Customer Support Website

With OpenAI API

Machine Learning
By Yixin Cao 19536cy

Table of contents

01

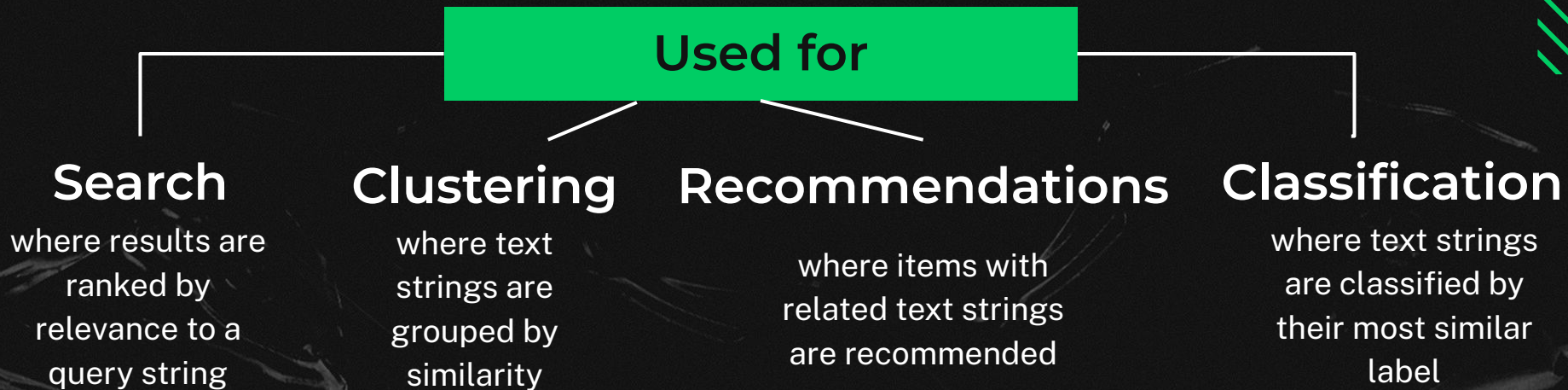# Introduction

Project and Concepts

What is this project?

This project is to use the popular OpenAI API models to create a customer support website to answer questions from customers about their website.

OpenAI API Models

text-embedding-ada-002

We recommend using text-embedding-ada-002 for nearly all use cases. It's better, cheaper, and simpler to use.

Used for

Search
where results are ranked by relevance to a query string

Clustering
where text strings are grouped by similarity

Recommendations
where items with related text strings are recommended

Classification
where text strings are classified by their most similar label

OpenAI API Models

text-davinci-003

This model builds on top of previous InstructGPT models, and improves on a number of behaviors that we've heard are important to you as developers.

It includes the following improvements:
- It produces higher quality writing. This will help your applications deliver clearer, more engaging, and more compelling content.
- It can handle more complex instructions, meaning you can get even more creative with how you make use of its capabilities now.
- It's better at longer form content generation, allowing you to take on tasks that would have previously been too difficult to achieve.

OpenAI API Models

gpt-3.5-turbo-instruct

Similar capabilities as text-davinci-003 but compatible with legacy Completions endpoint and not Chat Completions.

Since text-davinci-003 model will be depreciated in 01/2024, I have replaced text-davinci-003 with gpt-3.5-turbo-instruct as recommended on OpenAI website.
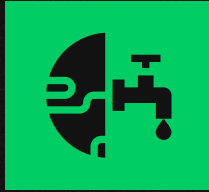
Design
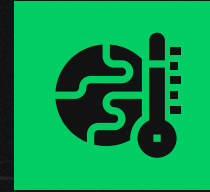
02

How to structure the project

Design - Python

Flask Framework

To display a customer friendly UI, using flask framework.

Integrated with APIs

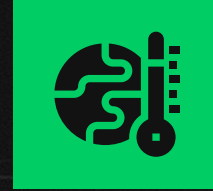Integrated with implementation of OpenAI APIs with flask framework.

Design - NodeJS

Next.js Framework

To display a customer friendly UI, using Next.js framework.

Call Python from NodeJS

To reduce the work of rewriting the code, call python script from NodeJS

Sections

Install Packages

Set up environment with installing all the packages needed in the requirements.txt file.
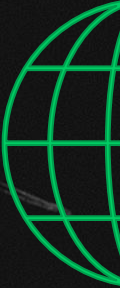
Embedded Text

Use the text-embedding-ada-002 Model to embedded the relevant data from the .csv file.

Crawl Data

Crawl data from the website and save the data as a .csv file for use later.

Display

Run the project with displaying the customer UI and collect questions.
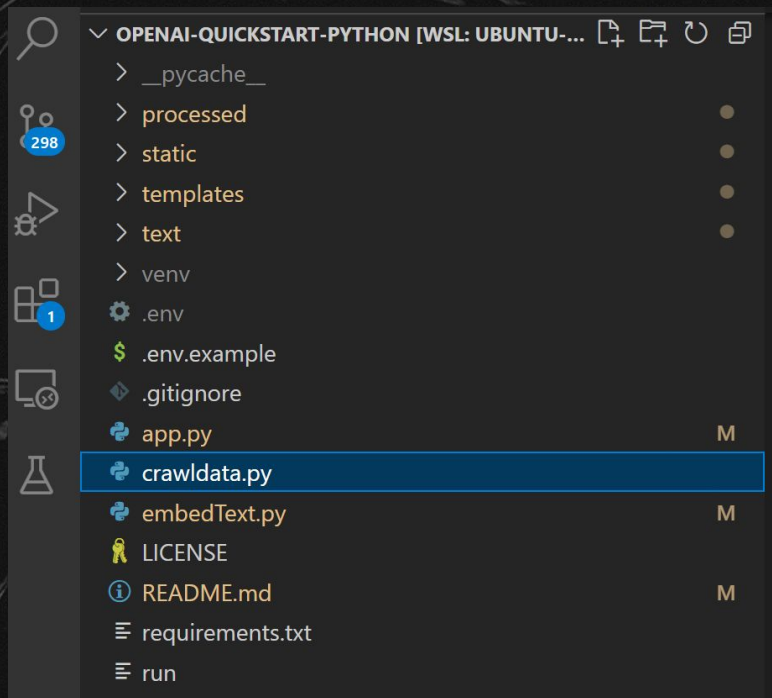
03

Implementation

Python

Detailed steps

Project Structure

This project is run on Ubuntu

Install Packages

List all needed packages and versions in
requirements.txt file.
$ pip install -r requirements.txt

You may need to update your setuptools to
make the installation smooth.
$ pip show setuptools
$ pip3 install –upgrade pip setuptools or
$ pip install --upgrade setuptools --user python

Crawl Data

$ python3 crawldata.py

```python
# Define root domain to crawl
domain = "openai.com"
full_url = "https://openai.com/"
```

Embedded

$ python3 embedText.py

To avoid charge before everything work through,
test with simple data with credit given on OpenAI.

	A	B	C	D	E	F	G	H
		title	text					
	0	apple	Apple is a bit sour. It has red, green, yellow. The score is 3.5.					
	1	peach	Peach is very delicious and the score is 5					

```
(env) ycao@instance-1:~/openai/EmbeddedChatGPT$ python embedText.py
(env) ycao@instance-1:~/openai/EmbeddedChatGPT$
```

Display the UI

$ flask run

```
(venv) sharoncao0920@Sharon:~/openai/openai-quickstart-python$ flask run
 * Serving Flask app 'app' (lazy loading)
 * Environment: development
 * Debug mode: on
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 361-744-753
```

Customer Service

Ask your question about us

You:

Your question

Ask

Agent:

03

Implementation

NodeJS

Detailed steps

Project Structure

This project is run on Ubuntu

Install Packages

- All needed for python script are in requirements.txt file.
- Add scripts in package.json file

Install for Next.js
$ npm install

Install for Python Script
$ npm run install

```json
{
  "name": "simpletrynode",
  "version": "0.1.0",
  "private": true,
  ▷ Debug
  "scripts": {
    "dev":"next dev",
    "build": "next build",
    "start": "next start",
    "lint": "next lint",
    "install": "pip install -r requirements.txt",
    "crawl": "python3 crawldata.py ",
    "embeding": "python3 embedText.py"
  },
  "dependencies": {
    "child_process": "^1.0.2",
    "next": "13.4.19",
    "react": "18.2.0",
    "react-dom": "18.2.0"
  }
}
```

Crawl Data

$ npm run crawl

```
sharoncao0802@Sharon:~/CS589_Projects/CS-Node/CustomerService-NodeJS$ npm run crawl

> simpletrynode@0.1.0 crawl
> python3 crawldata.py

https://openai.com/
https://openai.com/chatgpt
https://openai.com/blog/new-ways-to-manage-your-data-in-chatgpt
https://openai.com/blog?topics=product
https://openai.com/blog#content
https://openai.com/blog/using-gpt-4-for-content-moderation
https://openai.com/blog?authors=lilian-weng
Shttps://openai.com/blog/using-gpt-4-for-content-moderation#content
https://openai.com/blog/using-gpt-4-for-content-moderation#AndreaVallone
https://openai.com/blog?authors=andrea-vallone
https://openai.com/blog?authors=vik-goel
https://openai.com/blog/using-gpt-4-for-content-moderation#LilianWeng
https://openai.com/blog/using-gpt-4-for-content-moderation#VikGoel
https://openai.com/blog/introducing-openai-london
```

Embedded

Since we need to use the OpenAI model to embedding the data, we need to config the key before running this.

```
$ export OPENAI_API_KEY=<YOUR_API_KEY>
$ npm run embedding
```

Display the UI

$ npm run dev

04

Test-python

Run the project with real
data.

Create Python Virtual Environment and install Packages

```
$ sudo apt install python3.10-venv
```
Install the needed packages if you don't have it installed.

```
$ python3 -m venv venv
$ . venv/bin/activate
$ pip install -r requirements.txt
```

Crawl Data

$ python3 crawldata.py

```
(venv) sharoncao0920@Sharon:~/openai/openai-quickstart-python$ python3 crawldata.py
https://openai.com/
https://openai.com/policies
https://openai.com/policies/api-data-usage-policies
https://openai.com/contact-sales
https://openai.com/contact-sales#content
```

Embed Data

$ python3 embedText.py

No payment method linked, not working through since exceed limit of 60 requests per mins.

```
raise self.handle_error_response(
openai.error.RateLimitError: Rate limit reached for default-global-with-image-
limits in organization org-5Wp0wasioO9MFN8F2b7ki4ap on requests per min. Limit
: 60 / min. Please try again in 1s. Contact support@openai.com if you continue
 to have issues. Please add a payment method to your account to increase your
rate limit. Visit https://platform.openai.com/account/billing to add a payment
 method.
(venv) sharoncao0920@Sharon:~/openai/openai-quickstart
```
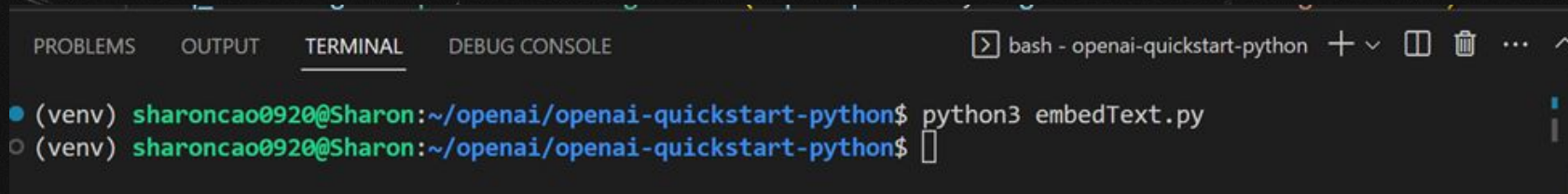
Embed Data

$ python3 embedText.py
Worked through after adding payment method.

PROBLEMS   OUTPUT   **TERMINAL**   DEBUG CONSOLE   ▶ bash - openai-quickstart-python   + ⌄   ⬚   🗑   ⋯   ⌃

● (venv) sharoncao0920@Sharon:~/openai/openai-quickstart-python$ python3 embedText.py
○ (venv) sharoncao0920@Sharon:~/openai/openai-quickstart-python$ ▯

Total cost for embedding the data.

Usage this month

$0.38 / $5.00

Run Project with UI

$ flask run

```
(venv) sharoncao0920@Sharon:~/openai/openai-quickstart-python$ flask run
 * Serving Flask app 'app' (lazy loading)
 * Environment: development
 * Debug mode: on
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 361-744-753
```

Customer Service

Ask your question about us

You:

What is CEO of OPENAI?

[Ask]

Agent:

Sam Altman

Customer Service

Ask your question about us

You:

How can I use GPT4 as soon as I can?

[Ask]

Agent:

Join the GPT-4 API waitlist by submitting your first name, last name, email, company name, and organization ID. Priority access is given to developers who contribute exceptional model evaluations to OpenAI Evals. Researchers studying the societal impact of AI or AI alignment issues can also apply for subsidized access via the Researcher Access Program.

Sample Questions and Answers

Sample Questions and Answers

Customer Service

Ask your question about us

You:

What is the difference between GPT3.5 and GPT4.0?

Ask

Agent:

GPT-4 is more reliable, creative, and able to handle much more nuanced instructions than GPT-3.5. GPT-4 scores 40% higher than GPT-3.5 on internal adversarial factuality evaluations and is better at separating fact from an adversarially-selected set of incorrect statements. GPT-4 also generally lacks knowledge of events that have occurred after the vast majority of its data cuts off and does not learn from its experience.

Customer Service

Ask your question about us

You:

How much does is cost to be a premium user of chatGPT?

Ask

Agent:

$20/month.

Test-nodejs

Run the project with real data.

Run Project with UI

$ npm run dev

```
sharoncao0802@Sharon:~/CS589_Projects/CS-Node/CustomerService-NodeJS$ npm run dev

> simpletrynode@0.1.0 dev
> next dev

- info Loaded env from /home/sharoncao0802/CS589_Projects/CS-Node/CustomerService-NodeJS/.env
- ready started server on [::]:3000, url: http://localhost:3000
- event compiled client and server successfully in 767 ms (18 modules)
- wait compiling...
- event compiled client and server successfully in 295 ms (18 modules)
- info Loaded env from /home/sharoncao0802/CS589_Projects/CS-Node/CustomerService-NodeJS/.env
- info Loaded env from /home/sharoncao0802/CS589_Projects/CS-Node/CustomerService-NodeJS/.env
- wait compiling / (client and server)...
- event compiled client and server successfully in 604 ms (185 modules)
- wait compiling /api/getResult (client and server)...
- event compiled successfully in 123 ms (58 modules)
API resolved without sending a response for /api/getResult?question=how%20much%20does%20it%20code%20for%20gpt4, this may result in stalled requests.
I don't know
API resolved without sending a response for /api/getResult?question=how%20much%20does%20it%20cost%20for%20gpt4, this may result in stalled requests.
The pricing for GPT-4 varies depending on the model and context size, but it ranges from $0.03 to $0.12 per 1,000 tokens.
```

Sample Questions and Answers

OpenAI Q&A

who invested in openai?

Generate Answer

Jed McCaleb, Gabe Newell, Michael Seibel, Jaan Tallinn, Ashton Eaton, Brianne Theisen-Eaton, Reid Hoffman, Pieter Abbeel, Julia Galef, Maran Nelson, Greg Brockman, Ilya Sutskever, Holden Karnofsky, Sam Altman, Adam D'Angelo, Shivon Zilis, and Tasha McCauley.

OpenAI Q&A

how much does it cost for gpt4

Generate Answer

The pricing for GPT-4 varies depending on the model and context size, but it ranges from $0.03 to $0.12 per 1,000 tokens.

05

Conclusion

Sum up the project.

Conclusions

The complete project can be found:
https://github.com/SharonCao0920/ML-ChatGPT-CustomerSupportWeb

Accuracy

- As the questions I asked based on my own data and data crawled from the website, the answer is quite accurate.
- I think the accuracy is more determined by the data provided by the website.

Cost

- To avoid high charges, we can use less data while developing.
- Use the real data only when the whole project go through as desired.
- In this project, the embedding text can be run only once to save money.

Final Cost

Usage this month

$0.87 / $5.00

Credit used ⓘ

$0.87 / $18.00

GRANT #	CREDIT GRANTED	EXPIRES (UTC)
Grant 1	$18.00	May 1, 2023

06

Enhancement

What's next?

What's next?

UI

- Update the html with chat box for questions and answers

APIs

- Think of more ideas may be helpful for customer services

References

- https://platform.openai.com/docs/guides/embeddings/what-are-embeddings
- https://help.openai.com/en/articles/6779149-how-do-text-davinci-002-and-text-davinci-003-differ

Thanks!

Do you have any questions?