Customer Support System: An email to the customer

By: Vaishnavi Patil

1. **Set Up Virtual Environment**

   First, ensure you have virtualenv installed. If not, you can install it by running:

```
vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to cust
omer)$ pip install virtualenv
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: virtualenv in /usr/lib/python3/dist-packages (20.13.0+ds)
Requirement already satisfied: filelock<4,>=3.2 in /usr/lib/python3/dist-packages (from virtualenv) (3.6
.0)
Requirement already satisfied: platformdirs<3,>=2 in /usr/lib/python3/dist-packages (from virtualenv) (2
.5.1)
Requirement already satisfied: six<2,>=1.9.0 in /usr/lib/python3/dist-packages (from virtualenv) (1.16.0
)
Requirement already satisfied: distlib<1,>=0.3.1 in /usr/lib/python3/dist-packages (from virtualenv) (0.
3.4)
vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to cust
omer)$
```

   a. Create a Virtual Environment

      Navigate to your project directory and create a virtual environment:

```
vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to cust
omer)$ virtualenv venv
created virtual environment CPython3.10.12.final.0-64 in 3442ms
  creator CPython3Posix(dest=/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to c
ustomer)/venv, clear=False, no_vcs_ignore=False, global=False)
  seeder FromAppData(download=False, pip=bundle, setuptools=bundle, wheel=bundle, via=copy, app_data_dir
=/home/vaishnavi/.local/share/virtualenv)
    added seed packages: pip==22.0.2, setuptools==59.6.0, wheel==0.37.1
  activators BashActivator,CShellActivator,FishActivator,NushellActivator,PowerShellActivator,PythonActi
vator
vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to cust
omer)$
```

      This will create a venv folder inside your project directory.

   b. Activate the Virtual Environment

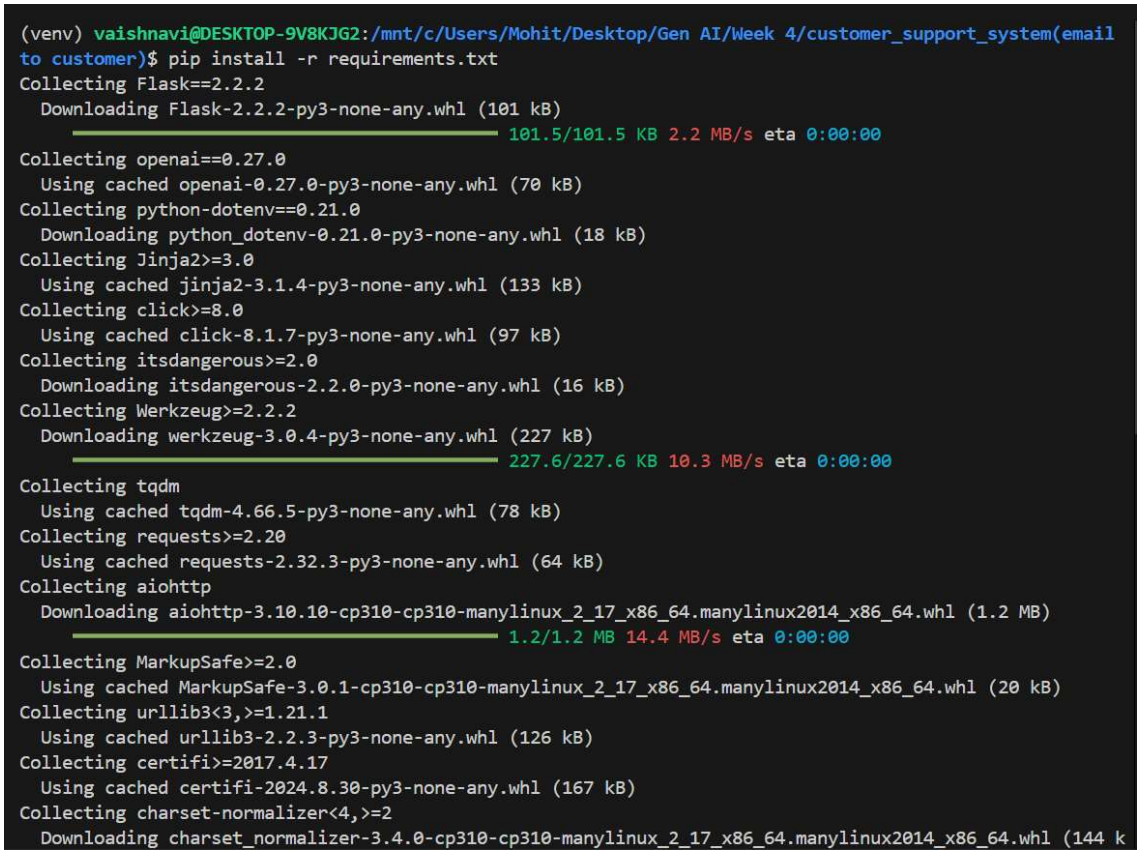
      I am using Ubuntu so run **source venv/bin/activate**

```
vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to cust
omer)$ source venv/bin/activate
(venv) vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email
to customer)$
```

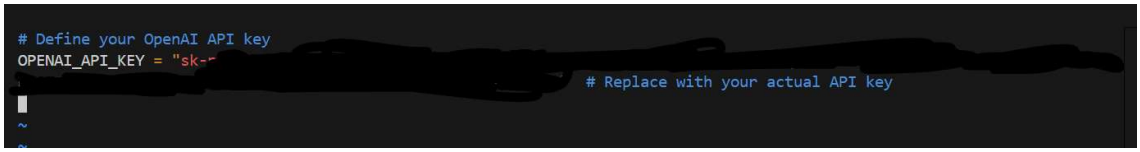
      You should now see (venv) in your terminal, indicating that the virtual environment is active.

   c. Install Dependencies

Once the virtual environment is activated, install the dependencies from the requirements.txt file:



d. Set up environment variables:

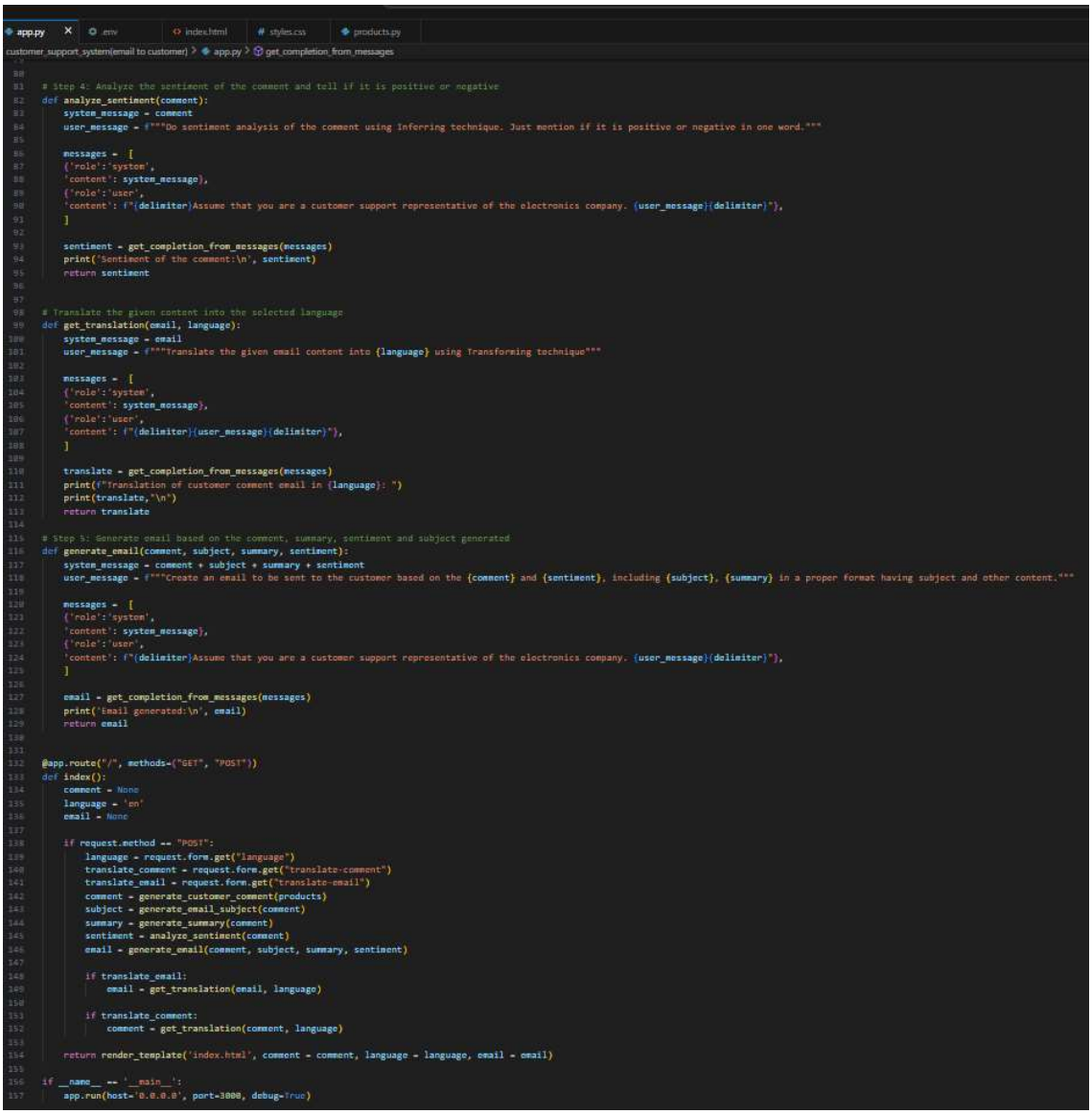


e. Deactivate the virtual environment (when done) using **deactivate**

2. **Main Application Code**

After all the requirements are installed and virtual environment is set, lets move with the code to send an email to customer using gpt-3-turbo model and flask.

```python
import os, openai
from dotenv import load_dotenv
from products import products
from flask import Flask, render_template, request, url_for

app = Flask(__name__)

# Load environment variables for OpenAI API key
load_dotenv()
openai.api_key = os.getenv("OPENAI_API_KEY")  # Set the API key

# Define delimiter
delimiter = "####"

# Use text completion to generate the required content
def get_completion_from_messages(messages,
                                 model="gpt-3.5-turbo",
                                 temperature=0,
                                 max_tokens=500):
    response = openai.ChatCompletion.create( # type: ignore
        model=model,
        messages=messages,
        temperature=temperature,
        max_tokens=max_tokens,
    )
    return response.choices[0].message.content


# Step 1: Generate customer comment based on the product input
def generate_customer_comment(products):

    system_message = f"""{products}"""
    user_message = f"""Generate comment in less than 100 words about the products"""

    messages =  [
    {'role':'system',
    'content': system_message},
    {'role':'user',
    'content': f"{delimiter}Assume you are a customer of the electronics company. {user_message}{delimiter}"},
    ]

    comment = get_completion_from_messages(messages)
    print('Comment:\n', comment)
    return comment


# Step 2: Generate a subject for the email from the comment
def generate_email_subject(comment):
    system_message = comment
    user_message = f"""Please generate a subject for the email from the comment using Inferring technique."""

    messages =  [
    {'role':'system',
    'content': system_message},
    {'role':'user',
    'content': f"{delimiter}Assume that you are a customer support representative of the electronics company. {user_message}{delimiter}"},
    ]

    subject = get_completion_from_messages(messages)
    print('Subject of the email:\n', subject)
    return subject


# Step 3: Create a summary of the comment
def generate_summary(comment):
    system_message = comment
    user_message = f"""Provide a concise summary of the comment in at most 30 words."""

    messages =  [
    {'role':'system',
    'content': system_message},
    {'role':'user',
    'content': f"{delimiter}Assume that you are a customer support representative of the electronics company. {user_message}{delimiter}"},
    ]

    summary = get_completion_from_messages(messages)
    print('Summary of the comment:\n', summary)
    return summary
```



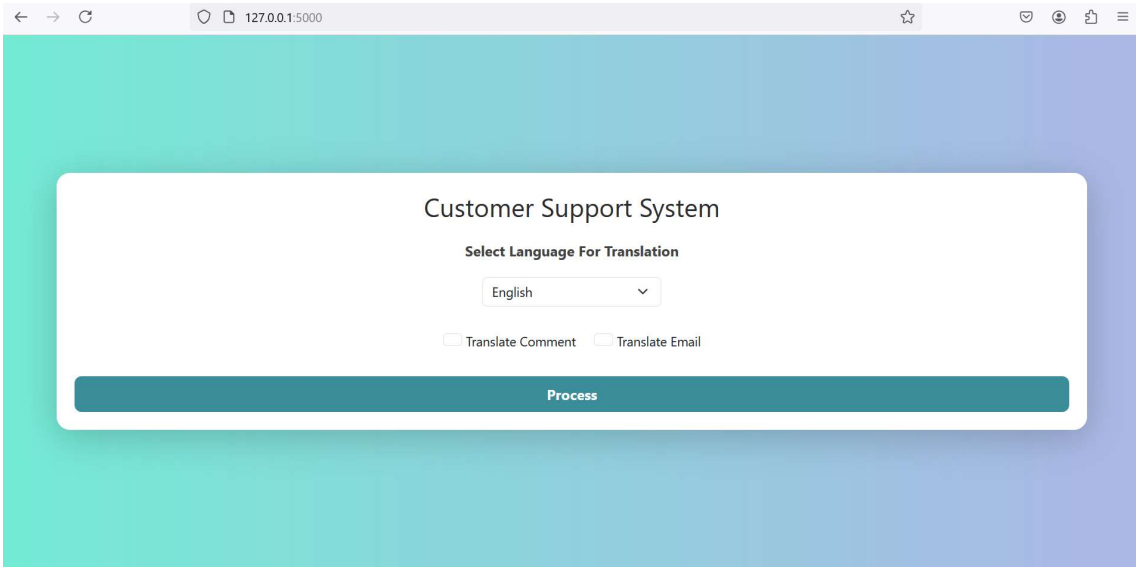
Running the Application

To run the flask app, use the command: **flask run**

This will run the app.py file by default.

```
(venv) vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to
 customer)$ flask run
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI ser
ver instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
```

Then follow the link shown



STEPS INVOLVED IN DEVELOPMENT:

STEP 1: Generate customer's comment.

An input of the list of products is given and expect a response of about 100 words as a customer comment.

```
(venv) vaishnavi@DESKTOP-9V8KJG2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to
 customer)$ flask run
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI ser
ver instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
127.0.0.1 - - [15/Oct/2024 16:04:03] "GET / HTTP/1.1" 200 -
Comment:
 I am impressed by the wide range of high-quality products offered by our electronics company. From powerf
ul laptops and smartphones to immersive TVs and gaming consoles, there is something for everyone. The atte
ntion to detail in design, performance, and features is evident across all categories. The warranty covera
ge provides peace of mind, and the competitive pricing makes these products accessible to all. Overall, I
am confident in the reliability and innovation of our electronics company's offerings, making it a go-to d
estination for all my tech needs.
```

STEP 2: Generate email subject.

The comment generated is given as input and expect ChatGPT to generate appropriate subject for the email using Inferring technique.

```
Subject of the email:
 Subject: Impressed by the Diverse Range of High-Quality Electronics Products
```

STEP 3: Generate summary of customer comments.

Based on the comment, expect ChatGPT generate a summary within 30 words.

```
Summary of the comment:
 Our electronics company offers a diverse range of high-quality products with attention to detail, warrant
y coverage, competitive pricing, and reliability, making it a go-to destination for tech needs.
```

STEP 4: Sentiment analysis of the customer comment.

Take the comment as an input and expect to analyze the sentiment of the comment if it is positive or negative using Inferring technique.

Since it gave an output with more than 100 words, I just wanted to know if the comment is positive or negative. So, I changed the prompt accordingly.

```
Sentiment of the comment:
 Positive
```

STEP 5: Generate email.

Based on all the comment, subject of email, sentiment and summary, expect to generate an email in the selected language by the user.

```
Email generated:
 Subject: Appreciation for Your Positive Feedback on Our High-Quality Electronics Products

Dear [Customer's Name],

I hope this email finds you well. I wanted to personally reach out to express my gratitude for your recent
 feedback regarding our diverse range of high-quality electronics products. Your positive comments about o
ur offerings, including powerful laptops, smartphones, immersive TVs, and gaming consoles, truly resonate
with us.

At our electronics company, we take great pride in ensuring that each product is meticulously designed wit
h a focus on performance, features, and overall user experience. It is heartening to hear that our attenti
on to detail has not gone unnoticed and that you find our products suitable for a wide range of tech needs
.

Moreover, I am delighted to hear that our warranty coverage has provided you with peace of mind. We unders
tand the importance of reliability and stand by the quality of our products to ensure customer satisfactio
n.

Your mention of our competitive pricing being accessible to all is also greatly appreciated. We strive to make cutting-edge technology affo
rdable without compromising on quality, and it is rewarding to know that our efforts are recognized and valued by customers like you.

We are committed to innovation and continuously improving our product offerings to meet the evolving needs of our customers. Your confidenc
e in our company as a go-to destination for all your tech needs is a testament to our dedication to providing top-notch electronics solutio
ns.

Thank you once again for taking the time to share your positive feedback. If you have any further questions, feedback, or require assistanc
e, please do not hesitate to reach out to us. We are here to ensure your experience with our products remains exceptional.

We look forward to serving you with more innovative products in the future and continuing to meet your expectations.

Warm regards,

[Your Name]
Customer Support Representative
[Electronics Company Name]
```

The entire output looks like:

```
(venv) vaishnavi@DESKTOP-9V8K3G2:/mnt/c/Users/Mohit/Desktop/Gen AI/Week 4/customer_support_system(email to
 customer)$ flask run
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI ser
ver instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
127.0.0.1 - - [15/Oct/2024 16:04:03] "GET / HTTP/1.1" 200 -
Comment:
 I am impressed by the wide range of high-quality products offered by our electronics company. From powerf
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am confident in the reliability and innovation of our electronics company's offerings, making it a go-to d
estination for all my tech needs.
Subject of the email:
 Subject: Impressed by the Diverse Range of High-Quality Electronics Products
Summary of the comment:
 Our electronics company offers a diverse range of high-quality products with attention to detail, warrant
y coverage, competitive pricing, and reliability, making it a go-to destination for tech needs.
Sentiment of the comment:
 Positive
Email generated:
 Subject: Appreciation for Your Positive Feedback on Our High-Quality Electronics Products

Dear [Customer's Name],

I hope this email finds you well. I wanted to personally reach out to express my gratitude for your recent
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We are committed to innovation and continuously improving our product offerings to meet the evolving needs of our customers. Your confidence in our company as a go-to destination for all your tech needs is a testament to
our dedication to providing top-notch electronics solutions.

Thank you once again for taking the time to share your positive feedback. If you have any further questions, feedback, or require assistance, please do not hesitate to reach out to us. We are here to ensure your experienc
e with our products remains exceptional.

We look forward to serving you with more innovative products in the future and continuing to meet your expectations.

Warm regards,

[Your Name]
Customer Support Representative
[Electronics Company Name]
```
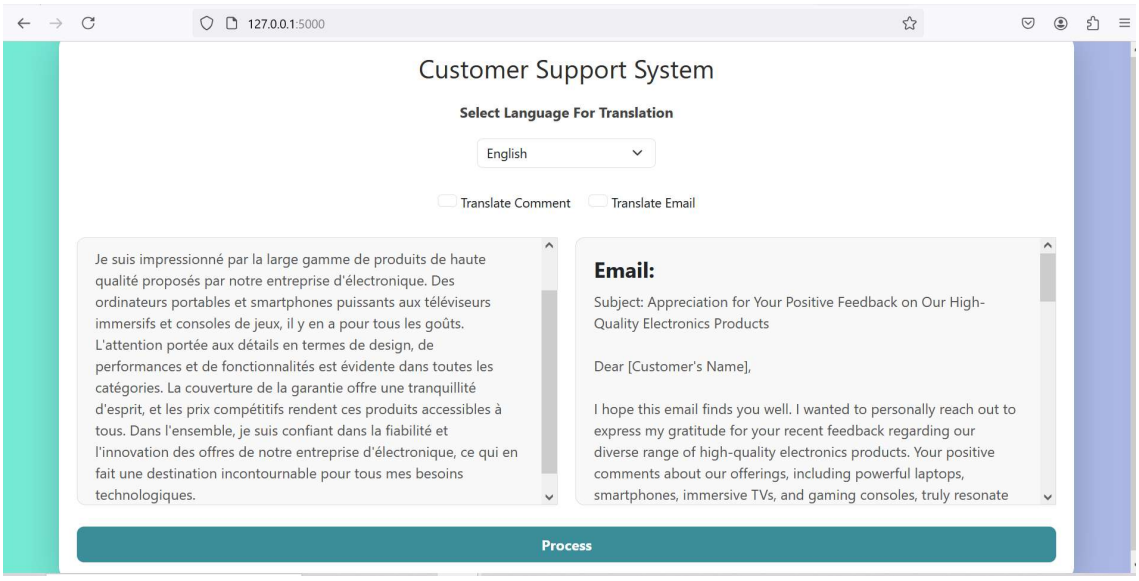

The translated output looks like:

```
Translation of customer comment email in fr:
Je suis impressionné par la large gamme de produits de haute qualité proposés par notre entreprise d'élect
ronique. Des ordinateurs portables et smartphones puissants aux téléviseurs immersifs et consoles de jeux,
 il y en a pour tous les goûts. L'attention portée aux détails en termes de design, de performances et de
fonctionnalités est évidente dans toutes les catégories. La couverture de la garantie offre une tranquilli
té d'esprit, et les prix compétitifs rendent ces produits accessibles à tous. Dans l'ensemble, je suis con
fiant dans la fiabilité et l'innovation des offres de notre entreprise d'électronique, ce qui en fait une
destination incontournable pour tous mes besoins technologiques.
```

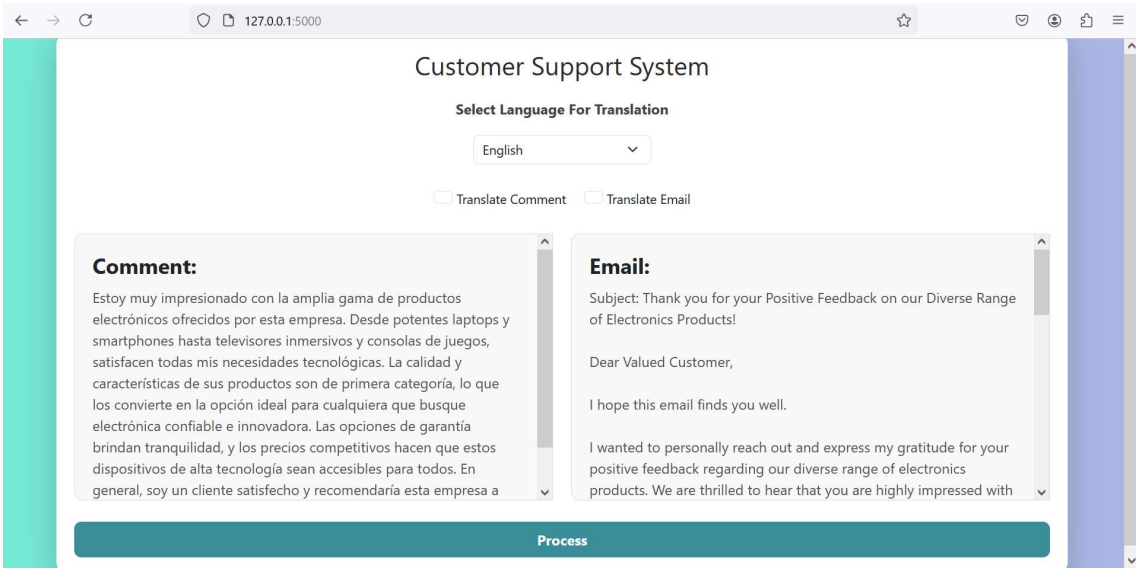
The UI for the given use case is generated based on the design given and looks like: Comment in French, Email in English



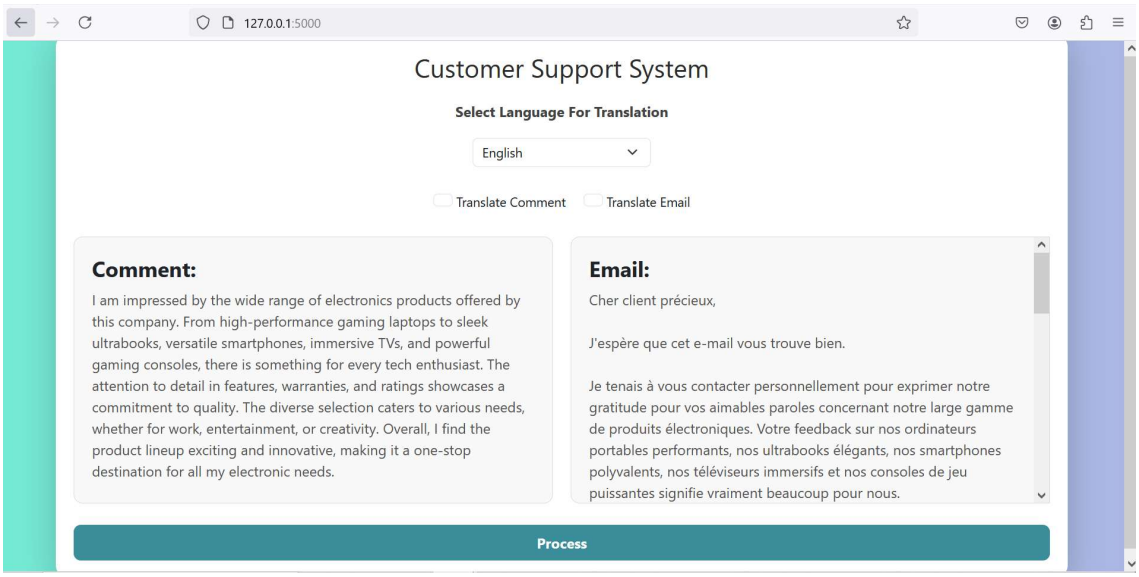
GITHUB LINK:

GOOGLE SLIDE LINK:

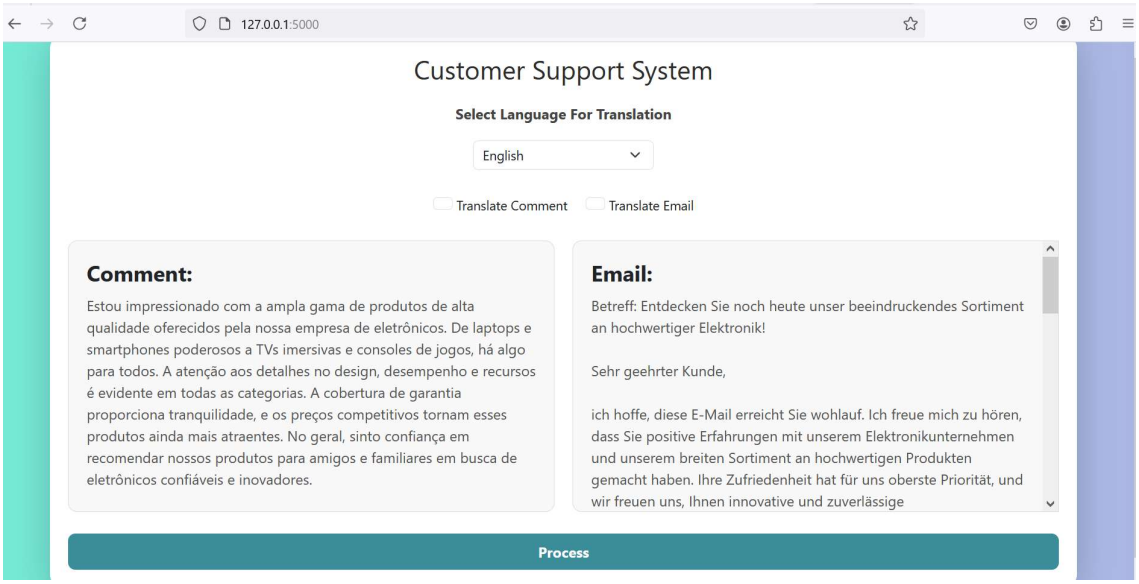
Comment in Spanish, Email in English



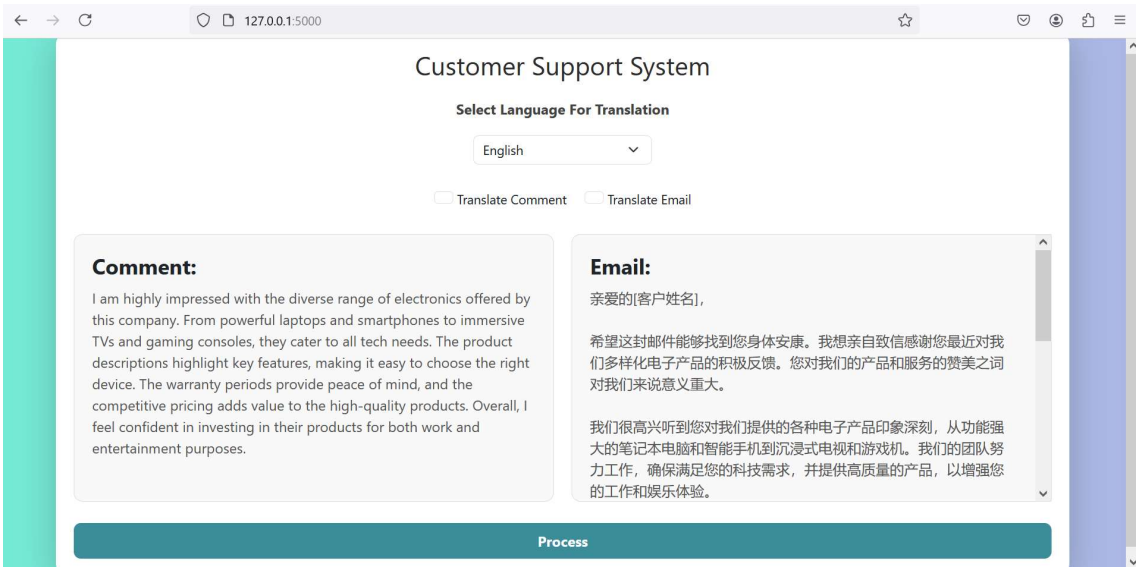
Comment in English, Email in French



Comment and Email both in German



Comment in English, Email in Chinese



Comment and Email both in Hindi