

# Customer Support Website Using Open Ai (Email to Customer)

Machine Learning (Generative Ai)  
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# Introduction

## What is the project about?

The objective of this project is to leverage widely-used OpenAI API models in the development of a customer support website. This project utilizes OpenAI to automate the customer support process for a large electronics store. It generates personalized email subjects and summaries based on customer comments, performs sentiment analysis to determine positivity or negativity, and dynamically generates an appropriate email response.



# Open API Model

## ``gpt-3.5-turbo``

GPT-3.5-turbo marks a significant advancement in enhancing user interactions with its models.

It was specifically trained to overcome issues present in earlier models, providing clearer and more precise answers.

This versatility makes it well-suited for a wide range of applications, catering to both tech-savvy users and those less familiar with technology.



# **Design Structure of the project.**

1. Backend Framework: Flask(Python)
  - a. For handling server side.
  - b. Integrated API: Open AI
2. FrontEnd Framework: Flutter(Dart)
  - a. Show User Interface



# What would we be doing?

1. Generate comment based on the products.
2. Based on the comment generate email subject.
3. Generate summary based on the comment.
4. Do sentiment analysis on the comment.(Positive or Negative)
5. Generate email based on the above for the customer.
6. Depending on the language: translate the email or comment.



## **Requirements for projects. Flask**

1. Make sure to have python installed.
2. To avoid unnecessary libraries installed on root of the system.
  - a. Recommended to have a virtual environment setup.
3. Getting an Open API Key



# Setup the project.

1. Activate your virtual environment
  - a. command: `'workon your_environment_name'`
2. Install required packages
  - a. command: `'pip3 install -r requirements.txt'`
3. Use `'pip3 list'` to see installed packages on your environment.
4. Setup your your Open API Key in .env file.
5. Use `'flask run'` to start the project.

```
FLASK_APP=app
FLASK_ENV=development
OPENAI_API_KEY=your_api_key
```





# Server logic

Refer to slide 6.

Generate the required content.

```
@app.route('/generate', methods=['POST'])
@cross_origin()
def index():

    language = request.form.get('language')
    translate_comment = request.form.get('translate_comment') == 'true'
    translate_email = request.form.get('translate_email') == 'true'

    comment = generate_customer_comment(products)
    subject = generate_email_subject(comment)
    summary = generate_summary(comment)
    sentiment = analyze_sentiment(comment)
    email = generate_email(comment, subject, summary, sentiment, 'English')

    if translate_comment:
        comment = get_translation(comment, language)

    if translate_email:
        email = get_translation(email, language)

    return jsonify({'comment': comment, 'email': email})
```



## **Requirements for projects. Flutter**

1. Flutter SDK
2. Google Chrome(For Web). (Simplest method)
3. Android Studio(Android). (Optional)
4. Xcode (IOS + MacOS). (Optional)



# Running Flask Server

1. Navigate to backend folder.
2. 'flask run'

```
Apple > ~/C/cu/backend flask run
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
```

# Running Flutter Web Client

1. Navigate to frontend folder.
2. 'flutter run -d chrome'

```
Apple > ~/C/cu/frontend flutter run -d chrome
Launching lib/main.dart on Chrome in debug mode...
Waiting for connection from debug service on Chrome... 10.9s
This app is linked to the debug service: ws://127.0.0.1:56426/-ehr3fXM138=/ws
Debug service listening on ws://127.0.0.1:56426/-ehr3fXM138=/ws

🔥 To hot restart changes while running, press "r" or "R".
For a more detailed help message, press "h". To quit, press "q".

A Dart VM Service on Chrome is available at: http://127.0.0.1:56426/-ehr3fXM138=
The Flutter DevTools debugger and profiler on Chrome is available at:
http://127.0.0.1:9100?uri=http://127.0.0.1:56426/-ehr3fXM138=
```



# Run both server and client

1. The client should pop up once the below command is executed.
2. 'flutter run -d chrome'

### Email to Customer

Translate Comment ☐

Translate Email ☐

English ▼

GENERATE!

Comment:	Email:
<div></div>	<div></div>

# Testing

Generate Comment and Email by clicking Generate!

Email to Customer

Translate Comment ☐

Translate Email ☒

Japanese ▼

GENERATE!

Comment:

The range of products offered by this electronic product company is impressive. From ultrabooks to gaming laptops, desktop computers to Chromebooks, they have something for every need and budget. The smartphones and accessories section offers powerful smartphones with advanced camera features, as well as protective cases with built-in batteries for extended usage. The televisions and home theater systems category includes stunning 4K and 8K TVs with vibrant colors and smart features, as well as powerful home theater systems for an immersive audio experience. The gaming consoles and accessories section offers next-generation gaming consoles, high-quality gaming controllers, and realistic racing wheels. The audio equipment category includes noise-canceling headphones, portable Bluetooth speakers, true wireless earbuds, powerful soundbars, and modern turntables. Lastly, the cameras and camcorders section offers versatile DSLR and mirrorless cameras, rugged action cameras, easy-to-use camcorders, and fun instant cameras. Overall, the products offered by this company are diverse, high-quality, and cater to various needs and preferences.

Email:

件名: 当社の幅広い製品ラインナップに対するご興味に感謝します!

親愛なる[顧客の名前],

当社の電子製品会社が提供する幅広い製品に対するご評価とお問い合わせ、誠にありがとうございます。私たちは、多様な選択肢がお客様の関心を引きだすことを嬉しく思っています。

ウルトラブックからゲーミングノートパソコン、デスクトップコンピュータからChromebookまで、私たちはあらゆるニーズと予算に対応するオプションを提供することを目指しています。私たちの目標は、お客様のような貴重なお客様の要求に応える高品質な製品を提供することです。

ノートパソコンコンピュータに加え、素晴らしいスマートフォンとアクセサリも取り揃えています。私たちのスマートフォンは高度なカメラ機能を備えており、内蔵バッテリーで1日分の保護ケースも提供しています。人生の貴重な瞬間を捉え、デバイスを保護することの重要性を理解しています。

テレビ・ホームシアターシステムのカテゴリには、鮮やかな色彩とスマートな機能を備えた4Kおよび8Kテレビがあります。私たちは没入型のオーディオ体験を提供したいと考えており、エンターテインメントを高めるパワフルなホームシアターシステムも提供しています。

ゲーム愛好家のために、次世代のゲームコンソール、高品質なゲームコントローラー、リアルレシシングホイールを取り揃えています。ゲーム体験が非常に特別なものになるようにお手伝いしたいと考えています。

オーディオ機器のカテゴリでは、ノイズキャンセリングヘッドフォン、ポータブルBluetoothスピーカー、完全ワイヤレスイヤホン、パワフルなサウンドバー、モダンなターンテーブルを提供しています。素晴らしい音は、外出先でも家での映画鑑賞でも、生活のあらゆる側面を向上させると信じています。

Email to Customer

Translate Comment ☒

Translate Email ☒

Chinese ▼

GENERATE!

Comment:

这家电子产品公司提供的产品范围令人印象深刻。从超极本到游戏笔记本电脑，台式电脑到Chromebook，他们为每个需求和预算都提供了适合的产品。智能手机和配件部分提供功能强大的智能手机，具有先进的相机功能，以及带有内置电池的保护套，可延长使用时间。电视和家庭影院系统类包括色彩鲜艳、智能功能的惊艳4K和8K电视，以及强大的家庭影院系统，提供沉浸式的音频体验。游戏机和配件部分提供下一代游戏机，高质量的游戏机控制器和逼真的赛车方向盘。音频设备类别包括降噪耳机、便携式蓝牙音箱、真无线耳机、强大的音响杆和现代唱片机。最后，相机和摄像机部分提供多功能的单反相机和无反相机、坚固的运动相机、易于使用的摄像机和有趣的即时相机。总体而言，这家公司提供的产品种类繁多，质量高，满足各种需求和偏好。

Email:

们努力提供适应各种需求和预算的选择。我们的目标是提供高质量的产品，满足您这样的尊贵客户的需求。

在我们的智能手机和配件部分，您将找到具有先进相机功能的强大智能手机，以及带有内置电池的保护壳，可延长使用时间。我们理解捕捉珍贵时刻的重要性，并确保您的设备在一整天都保持电力充足。

我们的电视和家庭影院系统类到拥有色彩鲜艳、智能功能的惊艳4K和8K电视。此外，我们还提供强大的家庭影院系统，为您带来沉浸式的音频体验，让您喜爱的电影和节目栩栩如生。

对于游戏爱好者，我们的游戏机和配件部分提供下一代游戏机、高质量的游戏手柄和逼真的赛车方向盘。我们将竭诚确保您的游戏体验非同出色。

在音频设备类别中，我们有降噪耳机、便携式蓝牙音箱、真无线耳机、强大的音响杆和现代化的唱片机。我们相信出色的音效可以增强每一个时刻，无论您是在享受音乐、观看电影还是玩游戏。

最后，我们的相机和摄像机部分提供多功能的单反相机和无反相机、有趣的运动相机、易于使用的摄像机和有趣的即时相机。我们希望能够让让您以最佳方式捕捉和分享您的回忆。

我们很高兴您的产品达到了您的期望并满足了您的偏好。您的满意是我们的首要任务，我们将继续努力提供一流的产品和服务。

如果您有任何进一步的问题或需要任何产品的帮助，请随时联系我们专业的客户支持团队。我们将竭诚为您服务!

再次感谢您的赞美和选择我们的电子产品公司。我们期待着为您服务。

此致，

[您的姓名]

客户支持团队

Email to Customer

Translate Comment ☐

Translate Email ☐

English ▼

GENERATE!

Comment:

I am highly impressed with the wide range of products offered by this electronic product company. From ultrabooks to gaming laptops, smartphones to wireless chargers, and televisions to gaming consoles, they have it all. The products are from well-known brands and come with attractive features such as high-performance processors, ample storage, and stunning displays. The warranty period is also satisfactory, ensuring peace of mind for customers. The ratings of the products are quite impressive, indicating their quality and customer satisfaction. The prices are reasonable, considering the features and specifications offered. Overall, this company seems to prioritize customer needs and provides a diverse range of high-quality electronic products.

Email:

Subject: Thank you for your positive feedback!

Dear [Customer's Name],

Thank you for taking the time to share your feedback with us. We are thrilled to hear that you are highly impressed with our wide range of high-quality electronic products.

At [Company Name], we strive to provide our customers with the best selection of electronic products, and we are glad to know that our range of ultrabooks, gaming laptops, smartphones, wireless chargers, televisions, and gaming consoles has met your expectations. We carefully curate our product offerings to ensure that they come from well-known brands and offer attractive features such as high-performance processors, ample storage, and stunning displays.

We understand the importance of peace of mind when purchasing electronic products, and we are pleased to know that our warranty period has provided you with the reassurance you need. Additionally, the impressive ratings of our products reflect our commitment to quality and customer satisfaction.

We also appreciate your feedback on our pricing. We strive to offer competitive prices that reflect the value and specifications of our products. Your satisfaction is our priority, and we are glad to know that you find our prices reasonable.

Once again, thank you for your kind words. Your feedback motivates us to continue providing a diverse range of high-quality electronic products that meet the needs of our valued customers like you. If you have any further questions or need assistance, please do not hesitate to reach out to our customer support team.

We look forward to serving you again in the future.

Best regards,



# Conclusion

Complete project can be found below:

<https://github.com/gangzhaorige/ML-OPENAi-CustomerSupport/tree/main/EmailToCustomer>

Able to generate customer comment based on the provided products.

Generate summary of the comment.

Sentiment analysis based on the comment. (Positive Or Negative)

Generate email and email subject. (Determined by the sentiment analysis)



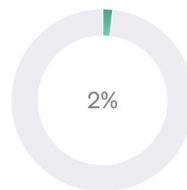
# Final Cost

The cost: GPT 3.5 Turbo.

The cost includes multiple testing on GPT 3.5 Turbo for generating comment, email subject, summary, email, and sentiment analysis.

Note: 0.45\$ is not just for a single generation.

## Monthly Bill Feb 1 - 29

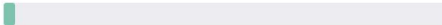


**\$0.45**

/ \$25.00 limit

[Increase limit](#)

## Credit Grants USD

 \$0.65 / \$25.00

AVAILABLE FROM	STATE	BALANCE	EXPIRATION DATE
Jan 21, 2024	Available	\$20.00 / \$20.00	Jan 31, 2025
Jan 10, 2024	Available	\$4.35 / \$5.00	Apr 11, 2024