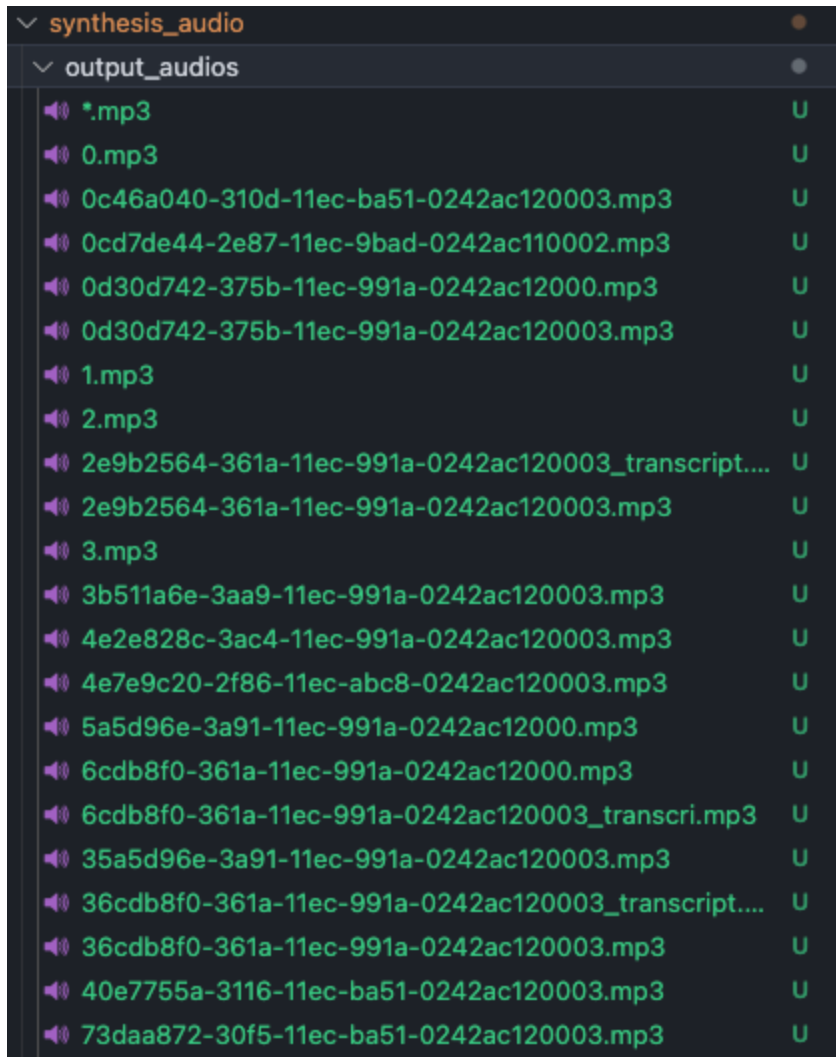
```

(app) root@f2f061ae27de:/app# python cli.py -d -s -u
Args: Namespace(download=True, synthesis=True, upload=True)
download
text_translated/*.txt
text_translated/0.txt
text_translated/087fd77c-34de-11ec-991a-0242ac12000.txt
text_translated/087fd77c-34de-11ec-991a-0242ac120003.txt
text_translated/087fd77c-34de-11ec-991a-0242ac120003_transcript.txt
text_translated/0c46a040-310d-11ec-ba51-0242ac120003.txt
text_translated/0cd7de44-2e87-11ec-9bad-0242ac110002.txt
text_translated/0d30d742-375b-11ec-991a-0242ac12000.txt
text_translated/0d30d742-375b-11ec-991a-0242ac120003.txt
text_translated/1.txt
text_translated/2.txt
text_translated/2e9b2564-361a-11ec-991a-0242ac120003.txt
text_translated/2e9b2564-361a-11ec-991a-0242ac120003_transcript.txt
text_translated/3.txt
text_translated/35a5d96e-3a91-11ec-991a-0242ac120003.txt
text_translated/36cdb8f0-361a-11ec-991a-0242ac120003.txt
text_translated/transcript_b/6d5c06-375d-11ec-991a-0242ac120003.txt
text_translated/transcript_cae0c070-34fb-11ec-991a-0242ac120003.txt
text_translated/transcript_e82738cc-3518-11ec-991a-0242ac120003.txt
text_translated/transcript_e9e77d38-34dd-11ec-991a-0242ac120003.txt
text_translated/transcript_f6c22762-3283-11ec-991a-0242ac120003.txt
text_translated/transcript_f7da3166-34dc-11ec-991a-0242ac120003.txt
text_translated/transcript_fd97361c-3518-11ec-991a-0242ac120003.txt
synthesis
upload
(app) root@f2f061ae27de:/app# █

```

4. Screenshot of your input and output folders with files downloaded & generated





## Submit your Docker Image to Docker Hub

1. Screenshot outputs of **docker push <USER NAME>/<IMAGE NAME>**

```
(base) amahinpei@x86_64-apple-darwin13 transcribe_audio % docker push amahinpei/transcribe_audio
Using default tag: latest
The push refers to repository [docker.io/amahinpei/transcribe_audio]
68d4fce2f5a4: Pushed
17950974d677: Pushed
e95079271320: Pushed
5f70bf18a086: Pushed
bbee4bcea3ec: Pushed
75e695458cf6: Pushed
abce51656142: Pushed
9fd1a5d97b27: Mounted from amahinpei/synthesis_audio
375d7f58aee0: Mounted from amahinpei/synthesis_audio
1d486fa85b26: Mounted from amahinpei/synthesis_audio
c511542be34c: Pushed
da27cd6210af: Mounted from amahinpei/synthesis_audio
9d1100648d6d: Mounted from amahinpei/synthesis_audio
e81bff2725db: Mounted from amahinpei/synthesis_audio
latest: digest: sha256:bee35a9463e54caa670b82fca3a0a518156778d1e8ea7265c344adc29174d895 size: 3256
```

```
(base) amahinpei@x86_64-apple-darwin13 ~ % docker push amahinpei/generate_text
Using default tag: latest
The push refers to repository [docker.io/amahinpei/generate_text]
e20b71402f36: Pushed
3be5a0b4ad59: Mounted from amahinpei/synthesis_audio_en
718f31a1c5bb: Mounted from amahinpei/synthesis_audio_en
5f70bf18a086: Mounted from amahinpei/synthesis_audio_en
7c64ea8d1789: Mounted from amahinpei/synthesis_audio_en
72ba8a34a2dc: Mounted from amahinpei/synthesis_audio_en
2b592079807f: Mounted from amahinpei/synthesis_audio_en
9fd1a5d97b27: Mounted from amahinpei/synthesis_audio_en
375d7f58aee0: Mounted from amahinpei/synthesis_audio_en
1d486fa85b26: Mounted from amahinpei/synthesis_audio_en
c511542be34c: Mounted from amahinpei/synthesis_audio_en
da27cd6210af: Mounted from amahinpei/synthesis_audio_en
9d1100648d6d: Mounted from amahinpei/synthesis_audio_en
e81bff2725db: Mounted from amahinpei/synthesis_audio_en
latest: digest: sha256:10bdc82089debd386989183bff479431b5a93f4f857a371f9c00297644fcc9d3 size: 3254
```

```
(base) amahinpei@x86_64-apple-darwin13 ~ % docker push amahinpei/synthesis_audio_en
Using default tag: latest
The push refers to repository [docker.io/amahinpei/synthesis_audio_en]
5aaa548345c0: Mounted from amahinpei/synthesis_audio
3be5a0b4ad59: Mounted from amahinpei/synthesis_audio
718f31a1c5bb: Mounted from amahinpei/synthesis_audio
5f70bf18a086: Mounted from amahinpei/transcribe_audio
7c64ea8d1789: Mounted from amahinpei/synthesis_audio
72ba8a34a2dc: Mounted from amahinpei/synthesis_audio
2b592079807f: Mounted from amahinpei/synthesis_audio
9fd1a5d97b27: Mounted from amahinpei/transcribe_audio
375d7f58aee0: Mounted from amahinpei/transcribe_audio
1d486fa85b26: Mounted from amahinpei/transcribe_audio
c511542be34c: Mounted from amahinpei/transcribe_audio
da27cd6210af: Mounted from amahinpei/transcribe_audio
9d1100648d6d: Mounted from amahinpei/transcribe_audio
e81bff2725db: Mounted from amahinpei/transcribe_audio
latest: digest: sha256:3728364a62812687b438f7c6093b21942d527fac28588eff33bad79f69b2e433 size: 3255
```

```
(base) amahinpei@x86_64-apple-darwin13 ~ % docker push amahinpei/translate_text
Using default tag: latest
The push refers to repository [docker.io/amahinpei/translate_text]
e8816b245515: Pushed
f20fc8881350: Pushed
ba792c2d1ef1: Pushed
5f70bf18a086: Mounted from amahinpei/generate_text
7c64ea8d1789: Mounted from amahinpei/generate_text
72ba8a34a2dc: Mounted from amahinpei/generate_text
2b592079807f: Mounted from amahinpei/generate_text
9fd1a5d97b27: Mounted from amahinpei/generate_text
375d7f58aee0: Mounted from amahinpei/generate_text
1d486fa85b26: Mounted from amahinpei/generate_text
c511542be34c: Mounted from amahinpei/generate_text
da27cd6210af: Mounted from amahinpei/generate_text
9d1100648d6d: Mounted from amahinpei/generate_text
e81bff2725db: Mounted from amahinpei/generate_text
latest: digest: sha256:fc49540e0fd30a603bbf393f0290782631b663a143c7ffc6506b5d0aaf191574 size: 3255
(base) amahinpei@x86_64-apple-darwin13 ~ %
```

```
(base) amahinpei@x86_64-apple-darwin13 synthesis_audio % docker push amahinpei/synthesis_audio
Using default tag: latest
The push refers to repository [docker.io/amahinpei/synthesis_audio]
5aaa548345c0: Pushed
3be5a0b4ad59: Pushed
718f31a1c5bb: Pushed
5f70bf18a086: Pushed
7c64ea8d1789: Pushed
72ba8a34a2dc: Pushed
2b592079807f: Pushed
9fd1a5d97b27: Pushed
375d7f58aee0: Pushed
1d486fa85b26: Mounted from library/python
c511542be34c: Mounted from library/python
da27cd6210af: Mounted from library/python
9d1100648d6d: Mounted from library/python
e81bff2725db: Mounted from library/python
latest: digest: sha256:3728364a62812687b438f7c6093b21942d527fac28588eff33bad79f69b2e433 size: 3255
(base) amahinpei@x86_64-apple-darwin13 synthesis_audio %
```