

Customer Support System:

An email to the customer

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A. Prerequisites

Refer to the project:

- [Week 2 HW 1 - CS589 - Khoi Duong - 19610](#)
- [Week 2 HW 2 - CS589 - Khoi Duong - 19610](#)

to complete [Project: **Customer Support System**: Use ChatGPT to build a web-based system that can answer questions about a website.](#)

B. Overview

- If you're a customer service assistant for a large electronics store
 - The website of the store allows the customers to select language.
 - The store's products
 - The products belong to different categories
 - Each product has detailed description
- The web interface for this project

Language	
Question	Answer
Submit	

B. Overview

- Language
 - The language of the Answer.
 - Test cases

ID	Question	Answer
1	English	English
2	English	Non-English
3	Non-English	English
4	Non-English	Non-English
		Note: <ul style="list-style-type: none">▪ ChatGPT can infer the language used in <u>Question</u> and then generate the <u>Answer</u> with the same language

C. Process for the project implementation

- Step 1: Generate a customer's comment
 - Input to ChatGPT
 - The products' detailed descriptions
 - ChatGPT's response
 - A 100 words comment about the products.
 - These words are entered into the Question part of the web interface.
 - Hint
 - This step is an automation of the task of asking ChatGPT

The following text is the products' descriptions, please generate a 100 words comment about the products.

===>

[products' detailed descriptions]

Complete_prompt

We have to generate a function to complete the prompt provided in next steps:

```
app = Flask(__name__)
openai.api_key = os.getenv("OPENAI_API_KEY")

# Define your delimiter
delimiter = "####"

# General function to get response with gpt-3.5

def get_completion_from_messages(prompt, max_tokens=1000, temperature=0, model="gpt-3.5-turbo"):
    """
    Function to complete a prompt using OpenAI's API.

    Parameters:
        prompt (str): The input prompt to be completed.
        max_tokens (int): The maximum number of tokens to generate
        temperature (float): Controls the randomness of the generated text
        engine (str): The engine to use for text generation

    Returns:
        str: Completed text generated by OpenAI's API.
    """
    response = openai.Completion.create(
        model=model,
        prompt=prompt,
        max_tokens=max_tokens,
        temperature=temperature,
    )
    return response.choices[0].message["content"]
```

Step 1: Generate a customer's comment

```
# Step 1: Generate a customer's comment
# System message include product details
def generate_comment():
    # input product.json into system_message_comment
    system_message_comment = f"""
    Product details can be found as below

    "TechPro Ultrabook":
        "name": "TechPro Ultrabook",
        "category": "Computers and Laptops",
        "brand": "TechPro",
        "model_number": "TP-UB100",
        "warranty": "1 year",
        "rating": 4.5,
        "features": ["13.3-inch display", "8GB RAM",
                     "256GB SSD", "Intel Core i5 processor"],
        "description": "A sleek and lightweight ultrabook for everyday use.",
        "price": 799.99

    "BlueWave Gaming Laptop":
        "name": "BlueWave Gaming Laptop",
        "category": "Computers and Laptops",
        "brand": "BlueWave",
        "model_number": "BW-GL200",
        "warranty": "2 years",
        "rating": 4.7,
        "features": ["15.6-inch display", "16GB RAM",
                     "512GB SSD", "NVIDIA GeForce RTX 3060"],
        "description": "A high-performance gaming laptop for
                     an immersive experience.",
        "price": 1199.99
```


Step 1

```
def generate_comment():
    model_number = "WS-3840",
    "warranty": "1 year",
    "rating": 4.3,
    "features": ["2.0 channel", "80W output",
                 "Bluetooth", "Wall-mountable"],
    "description": "Upgrade your TV's audio with
                   this slim and powerful soundbar.",
    "price": 99.99

    """

    user_message_comment=f"""
    A less than 100 words comment about the products"""

    messages_comment = [
        {'role': 'system',
         'content': system_message_comment},
        {'role': 'user',
         'content': f"{delimiter}{user_message_comment}{delimiter}"},
        {'role': 'assistant',
         'content': 'talk as a customer'}
    ]
    comment = get_completion_from_messages(messages_comment)

    print("Comment from customers: ")
    print(comment+"\n")

    return comment
```

Step 2: Generate email subject

- Step 2: Generate email subject
 - Input to ChatGPT
 - The customer's comment created from Step 1.
 - ChatGPT's response
 - Generate the subject of an email from the customer's comment using Inferring technique.
 - Hint
 - This step is an automation of the task of asking ChatGPT

Asuming that you provide customer support for an electronic product company.

The following text is the customer's comment about the products, please generate a subject in English of the comment. The subject will be used as the subject of the email to be sent to the customer.

==>

[comment]

Step 2

```
# Step 2: Generate email subject
def get_subject(comment):
    system_message_subject=comment
    user_message_subject=f"""
    Subject of an email from the comment using Inferring technique within 10 words"""
    messages_subject = [
        {'role': 'system',
         'content': system_message_subject},
        {'role': 'user',
         'content': f"{delimiter}{user_message_subject}{delimiter}"},
    ]
    subject = get_completion_from_messages(messages_subject)

    print("Subject of customer comment: ")
    print(subject+"\n")

    return subject
```

Step 3: Generate the summary of customers' comment

- Step 3: Generate the summary of the customer's comment
 - Input to ChatGPT
 - The customer's comment created from Step 1.
 - ChatGPT's response
 - Step 3.1: Generate the summary in English from the customer's comment using Summarizing technique.
 - Hint
 - This step is an automation of the task of asking ChatGPT to create the comment's summary.

Asuming that you provide customer support for an electronic product company.

The following text is the comment of products, please generate a summary of the comment.

Please generate an English summary of the comment

==>

[comment]

Step 3

```
# Step 3: Generate the summary of the customer's comment
def get_summary(comment):
    system_message_summary=comment
    user_message_summary=f"""
    Give the summary in English of the comment using Summarizing technique within 35 words."""
    messages_summary = [
        {'role': 'system',
         'content': system_message_summary},
        {'role': 'user',
         'content': f"{delimiter}{user_message_summary}{delimiter}"},
    ]
    summary=get_completion_from_messages(messages_summary)

    print("Summary of customer comment:")
    print(summary+"\n")

    return summary
```

Step 4: Sentiment analysis of the customer's comment

- Step 4: Sentiment analysis of the customer's comment
 - Input to ChatGPT
 - The customer's [comment](#) created from [Step 1](#).
 - ChatGPT's response
 - Sentiment analysis of the customer's [comment](#) using [Inferring](#) technique.
 - The result of the [sentiment analysis](#) shows whether the customer's [comment](#) is
 - Positive, or
 - Negative
 - Hint
 - This step is an automation of the task of asking ChatGPT to do [sentiment analysis](#) based on the [comment](#).

Asuming that you provide customer support for an electronic product company.

Please do sentiment analysis based on the following [comment](#).

The result of the [sentiment analysis](#) shows whether the customer's [comment](#) is
Positive or Negative

==>

[[comment](#)]

Step 4

```
# Step 4: Sentiment analysis of the customer's comment
def get_sentiment(comment):
    system_message_sentiment=comment
    user_message_sentiment=f""""
    Sentiment analysis of the customer's comment using Inferring technique. Positive or Negative?""""
    messages_sentiment = [
        {'role':'system',
        'content': system_message_sentiment},
        {'role':'user',
        'content': f"{delimiter}{user_message_sentiment}{delimiter}"},
    ]
    sentiment=get_completion_from_messages(messages_sentiment)

    print(sentiment+"\n")

    return sentiment
```

Step 5: Generate an email to be sent to the customer

- Step 5: Generate an [email](#) to be sent to the customer.
 - Input to ChatGPT
 - The customer's [comment](#) created from [Step 1](#).
 - The [Subject](#) generated from [Step 2](#) which is based on the customer's [comment](#).
 - The [summary](#) of the customer's [comment](#). The [summary](#) is generated from [Step 3.1](#).
 - The result of [sentiment analysis](#) created from [Step 4](#).
 - The customer's [selected language](#).
 - ChatGPT's response
 - An email written in the customer's [selected language](#). The email consists of
 1. The [summary](#) of the customer's [comment](#). The [summary](#) is generated from [Step 3.1](#).
 2. A [response](#) to be sent to the customer using [Expanding](#) technique.
 - The email should be put on the [Answer](#) part of the [web interface](#) for this project
 - Hint
 - This step is an automation of the task of asking ChatGPT to create an [email](#) to be sent to the customer.

Asuming that you provide customer support for an electronic product company.

Please create an email in [[your-selected-language](#)] to be sent to the customer based on

1. The customer's [comment](#) ""[[comment](#)]""

2. The [summary](#) of the customer's [comment](#) ""[[summary](#)]""

3. The result of the [sentiment analysis](#) of the customer's [comment](#) ""[[sentiment analysis](#)] ""

4. The [Subject](#) of the email ""[[Subject](#)] ""

Step 5

```
# Step 5: Generate an email to be sent to the customer
def get_email(comment, subject, summary, sentiment):
    system_message_email = comment + subject + summary + sentiment
    user_message_email = f"""\
Please create an email to be sent to the customer based on {comment}, including the {subject}, {summary} and \
{sentiment} with proper email format with subject and extra."""
    messages_email = [
        {'role': 'system',
         'content': system_message_email},
        {'role': 'user',
         'content': f"{delimiter}{user_message_email}{delimiter}"},
    ]
    email = get_completion_from_messages(messages_email)

    return email # Return the email without printing it
```

Translation between English and Non-English languages

- Language
 - The language of the Answer.
 - Test cases

ID	Question	Answer
1	English	English
2	English	Non-English
3	Non-English	English
4	Non-English	Non-English
		Note: <ul style="list-style-type: none">▪ ChatGPT can infer the language used in <u>Question</u> and then generate the <u>Answer</u> with the same language

Translation between English and Non-English languages

```
def get_translation(summary, language):  
    system_message_translate=summary  
    user_message_translate=f"""  
    Translate the summary into {language} using Transforming technique"""  
    messages_translate = [  
        {'role': 'system',  
        'content': system_message_translate},  
        {'role': 'user',  
        'content': f"{delimiter}{user_message_translate}{delimiter}"},  
    ]  
    translate=get_completion_from_messages(messages_translate)  
  
    print("Translation of customer comment summary in "+language+":")  
    print(translate+"\n")  
  
    return translate
```

Index route in app.py

```
# Define the index route
@app.route('/', methods=['GET', 'POST'])
def index():
    comment = None
    email = None
    language = "English" # Initialize the language variable here

    if request.method == 'POST':
        language = request.form['language']
        comment = generate_comment()
        subject = get_subject(comment)
        summary = get_summary(comment)
        sentiment = get_sentiment(comment)
        email = get_email(comment, subject, summary, sentiment)

        # Check if the user wants to translate the comment and email
        translate_comment = 'translate-comment' in request.form
        translate_email = 'translate-email' in request.form

        if translate_comment:
            comment = get_translation(comment, language)


        if translate_email:
            email = get_translation(email, language)

    return render_template('index.html', comment=comment, email=email, language=language)

if __name__ == '__main__':
    app.run(debug=True)
```

index.html

EmailCustomer_Python > templates >  index.html >  html >  body >  div.container >  div.result-container

 Click here to ask Blackbox to help you code faster

```
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5      <title>Comment and Email Generator</title>
6      <link rel="stylesheet" type="text/css" href="{{ url_for('static', filename='styles.css') }}">
7  </head>
8
9  <body>
10     <div class="container">
11         <h1>Email to Customer</h1>
12         <form method="POST">
13             <label for="language">Select Language:</label>
14             <select name="language" id="language" class="language-select">
15                 <option value="English">English</option>
16                 <option value="Spanish">Spanish</option>
17                 <option value="Chinese">Chinese</option>
18                 <option value="Japanese">Japanese</option>
19                 <option value="Korean">Korean</option>
20                 <option value="French">French</option>
21                 <option value="German">German</option>
22                 <option value="Italian">Italian</option>
23                 <option value="Portuguese">Portuguese</option>
24                 <option value="Russian">Russian</option>
25                 <option value="Arabic">Arabic</option>
26                 <option value="Vietnamese">French</option>
27                 <!-- Add more language options as needed -->
28             </select>
29             <input type="submit" value="Generate" class="submit-button">
30             <div class="translate-options">
31                 <label for="translate-comment">Translate Comment:</label>
32                 <input type="checkbox" name="translate-comment" id="translate-comment" class="translate-checkbox">
33                 <label for="translate_email">Translate Email:</label>
```

💡 Click here to ask Blackbox to help you code faster

```
1  /* Set the background color for the entire page */
2  body {
3      background-color: #fdffc0; /* Lighter background */
4      color: #120c0c; /* Dark text color for better readability */
5      font-family: Verdana, sans-serif;
6      display: flex;
7      flex-direction: column;
8      align-items: center;
9      height: 100vh;
10     margin: 0;
11 }
12 /* Style the form and result div */
13 form {
14     display: flex;
15     flex-direction: column;
16     align-items: center;
17     font-size: 20px;
18 }
19
20 .container {
21     margin: 0 auto;
22     max-width: 800px;
23     padding: 15px;
24     background-color: #FFFFFF; /* White background for container */
25     border-radius: 8px; /* Rounded edges */
26     box-shadow: 0 2px 10px rgba(0, 0, 0, 0.1); /* Shadow for depth */
27 }
28 .result-container {
29     margin-top: 15px;
30     display: flex;
31     flex-direction: column;
32 }
```

styles.css

Set up the environment

```
● PS D:\VS CODE\Python\CS589> cd .\EmailCustomer_Python\  
● PS D:\VS CODE\Python\CS589\EmailCustomer_Python> python -m venv venv  
● PS D:\VS CODE\Python\CS589\EmailCustomer_Python> .\venv\Scripts\activate  
○ (venv) PS D:\VS CODE\Python\CS589\EmailCustomer_Python> pip install -r requirements.txt
```

```
○ (venv) PS D:\VS CODE\Python\CS589\EmailCustomer_Python> python app.py  
* Serving Flask app 'app' (lazy loading)  
* Environment: development  
* Debug mode: on  
* Restarting with stat  
* Debugger is active!  
* Debugger PIN: 337-358-075  
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

Run program & result: (English - English)

127.0.0.1:5000

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Email to Customer

Select Language:

English

Generate

Translate Comment: ☐ Translate Email: ☐

Comment:

I recently purchased the TechPro Ultrabook and I am extremely satisfied with its performance. The sleek design and lightweight make it perfect for everyday use. The 13.3-inch display and 8GB RAM provide a smooth and seamless experience. The Intel Core i5 processor ensures fast and efficient multitasking. The 256GB SSD offers ample storage space for all my files. The 1-year warranty gives me peace of mind. Overall, I highly recommend the TechPro Ultrabook for anyone looking for a reliable and high-quality laptop.

Email:

Subject: Thank you for your purchase of the TechPro Ultrabook! Dear [Customer's Name], We hope this email finds you well. We wanted to take a moment to express our gratitude for your recent purchase of the TechPro Ultrabook and share our excitement about your satisfaction with its performance. Your positive review of the TechPro Ultrabook's sleek design and lightweight nature truly resonated with us. We designed this laptop with everyday use in mind, and we're thrilled to hear that it has met your expectations in terms of portability and aesthetics. We're also delighted that you appreciate the 13.3-inch display and 8GB RAM, which provide a smooth and seamless experience. The Intel Core i5 processor ensures fast and efficient multitasking, allowing you to tackle any task with ease. Additionally, the 256GB SSD offers ample storage space for all your files, ensuring that you can keep everything you need at your fingertips. We understand the importance of peace of mind when making a purchase, which is why we offer a 1-year warranty with the TechPro Ultrabook. We're glad to hear that this warranty has given you the reassurance you need, knowing that

Run program & result:

```
* Detected change in '/home/koiisme/CS589/EmailCustomer_Python/app.py', reloading
* Restarting with stat
* Debugger is active!
* Debugger PIN: 965-046-272
127.0.0.1 - - [15/Feb/2024 17:28:20] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [15/Feb/2024 17:28:20] "GET /static/styles.css HTTP/1.1" 304 -
Comment from customers:
I recently purchased the TechPro Ultrabook and I am extremely satisfied with its performance. The sleek design and lightweight make it perfect for everyday use. The 13.3-inch display and 8GB RAM provide a smooth and seamless experience. The Intel Core i5 processor ensures fast and efficient multitasking. The 256GB SSD offers ample storage space for all my files. The 1-year warranty gives me peace of mind. Overall, I highly recommend the TechPro Ultrabook for anyone looking for a reliable and high-quality laptop.

Subject of customer comment:
Satisfied Customer Review of TechPro Ultrabook Performance

Summary of customer comment:
The TechPro Ultrabook is praised for its sleek design, lightweight, 13.3-inch display, 8GB RAM, Intel Core i5 processor, 256GB SSD, and 1-year warranty. The reviewer highly recommends it for its reliability and quality.

Positive
127.0.0.1 - - [15/Feb/2024 17:28:37] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [15/Feb/2024 17:28:37] "GET /static/styles.css HTTP/1.1" 304 -
```

Run program & result: (Non-English - English)

127.0.0.1:5000

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Email to Customer

Select Language:

English

Generate

Translate Comment: ■ Translate Email: ■

Comment:

Tôi vừa mua chiếc TechPro Ultrabook và tôi rất hài lòng với hiệu suất của nó. Thiết kế mỏng nhẹ và thanh lịch làm cho nó hoàn hảo cho việc sử dụng hàng ngày. Màn hình 13,3 inch và RAM 8GB cung cấp trải nghiệm mượt mà và liền mạch. Bộ xử lý Intel Core i5 đảm bảo việc đa nhiệm nhanh chóng và hiệu quả. Ổ cứng SSD 256GB cung cấp không gian lưu trữ đủ cho tất cả các tệp tin và tài liệu của tôi. Bảo hành 1 năm mang lại sự yên tâm cho tôi. Tổng thể, tôi rất khuyến nghị TechPro Ultrabook cho bất kỳ ai đang tìm kiếm một máy tính xách tay đáng tin cậy và chất lượng cao.

Email:

Subject: Thank you for your purchase of the TechPro Ultrabook! Dear [Customer's Name], We hope this email finds you well. We wanted to take a moment to express our gratitude for your recent purchase of the TechPro Ultrabook and share our excitement that you are extremely satisfied with its performance. Your feedback regarding the sleek design and lightweight nature of the Ultrabook is greatly appreciated. We understand the importance of a portable and stylish device that can seamlessly fit into your everyday life. The 13.3-inch display and 8GB RAM are designed to provide you with a smooth and enjoyable user experience, allowing you to effortlessly navigate through your tasks. We are thrilled that the Intel Core i5 processor has met your expectations in terms of multitasking capabilities. We understand the need for a fast and efficient device that can handle multiple applications simultaneously, and we are glad that the Ultrabook delivers on this front. The 256GB SSD offers ample storage space for all your files and documents, ensuring that you have enough room to store your important data without any worries. Additionally, the 1-year warranty provides you with

Run program & result: (Non-English - English)

```
127.0.0.1 - - [15/Feb/2024 17:28:37] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [15/Feb/2024 17:28:37] "GET /static/styles.css HTTP/1.1" 304 -
Comment from customers:
I recently purchased the TechPro Ultrabook and I am extremely satisfied with its performance. The sleek design and lightweight make it perfect for everyday use. The 13.3-inch display and 8GB RAM provide a smooth and seamless experience. The Intel Core i5 processor ensures fast and efficient multitasking. The 256GB SSD offers ample storage space for all my files and documents. The 1-year warranty gives me peace of mind. Overall, I highly recommend the TechPro Ultrabook for anyone looking for a reliable and high-quality laptop.

Subject of customer comment:
Satisfied Customer Review of TechPro Ultrabook Performance

Summary of customer comment:
The TechPro Ultrabook is praised for its sleek design, lightweight, 13.3-inch display, 8GB RAM, Intel Core i5 processor, 256GB SSD, and 1-year warranty. The reviewer highly recommends it for its reliability and quality.

Positive

Translation of customer comment summary in Vietnamese:
Tôi vừa mua chiếc TechPro Ultrabook và tôi rất hài lòng với hiệu suất của nó. Thiết kế mỏng nhẹ và thanh lịch làm cho nó hoàn hảo cho việc sử dụng hàng ngày. Màn hình 13,3 inch và RAM 8GB cung cấp trải nghiệm mượt mà và liền mạch. Bộ xử lý Intel Core i5 đảm bảo việc đa nhiệm nhanh chóng và hiệu quả. Ổ cứng SSD 256GB cung cấp không gian lưu trữ đủ cho tất cả các tệp tin và tài liệu của tôi. Bảo hành 1 năm mang lại sự yên tâm cho tôi. Tổng thể, tôi rất khuyến nghị TechPro Ultrabook cho bất kỳ ai đang tìm kiếm một máy tính xách tay đáng tin cậy và chất lượng cao.
```

Run program & result: (English - Non-English)

127.0.0.1:5000

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Email to Customer

Select Language:

English

Generate

Translate Comment: ☒ Translate Email: ☐

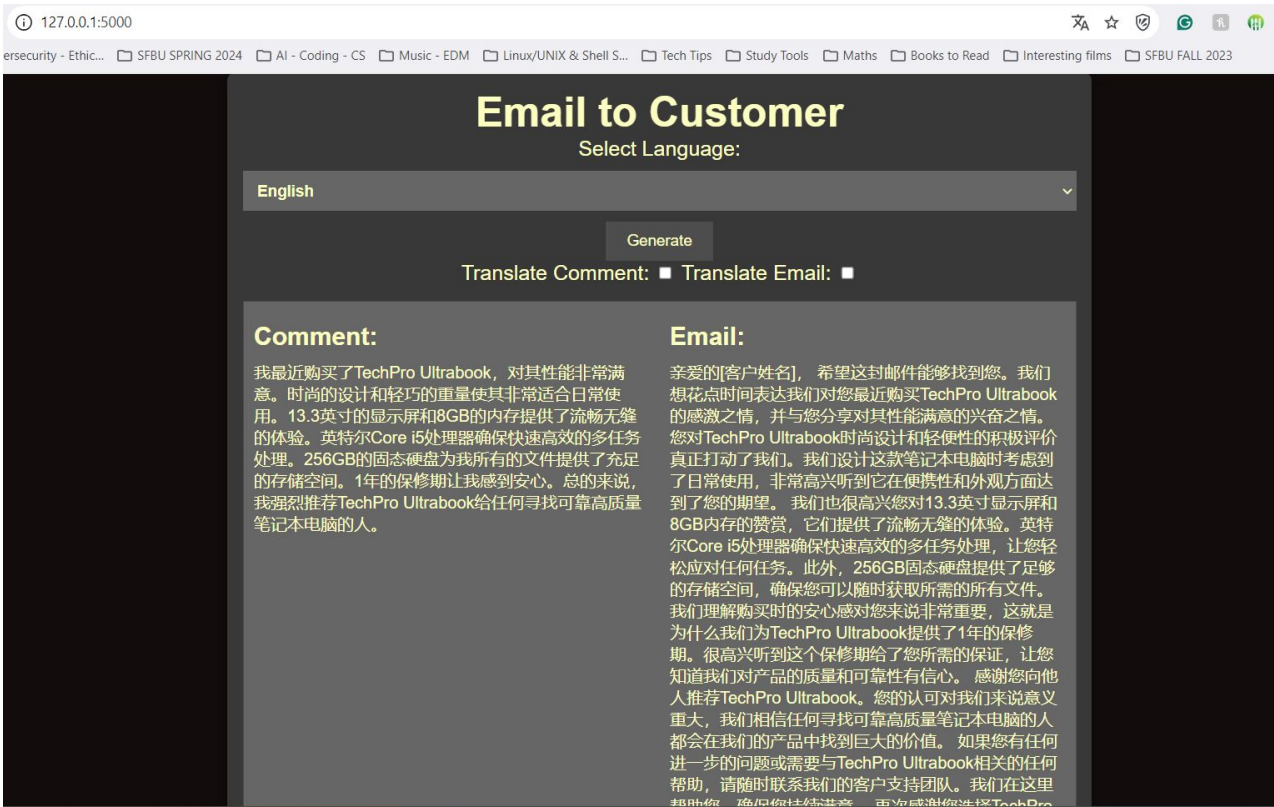
Comment:

I recently purchased the TechPro Ultrabook and I am extremely satisfied with its performance. The sleek design and lightweight make it perfect for everyday use. The 13.3-inch display and 8GB RAM provide a smooth and seamless experience. The Intel Core i5 processor ensures fast and efficient multitasking. The 256GB SSD offers ample storage space for all my files and documents. The 1-year warranty gives me peace of mind. Overall, I highly recommend the TechPro Ultrabook for anyone looking for a reliable and high-quality laptop.

Email:

Cher [Nom du client], Nous espérons que cet email vous trouve en bonne santé. Nous tenons à prendre un moment pour vous exprimer notre gratitude pour votre récent achat du TechPro Ultrabook et partager notre enthousiasme que vous êtes extrêmement satisfait de ses performances. Vos commentaires concernant le design élégant et la légèreté de l'Ultrabook sont grandement appréciés. Nous comprenons l'importance d'un appareil portable et élégant qui peut s'intégrer parfaitement dans votre vie quotidienne. Nous sommes ravis d'apprendre que l'écran de 13,3 pouces et les 8 Go de RAM vous ont offert une expérience fluide et sans faille. Le processeur Intel Core i5 garantit une multitâche rapide et efficace, vous permettant de relever toutes les tâches avec facilité. Le SSD de 256 Go offre un espace de stockage suffisant pour tous vos fichiers et documents, vous assurant d'avoir tout ce dont vous avez besoin à portée de main. Nous comprenons l'importance d'avoir suffisamment d'espace de stockage pour votre vie numérique, et nous sommes heureux que l'Ultrabook réponde à vos besoins à cet égard. De plus, nous sommes heureux

Run program & result: (Non-English - Non-English)



Source code:

GitHub: https://github.com/MynameisKoi/CS589/tree/main/CustomerEmail_Python