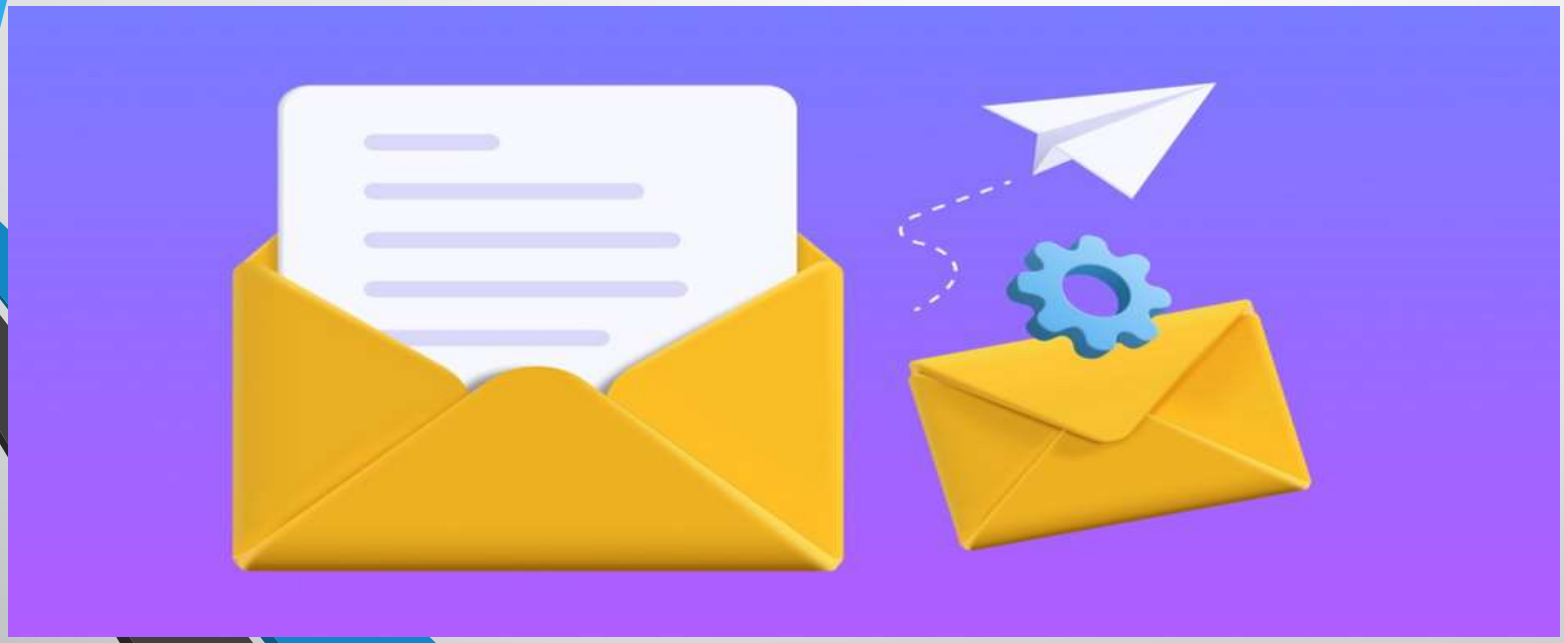
CUSTOMER SUPPORT SYSTEM : AN EMAIL TO CUSTOMER



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Introduction

Project Overview:

- The Customer Support System automates the generation of customer comments, email summaries, and translations based on product descriptions using OpenAI GPT and Flask.

Objectives:

- Simplify customer support tasks.
- Automate email and comment generation.
- Support multiple languages.

Design - Problem Identification

Identify and Understand the Problems:

- Customer support agents often need to manually draft responses and emails.
- Lack of a multilingual system for translation of customer responses.

Investigation of Possible Solutions

- Manual response drafting vs. AI-based automation.
- Existing translation tools vs. integrated translation solutions.

Design - Solution Selection

Comparison of Solutions:

- Manual response generation requires more time and effort.
- AI-based automation using GPT can handle vast amounts of customer queries efficiently.

Chosen Solution:

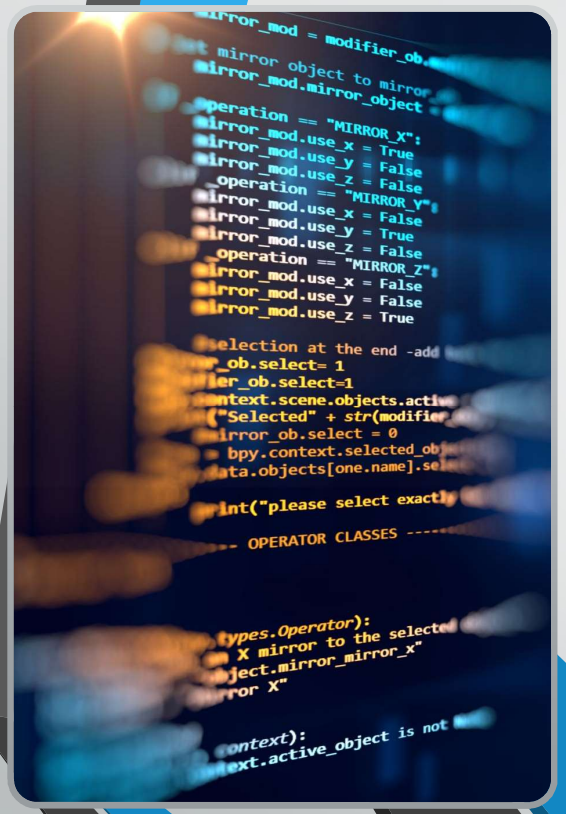
- Use of OpenAI GPT models for natural language generation.
- Flask-based web application for simplicity and quick deployment.
- Bootstrap for frontend responsiveness.

Implementation

How the System Works:

- Built with Python Flask as a backend framework.
- OpenAI GPT models are used to generate customer responses.
- HTML and Bootstrap-based frontend.
- Translation capabilities with user-selectable languages.

Implementation - Detailed Steps



User Input: Customer description or query is provided.

GPT-Generated Comment: The system generates a customer comment.

Sentiment Analysis: Determines if the comment is positive or negative.

Email Creation: Generates a subject and body of the email based on the comment.

Translation: Translates the content into the chosen language.

Display Output: Outputs generated content to the user.

Testing

Functional Testing:

- Test if GPT generates meaningful responses based on product descriptions.
- Validate that the sentiment analysis identifies the tone correctly.

User Interface Testing:

- Check for correct response display and seamless interaction on the frontend.

Translation Accuracy:

- Ensure that translation functions return accurate results for the selected languages.

Enhancement Ideas

Add Voice Input/Output:

- ✓ Incorporate voice recognition for customer input.
- ✓ Provide voice feedback for generated responses.

Extend Product Range:

- ✓ Expand system to support additional product categories and descriptions.

More Language Support:

- ✓ Include additional languages for translation.

Conclusion

- The Customer Support System successfully automates the process of generating customer comments and email summaries.
- It improves the efficiency of customer support teams by providing AI-driven solutions for multilingual content generation.

References

OpenAI GPT Documentation:

(https://beta.openai.com/docs/)

Flask Documentation:

(https://flask.palletsprojects.com/)

Bootstrap:

(https://getbootstrap.com/)

Appendix

app.py | .env | index.html | styles.css | products.py

customer_support_system(email to customer) > app.py > get_completion_from_messages

```python
# Step 4: Analyze the sentiment of the comment and tell if it is positive or negative
def analyze_sentiment(comment):
    system_message = comment
    user_message = f"""Do sentiment analysis of the comment using Inferring technique. Just mention if it is positi

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

    sentiment = get_completion_from_messages(messages)
    print("Sentiment of the comment:\n", sentiment)
    return sentiment


# Translate the given content into the selected language
def get_translation(email, language):
    system_message = email
    user_message = f"""Translate the given email content into {language} using Transforming technique"""

    messages =  [
    {'role':'system',
    'content': system_message},
    {'role':'user',
    'content': f"{delimiter}{user_message}{delimiter}"},
    ]

    translate = get_completion_from_messages(messages)
    print(f"Translation of customer comment email in {language}: ")
    print(translate,"\n")
    return translate

# Step 5: Generate email based on the comment, summary, sentiment and subject generated
def generate_email(comment, subject, summary, sentiment):
    system_message = comment + subject + summary + sentiment
    user_message = f"""Create an email to be sent to the customer based on the {comment} and {sentiment}, including

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

    email = get_completion_from_messages(messages)
    print("Email generated:\n", email)
    return email


@app.route("/", methods=["GET", "POST"])
def index():
    comment = None
    language = "en"
    email = None

    if request.method == "POST":
        language = request.form.get("language")
        translate_comment = request.form.get("translate-comment")
        translate_email = request.form.get("translate-email")
        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)

        if translate_email:
            email = get_translation(email, language)

        if translate_comment:
            comment = get_translation(comment, language)

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

if __name__ == '__main__':
    app.run(host='0.0.0.0', port=3000, debug=True)
```

```
(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.
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
 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 tech
ts are recognized and valued by customers like you.

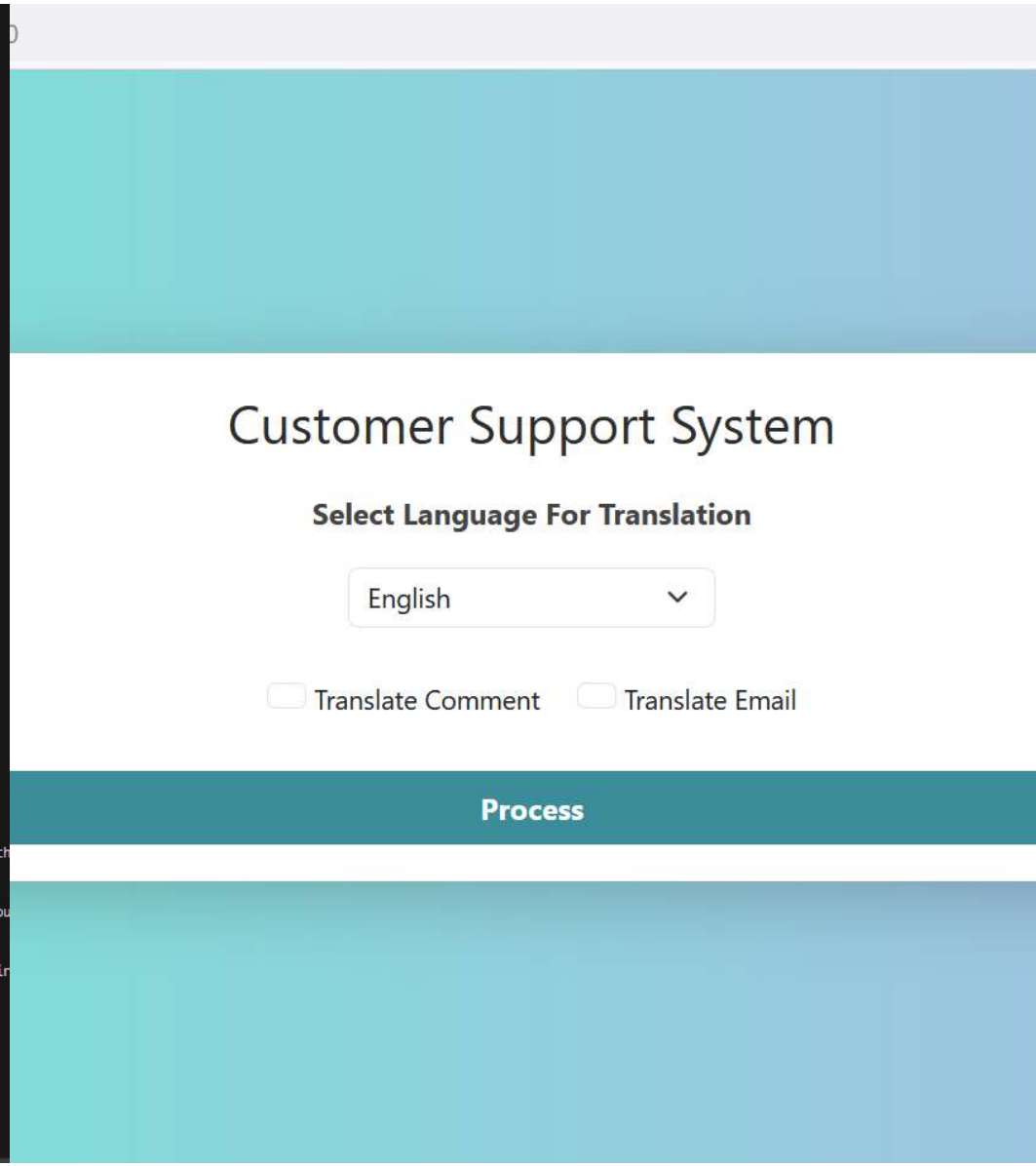
We are committed to innovation and continuously improving our product offerings to meet the evolving needs of our customers. You
our dedication to providing top-notch electronics solutions.

Thank you once again for taking the time to share your positive feedback. If you have any further questions, feedback, or requir
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]
```



```
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.
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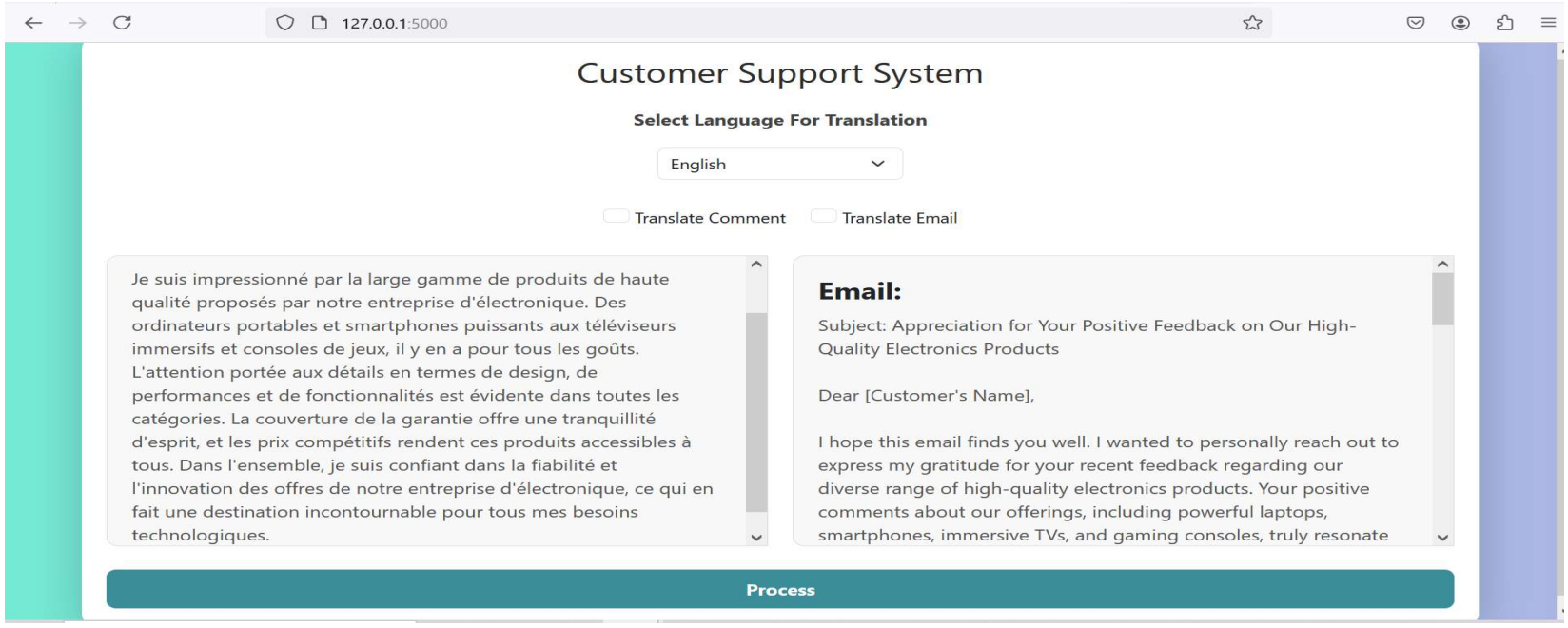
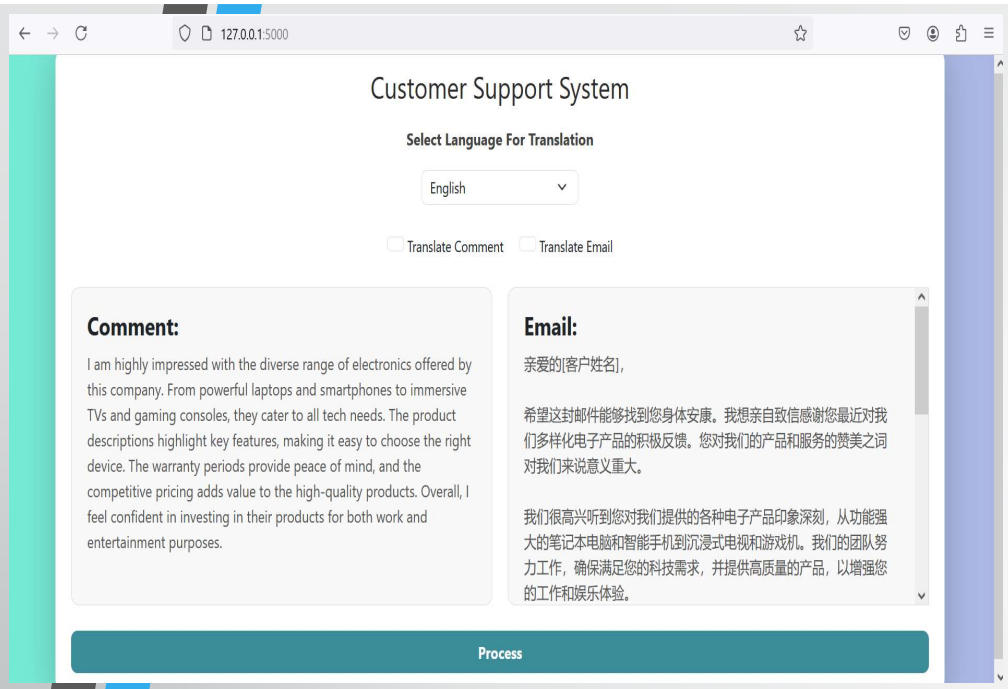
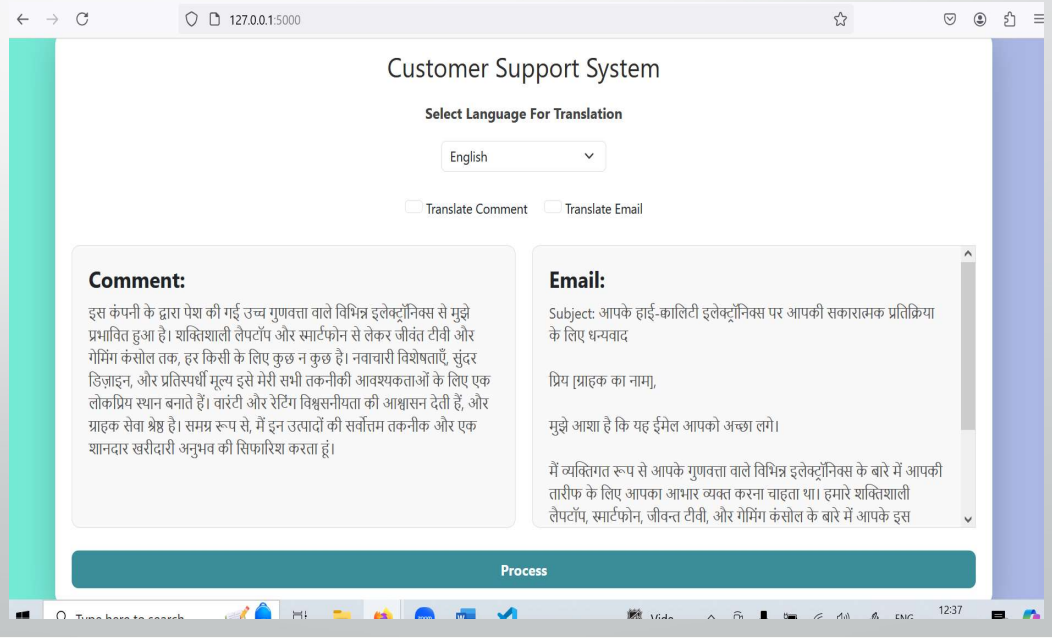



127.0.0.1:5000
Customer Support System
Select Language For Translation
English
Translate Comment
Translate Email
Comment:
I am highly impressed with the diverse range of electronics offered by this company. From powerful laptops and smartphones to immersive TVs and gaming consoles, they cater to all tech needs. The product descriptions highlight key features, making it easy to choose the right device. The warranty periods provide peace of mind, and the competitive pricing adds value to the high-quality products. Overall, I feel confident in investing in their products for both work and entertainment purposes.
Email:
亲爱的[客户姓名],
希望这封邮件能够找到您身体安康。我想亲自致信感谢您最近对我们多样化电子产品的积极反馈。您对我们的产品和服务的赞美之词对我们来说意义重大。
我们很高兴听到您对我们提供的各种电子产品印象深刻，从功能强大的笔记本电脑和智能手机到沉浸式电视和游戏机。我们的团队努力工作，确保满足您的科技需求，并提供高质量的产品，以增强您的工作和娱乐体验。
Process


127.0.0.1:5000
Customer Support System
Select Language For Translation
English
Translate Comment
Translate Email
Comment:
इस कंपनी के द्वारा पेश की गई उच्च गुणवत्ता वाले विभिन्न इलेक्ट्रॉनिक्स से मुझे प्रभावित हुआ है। शक्तिशाली लैपटॉप और स्मार्टफोन से लेकर जीवंत टीवी और गेमिंग कंसोल तक, हर किसी के लिए कुछ न कुछ है। नवाचारी विशेषताएँ, सुंदर डिज़ाइन, और प्रतिस्पर्धी मूल्य इसे मेरी सभी तकनीकी आवश्यकताओं के लिए एक लोकप्रिय स्थान बनाते हैं। वारंटी और रेटिंग विश्वसनीयता की आश्वासन देती हैं, और ग्राहक सेवा श्रेष्ठ है। समग्र रूप से, मैं इन उत्पादों की सर्वोत्तम तकनीक और एक शानदार खरीदारी अनुभव की सिफारिश करता हूं।
Email:
Subject: आपके हाई-कालिटी इलेक्ट्रॉनिक्स पर आपकी सकारात्मक प्रतिक्रिया के लिए धन्यवाद
प्रिय [ग्राहक का नाम],
मुझे आशा है कि यह ईमेल आपको अच्छा लगे।
मैं व्यक्तिगत रूप से आपके गुणवत्ता वाले विभिन्न इलेक्ट्रॉनिक्स के बारे में आपकी तारीफ के लिए आपका आभार व्यक्त करना चाहता था। हमारे शक्तिशाली लैपटॉप, स्मार्टफोन, जीवन्त टीवी, और गेमिंग कंसोल के बारे में आपके इस
Process

Thank you