

**Group 10**



# **Hotel Review AI Solution**

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# **Introduction**

# Reviews are important in hotel reservation platforms

Customers

Hotel Managers



# Hard to extract useful information for both customers and hotel managers



Joyzhu13 💎铂金贵宾 点评达人  
2024年03月入住 发布于上海

👍 4.0分 尊贵江景客房 > | 朋友出游

还没走进广州瑰丽就接收到大堂工作人员的热情，每走一段都会有服务人员的引领，这个体验感真的不错，办理入住也在规定的时间内拿到房卡。瑰丽虽高但电梯真的很快，房间格局和设施都不错，性价比不高，这个价位的房价也不是对着小蛮腰还是蛮失望的，心里的声音再说说就那样吧，哈哈，可能我这个岁数还是会追求性价比和心理的预期。

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酒店一寻找许住。

位于95层的酒店前台员工态度恶劣，好像是被强迫来工作一样，对客人语气高高在上，言语间漠不关心，在整个交流过程中一直面无表情。感觉广州瑰丽的员工想迫不及待地想摆脱来办理入住的客人，这样他们就可以继续和同事们聊天了。对于酒店设施以及房间无任何介绍，只关心你要不要购买早餐以及房型升级。你感觉不到受到了欢迎。

每次从酒店大堂回房间需要换乘两部电梯，快速以及外卖无法送到客房，需要到室外外卖柜自行取。电梯到客房的走廊拐角去灯光昏暗阴森，数字标识不清晰，像是进入了古墓迷宮。

房间内mini bar全部物品都收费，用酒店前台原话说就是，我们酒店房间里只有矿泉水可以带走。卫生间的洗漱用品成分低劣难用。很难想象这样一所号称广州最好酒店用的是大瓶装洗漱用品。最可笑的是从洗发水到沐浴露都添加了大量对人体有防腐剂的苯甲酸钠。瓶身上的保质期长达36个月。而且这些大瓶装的洗漱用品瓶口可以被轻易打开，让

千予的行者 💎铂金贵宾 点评专家  
2024年03月入住 发布于广东

👍 5.0分 豪华江景大床客房 > | 朋友出游

全球最大的在线旅行平台并在美国及香港上市的携程集团酒店集团（PCL）设计到广州最高酒店，入住酒店感受到设计风格融合了现代时尚与中国传统文化，不落窠臼，给人新颖别致之感，上到95楼大堂前台，工作人员毕恭毕敬彬彬有礼，热情、耐心微笑着解答着有关酒店的各种提问，高品质的服务彰显了高酒店的形象。

收起^

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彬蔚君 💎铂金贵宾 点评达人  
2024年03月入住 发布于北京

👍 5.0分 华江景大床客房 > | 家庭亲子

择了瑰丽，酒店安排了可以亲子入住的江景+小蛮腰陪伴。酒店前台服务员都很热情，给了一壶，水果品质很高。给了儿童洗漱用品。关，我很喜欢。电动马桶很

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这次带小朋友入住森林海体验很棒，入住期间有专门客服LISA，热情大方周到，得知我们来庆祝小朋友生日后，还给我们专门送了生日蛋糕，蛋糕很美味，有什么问题也可以随时联系专属客服，虽然遇到了大暴雨，但是游湖和嬉水乐园都有开，人还比天气好时少了，雨中风景也另有一番特色。客房服务和游玩体验绝对值得多次回购，要说需要更进一步的地方，就是自助餐厅了。不过估计农家菜馆也多，不嫌麻烦的也有很多选择。

收起^

酒店大堂回房间需要换乘两部电梯，快速以及无法送到客房，需要到室外外卖柜自行取。房间的走廊拐角去灯光昏暗阴森，数字标识不清晰，像是进入了古墓迷宮。

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# Replying comments is time consuming for hotel managers

Time consuming

Late reply

Labor cost



酒店回复：尊敬的宾客，感谢选择入住  
，并抽出宝贵时间分享入住体验。很高兴酒店的优质服务  
和餐厅的餐饮出品给您留下深刻的印象，真诚希望您继续选择  
，期待您的下次光临。  
总经理，

发布于

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总经理，

发布于

收起^

## **3 Business Problems -> 3 AI Tools**

### **Customers**

Hard to extract useful information -> Review Summarizer

### **Hotel Managers**

Replying comments is time consuming -> Response Generator

Hard to get useful information -> Optimizer



2

# **Spammer Filtering**







## How many Aussies fall for **FAKE** reviews?



**28%**  
say they **do not trust**  
online reviews.



**52%**  
believe they've **fallen**  
for fake reviews.



**15%** say they **would not purchase**  
something or visit a business if it had  
an average rating lower than 5 stars.



**86%** say they **read reviews before going**  
to a restaurant or business.



**95%** say they **read reviews sometimes or**  
always before purchasing something  
online.



**26%** of Aussies **did not correctly identify**  
a fake review.

 **REVIEWS.org**

We want to extract "key information" from the reviews.

However, do you believe those online comments?

**30%~40% of reviews are FAKE!** (He et al., 2022)

***We want to filter out the real comments.***

- ✓ Elimination of bias
- ✓ High density of information
- ✓ Computational efficiency

# Literature Review



## Detection Method

- Analyze **user features** and **comments content**
- Model them as multivariate distributions
- Use several **supervised-learning** techniques  
(Ott et al., 2011) (Kumar et al., 2018) (Zhang et al., 2021)

Water Army      ➡      **Incentivized Feedback**

User features      ➡      **Review Content** (Zhang et al., 2021)

# Literature Review



*It's harder to distinguish  
from the users' account.*



# Spammer Filtering

## —— Data Collection & Preprocessing

---



### Training

- Dataset: “ Golden Standard Hotel” comments (400 real + 400 spammer)
- Reading through the folders -> convert to a Dataframe with labels
- Dataframe format: ['Comment Name', 'Unigram', 'Bigram', 'Class']



### Testing

- Dataset: reviews on Airbnb
- Extract reviews from original tables and tokenize them
- Organize them into the same Dataframe format as the training data

# Spammer Filtering

## Evaluation

|           | a    | b    | c    |
|-----------|------|------|------|
| Accuracy  | 0.65 | 0.63 | 0.85 |
| Precision | 0.66 | 0.88 | 0.87 |
| Recall    | 0.61 | 0.29 | 0.83 |
| F1        | 0.64 | 0.43 | 0.85 |

## Comparisons

- a、 b use the same feature, the training performance are relatively similar.
- Tf- idf feature significantly improve the training performance.

## Methods

a. Word embedding  
+ Random Forest



b. Word embedding  
+ Neuron Network



c. Word embedding + tf-idf  
+ Random Forest



3

# AI Tools



# AI Tools Building



## Users and Hotel Managers' Pain Points at Online Booking and Review Platforms

- a. It is hard for users to **collect useful and effective information** about the hotels from a large number of reviews
- b. **Low effective and low-quality response** to users
- c. Operators **lack systematic user feedback**



**AI Tool a: Reviews Summary** for Users



**AI Tool b: Response Assistant** for Hotel Managers



**AI Tool c: User Reviews Report** for Hotel Managers

# AI Tools Building



**AI Tool a:** Reviews Summary for Users

**AI Tool b:** Response Assistant for Hotel Managers

**AI Tool c:** User Reviews Report for Hotel Managers

## **Methodology:**

### **Model: OpenAI GPT-3.5 Turbo**

advanced text generation model to generate text based on prompts provided by the user. In this project, GPT-3.5 Turbo is used to generate responses for the hotel.

### **Prompt Engineering**

**Gradio:** for creating custom UI interfaces. In this project, Gradio is employed to design a user interface that allows users to input hotel reviews and view the automatically generated responses from the hotel chatbot.



# AI Tools Building

## —— a. Specialized Response



Purpose: respond to the consumers with high quality and high effectiveness

### Step 1: Setting up OpenAI API and defining completion function

```
# Import the packages
from openai import OpenAI
import gradio as gr
import json
from typing import List, Dict, Tuple
```

```
# Set the API key and base URL for accessing the GPT-3.5 API
API_SECRET_KEY = "sk-nWSoc3jZh6LvMSVe30541cAf25B447D9Bf1fFc19239cDcA7"
BASE_URL = "https://chatapi.onechat.fun/v1"
```

```
# Initialize the OpenAI client with the provided API key and base URL
client = OpenAI(api_key=API_SECRET_KEY, base_url=BASE_URL)
```

```
# Define a function to get chat completions from the GPT-3.5 model
def get_completion(prompt):
    response = client.chat.completions.create(
        model="gpt-3.5-turbo",
        messages=[{"role": "user", "content": prompt}],
        temperature=0, # this is the degree of randomness of the model's output
    )
    return response.choices[0].message.content
```

# AI Tools Building

## —— a. Specialized Response (cont.)



### Step 2: Define the review generation prompt

```
# AI Tool 2: Defining prompt for review generation
prompt_for_review_generation = f"""
You are an expert in consumer service.\
Your task is to response the online review about hotels on Airbnb for the hotel operators.\
You should consider the sentiment in the review and specifically create the response.\
For the negative aspects, provide the possible reasons and solution in the response.\
For the positive aspects, provide supporting details and express thankfulness.\

You should also invite the user to enjoy other services in the hotel based on the review.\
The tone of the response should be polite and sincere, because the consumers are important to the hotels.\
You should speak like a staff member working in the hotel, instead of a robot. \
The language in response must be the same with the one used in the reviews. If the reviews are in English, y

The response should be no more than 300 words.\
You must add one or two emojis related to the context in the response.\

Remember that your task is to generate a response to the review. \
Your reply is extremely important for the hotel's revenue, \
and they will pay the tip for your task.

"""
```

Prompt Engineering Tech:

1. Sentiment analysis and provide detailed response to the users

2. Expanding: ask the AI to generate more content to invite users to visit again

3. Defense tactic of adversarial prompting: sandwich defense

# AI Tools Building

## —— a. Specialized Response (cont.)



### Step 3: Create the Gradio UI interface and generate the response

```
# This part generates the Gradio UI interface
with gr.Blocks() as demo:
    gr.Markdown("# AI Tool 2: Specialized Review Generation: Fill in Any Reviews and Let the Hotel Chatbot Respond it for you!")
    chatbot = gr.Chatbot()
    prompt_textbox = gr.Textbox(label="Prompt", value=prompt_for_review_generation, visible=False)
    review_textbox = gr.Textbox(label="Reviews", interactive=True, value="#####")
    1. Me and my boyfriend stayed two nights in Wilma's house, the room is really nice with a perfect atmosphere and a beautiful view of the canal! \
The house is really close to the city centre (less than 30minutes walking) and in that days we never took the bus (that in Amsterdam is really expensive)!
Wilma is a really nice person, the first night she gave us a bottle of wine and the frige was full of beverages! If I will go to Amsterdam again, I'm sure
####
2. Edwin's place is in the heart of Amsterdam, close to shops, restaurants and nightlife. The room is onto a street with pubs and restaurants. \
If you are looking for a quiet stay maybe this is not the right place. Edwin is very responsive and kind and always available in case of need. \
I will recommend the place to my friends!\n
####
3. Carolina is a good host and a wonderful, thoughtful person. She not only welcomed us, she also provided us with the first necessities for breakfast. \
The place is great and quiet and there is room enough for four. Although you share the same space there is also some privacy. Carolina also proved to be fl
We will definitely be back!""")
    with gr.Column():
```

Improvement: may upload the review dataset (in JSON/CSV file) to analyze a large number of user comments

Upload Excel file with reviews



拖放檔案至此處

- 或 -

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# AI Tools Building

## —— a. Specialized Response (cont.)



### Results:

#### 1. A response to a positive review

We are delighted to hear that you and your boyfriend had a wonderful stay at our charming house by the canal! 🍷🍷 The perfect atmosphere and beautiful view of the canal must have been a real treat. We're glad you found the location convenient, as being close to the city center is a top priority for many of our guests.



Repeat the details



Supporting evidence

Your kind words about Wilma are very much appreciated. We always strive to provide a warm welcome and the best possible experience for our guests. It's wonderful to hear that the complimentary wine and beverages were a nice touch. 🍷 We can't wait to have you back the next time you visit Amsterdam!



Appreciation and Welcome



Encourage a next visit

# AI Tools Building

## —— a. Specialized Response (cont.)



### Results:

#### 1. A response to a negative review

We are very sorry to hear about the unpleasant experience you and your family had during your stay at our apartment. 😞 The noise and disturbance from the other guests must have been extremely disruptive and made it impossible for you to rest. We completely understand your decision to leave and find alternative accommodations.



Repeat the details

The cleanliness issues you described are also unacceptable, and we appreciate you bringing this to our attention. We will use your feedback to improve our cleaning processes and ensure a better experience for all our guests going forward.



Possible solutions and promise

Please accept our sincere apologies for the inconvenience and disruption to your vacation. We hope you will consider giving us another chance in the future, and we will do our utmost to ensure your next stay is peaceful and comfortable. 🙏



Apology

# AI Tools Building

## —— b. Key Word Summary



Purpose: conclude the key information of one chosen hotel for the users based on previous online reviews

**Step 1: Setting Up OpenAI API and Defining Completion Function**

**Step 2: Generate Three Key Words and Print**

```
# 生成3个关键词
response_suggestions = client.chat.completions.create(
    model="gpt-3.5-turbo",
    messages=[
        ('role': 'system', 'content': 'Input reviews and summarize key information for users'),
        ('role': 'user', 'content': 'Summarize 3 keywords according to the selected reviews from this hotel. \
It should be less than 10 words for each and reflect key information from reviews'),
    ],
    max_tokens=200,
    temperature=0.7,
)

reply_suggestions = response_suggestions.choices[0].message.content.strip()

responses.append(reply_suggestions)

# 打印回复
for i, reply in enumerate(responses):
    print(f"Response {i+1}: {reply}")
```

**Results:**

Response 1: The advantages of this hotel include...

Response 2: The disadvantages include...

**Response 3: Keywords**

1. **Cleanliness:** Rooms and facilities are well-maintained and spotless.
2. **Location:** Convenient central location near attractions and transportation.
3. **Friendly staff:** Guests appreciate the helpful and welcoming hotel staff.

★★★★★

## Step 1: Setting up OpenAI ChatGPT API and data preparation (delete the fake and valueless reviews and filter only one hotel name)

## Step 2: Analyzing the comments from several aspects

```
# 计算评论数量
total_comments = len(showcase_data)

# 计算score的平均值
data_split['Score'] = data_split['Score'].astype(float)
score_mean = data_split['Score'].mean()

from textblob import TextBlob

# 提取评论内容
comments = showcase_data['Comment'].tolist()

# 统计好评和差评数量
positive_comments = 0
negative_comments = 0

# 使用TextBlob进行情感分析
for comment in comments:
    blob = TextBlob(comment)
    sentiment = blob.sentiment.polarity

    if sentiment > 0:
        positive_comments += 1
    elif sentiment < 0:
        negative_comments += 1

print("number of comments:", total_comments, "Positive comments:", positive_comments, "Negative comments:",
      negative_comments)
```



# AI Tools Building

## — c. Review Report (cont.)



### Step 3: Generating responses to summarize advantages, disadvantages, and further suggestions

Response 1: - 优越的地理位置, 靠近景点和交通便利

- 宽敞舒适的客房和设施齐全的浴室
- 服务热情周到, 员工态度友好
- 丰富多样的早餐选择
- 清洁卫生得到顾客认可

#### 1. advantages

Response 2: 1. 房间卫生不够干净, 存在脏污和异味问题。

2. 服务态度不够友好和专业, 缺乏热情。
3. 设施设备老化严重, 需要更新维护。
4. 酒店的食品质量和种类有待改善。
5. 噪音问题影响了住客的休息体验。

#### 2. disadvantages

Response 3: 基于总结的缺点, 以下是为酒店商家提供的完善建议:

1. **\*\*服务质量不稳定\*\***: 确保员工接受专业培训, 以提高整体服务水平。制定明确的服务标准和流程, 确保每位员工都能提供一致的优质服务。
2. **\*\*设施维护不及时\*\***: 建立定期检查设施的计划, 并及时修复或更换损坏的设备。投资于设施维护和更新, 以确保客人的舒适度和安全性。
3. **\*\*沟通不畅\*\***: 建立有效的沟通渠道, 包括客户反馈机制和员工之间的沟通渠道。鼓励员工提出建议和意见, 以改进工作流程和服务质量。
4. **\*\*缺乏个性化服务\*\***: 了解客人的需求和喜好, 提供个性化的服务体验。培训员工如何更好地与客人互动, 以创造独特而难忘的体验。
5. **\*\*营销推广不足\*\***: 加强市场营销活动, 包括在线和线下渠道。利用社交媒体平台和合作伙伴关系来扩大知名度, 吸引更多客人。

通过实施这些建议, 酒店商家可以提升服务质量, 增加客户满意度, 并最终提升业务表现。

#### 3. suggestions based on the disadvantages

```
responses = [] # 存储生成的回复

# 生成总结优点的回复
response_advantages = client.chat.completions.create(
    model="gpt-3.5-turbo",
    messages=[
        {'role': 'system', 'content': '根据输入的评论帮助酒店商家生成评论总结及优化建议报告。'},
        {'role': 'user', 'content': '总结顾客提到的这家酒店的优点'},
    ],
    max_tokens=200,
    temperature=0.7,
)

reply_advantages = response_advantages.choices[0].message.content.strip()

responses.append(reply_advantages)

# 生成总结缺点的回复
response_disadvantages = client.chat.completions.create(
    model="gpt-3.5-turbo",
    messages=[
        {'role': 'system', 'content': '根据输入的评论帮助酒店商家生成评论总结及优化建议报告。'},
        {'role': 'user', 'content': '总结顾客提到的这家酒店的缺点'},
    ],
    max_tokens=200,
    temperature=0.7,
)

reply_disadvantages = response_disadvantages.choices[0].message.content.strip()

responses.append(reply_disadvantages)

# 生成提升建议的回复
response_suggestions = client.chat.completions.create(
    model="gpt-3.5-turbo",
    messages=[
        {'role': 'system', 'content': '根据输入的评论帮助酒店商家生成评论总结及优化建议报告。'},
        {'role': 'user', 'content': '根据总结的缺点给商家完善的提升建议'},
    ],
```

# AI Tools Building

## —— c. Review Report (cont.)



### Step 4: Building a final report

```
report = f"您的店铺在这段时间的平均得分为{score_mean:.2f}。\\n"
report += f"您一共收到了{total_comments}条评论，其中{positive_comments}条正面评价，{negative_comments}条负面评价。\\n"
report += f"顾客称赞了以下方面：{reply_advantages}\\n"
report += f"顾客在以下方面不太满意：{reply_disadvantages}\\n"
report += f"您可以考虑以下优化方案：{reply_suggestions}"
```

```
print(report)
```

您的店铺在这段时间的平均得分为4.79。

您一共收到了1556条评论，其中1307条正面评价，17条负面评价。

顾客称赞了以下方面：- 优越的地理位置，靠近景点和交通便利

- 宽敞舒适的客房和设施齐全的浴室
- 服务热情周到，员工态度友好
- 丰富多样的早餐选择
- 清洁卫生得到顾客认可

顾客在以下方面不太满意：1. 房间卫生不够干净，存在脏污和异味问题。

2. 服务态度不够友好和专业，缺乏热情。

3. 设施设备老化严重，需要更新维护。

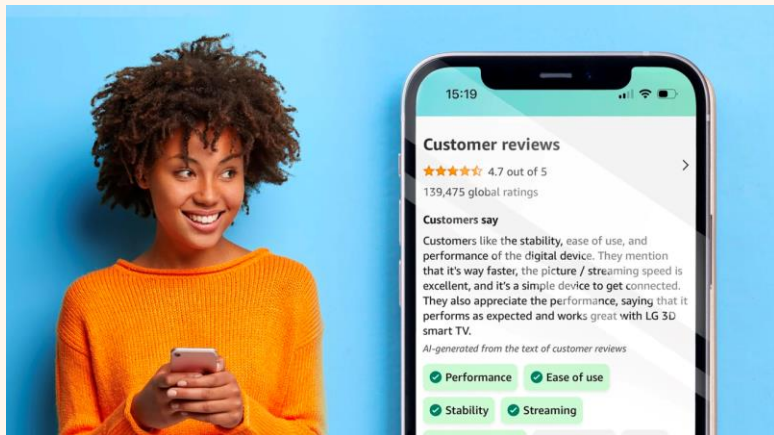
4. 酒店的食物质量和种类有待改善。

5. 噪音问题影响了住客的休息体验。

您可以考虑以下优化方案：基于总结的缺点，以下是为酒店商家提供的完善建议：

1. **\*\*服务质量不稳定\*\***：确保员工接受专业培训，以提高整体服务水平。制定明确的服务标准和流程，确保每位员工都能提供一致的优质服务。
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4

# ***Evaluation & Future Work***



# AI Tool Evaluation - Response



## Positive

1.

Thank you so much for your kind words about your stay at Wilma's house! 🌟 We are thrilled to hear that you enjoyed the room, atmosphere, and the beautiful view of the canal. Wilma truly goes above and beyond to make her guests feel welcome and comfortable. It's wonderful to hear that you appreciated the complimentary bottle of wine and stocked fridge. We are glad you found the location convenient for exploring the city center on foot. If you decide to visit Amsterdam again, we would be delighted to welcome you back to Wilma's house and provide you with another memorable experience! Don't forget to explore our other services like guided tours or bike rentals to enhance your stay even more. 🚲

## Negative

We are very sorry to hear about the unpleasant experience you and your family had during your stay at our apartment. 😞 The noise and disturbance from the other guests must have been extremely disruptive and made it impossible for you to rest. We completely understand your decision to leave and find alternative accommodations.↩️

The cleanliness issues you described are also unacceptable, and we appreciate you bringing this to our attention. We will use your feedback to improve our cleaning processes and ensure a better experience for all our guests going forward.↩️

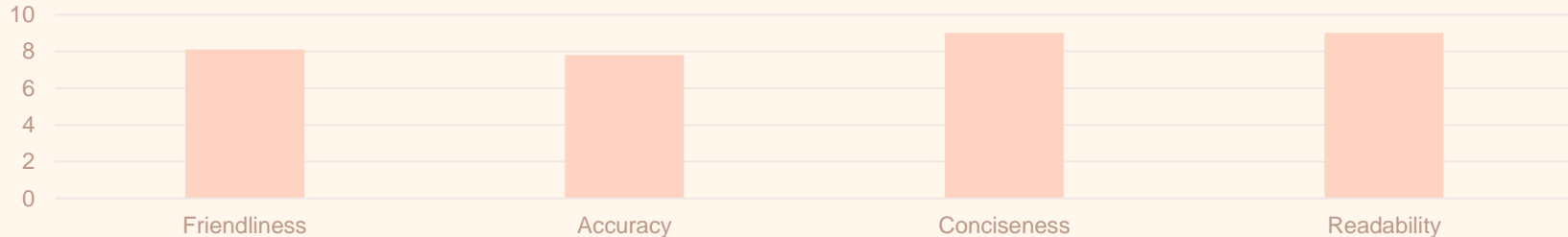
Please accept our sincere apologies for the inconvenience and disruption to your vacation. We have provided a partial reimbursement as a gesture of good faith, but we understand this does not fully make up for the ruined experience. We hope you will consider giving us another chance in the future, and we will do our utmost to ensure your next stay is peaceful and comfortable. 🙏🇸🇩

## Appreciation

## Invite Return

## Apologize

## Reinforce Good



# AI Tool Evaluation - Summarization



## Basic Prompting

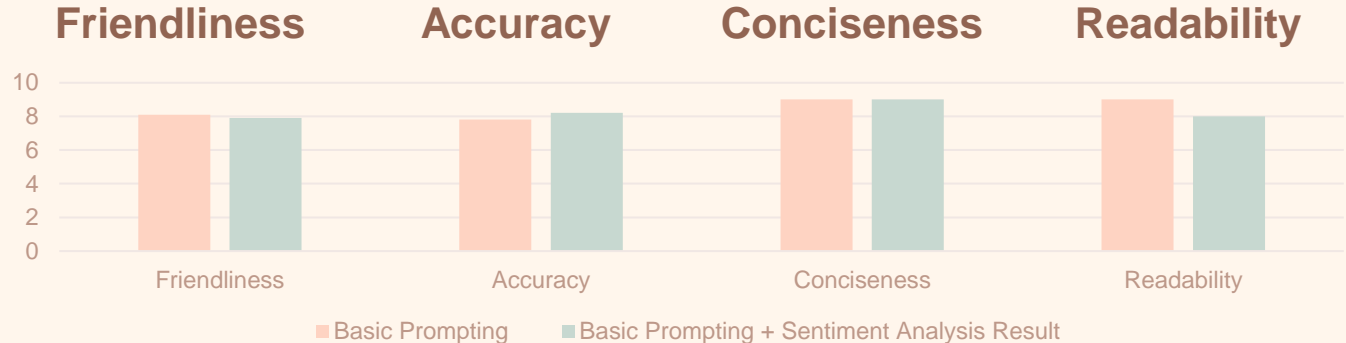
- Cleanliness:** Rooms and facilities are well-maintained and spotless.
- Friendly staff:** Guests appreciate the helpful and welcoming hotel staff.
- Convenient location:** Central position near attractions and transportation options.

## Basic Prompting + Sentiment Analysis

- Location:** Convenient, close to attractions and transportation.
- Cleanliness:** Rooms and facilities well-maintained and spotless.
- Service:** Friendly staff, helpful and accommodating to guests.

### Basic Prompting

### Basic Prompting + Sentimental Analysis Result



# AI Tool Evaluation - Report

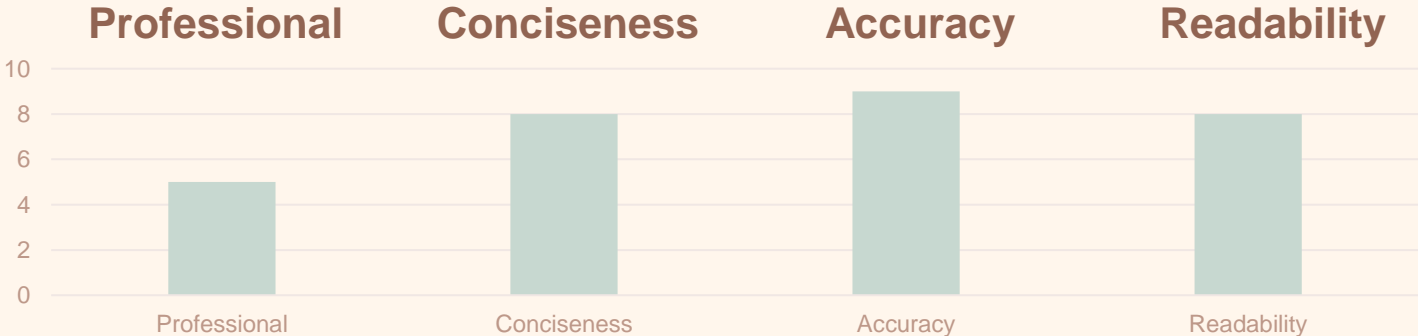


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顾客称赞了以下方面：  
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- 宽敞舒适的客房和设施齐全的浴室  
- 服务热情周到，员工态度友好  
- 丰富多样的早餐选择  
- 清洁卫生得到顾客认可  
顾客在以下方面不太满意：  
1. 房间卫生不够干净，存在脏污和异味问题。  
2. 服务态度不够友好和专业，缺乏热情。  
3. 设施设备老化严重，需要更新维护。  
4. 酒店的食物质量和种类有待改善。  
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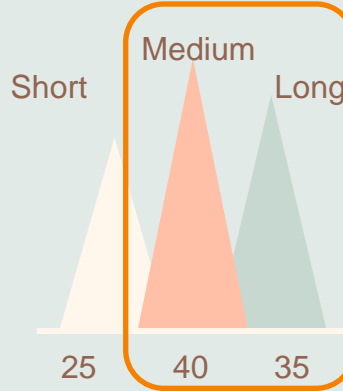
# Limitation



## Professionalism Issue

"Reasonable  
yet too general.  
Seems like  
common sense"

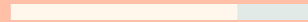
## Conciseness Issue



Audiences' attitude  
toward the keywords

## Tone Issue

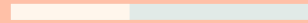
"Sounds too formal"



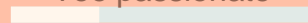
"Don't pick out the  
vibe of my reviews"



"Feels very cold"



"Too passionate"





## Current Status



Relatively Comprehensive  
Summarization,  
Response, and Report

## Future Work



### Professionalism

Fine-tuning with  
industry dataset (e.g.  
Hotel, Tourism)



### Tone

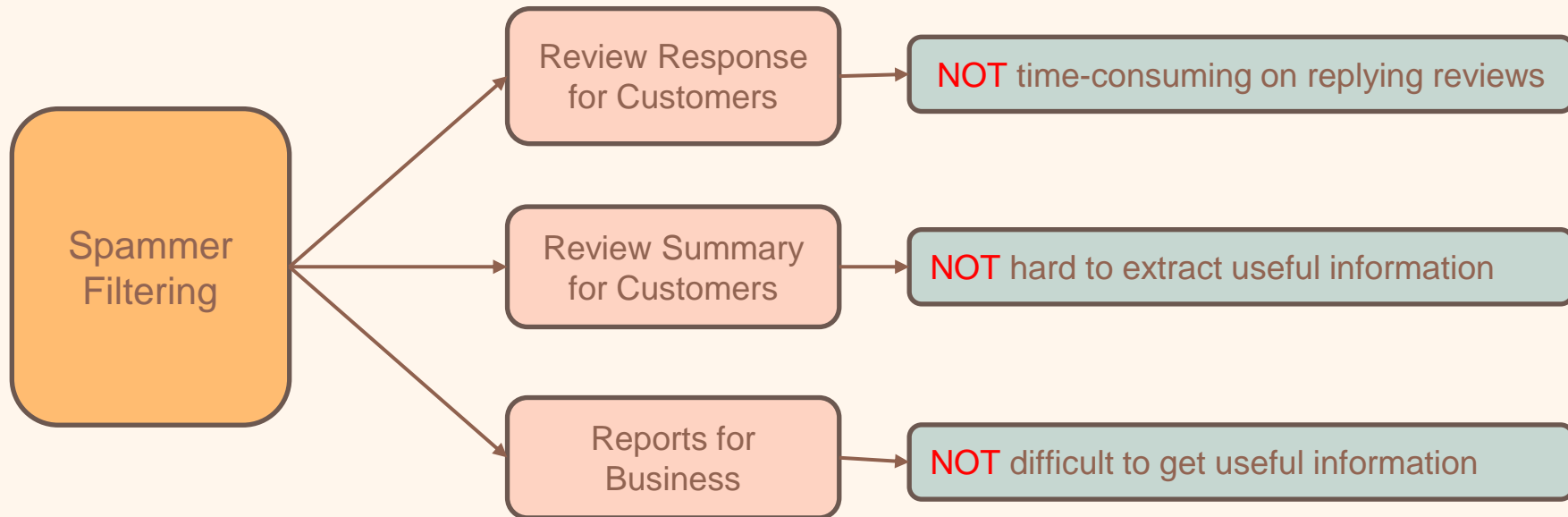
- Human labelling to assess quality
- Proofread those unqualified for future training

### Conciseness

- Add prompts & word limits
- Text Summarization Algorithms & NLP for Sentence Simplification



# Conclusion



- He, S., Hollenbeck, B., & Proserpio, D. (2022). The Market for Fake Reviews. *Marketing Science*, 41(5). <https://doi.org/10.1287/mksc.2022.1353>
- Kumar, N., Venugopal, D., Qiu, L., & Kumar, S. (2018). Detecting Review Manipulation on Online Platforms with Hierarchical Supervised Learning. *Journal of Management Information Systems*, 35(1), 350–380. <https://doi.org/10.1080/07421222.2018.1440758>
- Ott, M., Choi, Y., Cardie, C., & Hancock, J. T. (2011, June 1). *Finding Deceptive Opinion Spam by Any Stretch of the Imagination*. ACLWeb; Association for Computational Linguistics. <https://aclanthology.org/P11-1032/>
- Zhang, Y., Hao, S., & Wang, H. (2021). Detecting incentivized review groups with co-review graph. *High-Confidence Computing*, 1(1), 100006. <https://doi.org/10.1016/j.hcc.2021.100006>

# References



***Thanks!***

**Please Feel Free to Ask any Questions!**