# QA Restaurants Recommend & Reviews visualization

# Introduction





#### Background:

Internet usage has led to a massive amount of user reviews on review websites. While Current review websites do provide overall ratings for merchants, it can not satisfy users' detailed demands or provide specific item feedback for the merchants.

#### Abstract:

- 1. Implement a QA-base recommend system based on reviews to recommend suitable sellers for user's refined needs.
- 2. offer clustered and sentimental analyzed comments for merchants to improve.

# References

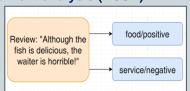
[1] Jiahao Bu, Lei Ren, Shuang Zheng, Yang Yang, Jingang Wang, Fuzheng Zhang, and Wei Wu. 2021. ASAP: A Chinese Review **Dataset Towards Aspect Category** Sentiment Analysis and Rating Prediction.

[2] Yue Deng, Wenxuan Zhang, Sinno Jialin Pan, and Lidong Bing. 2023. Bidirectional Generative Framework for Cross-domain Aspect-based Sentiment Analysis.

# **Methods**

According to whether the aspect terms are explicitly mentioned in texts, ABSA can be further classified into two fine-grained task, aspect term sentiment analysis (ATSA) and aspect category sentiment analysis (ACSA).

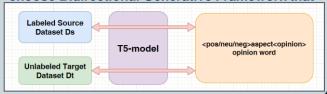
For the user side, we focus on ACSA as we need specific aspect to calculate rating for recommendation.



For each aspect, we aggravate the related token embeddings of **BERT** using attentionpolling layer and then process the output with softmax layer to gain the ultimate probability for sentiment.

For the merchants' side, we focus on ATSA as coarse-grained aspects like food do not give much information about which dish is good/ bad.

Since training dataset in ATSA about food is not available and we want to apply the system into different industry instead of just food, we choose Bidirectional Generative Framework that



Based on aspect-based sentiment analysis

Web mining Group 5

#### Result1

review analysis webpage 1.Generate a WordCloud consisting of aspect keywords in the reviews for a certain computer e-merchant crawled from the Internet.

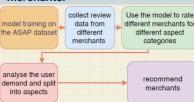


- 2. Assign gradient colors to each aspect. The redder, the more critical by the reviewers: The bluer, the more appreciated among customers.
- 3. Users can view relevant review sentences on the secondary page when click the chosen aspect work in the cloud. Figure below shows comments list example of games.



## Result2

1. Recommendation system build up a recommendation system for users to select merchants based on the rating model and collected review data from different merchants.



2. QA GUI Windows user give the specific demand, and the recommendation system will give reasonable merchants recommends.

Ask a Question	1	
好吃便宜的川菜		Ask
Recent Questic	ens	
Question Title		
Question content goes	here	

## **Future Work**

- 1. Fine-grained Recommendation System taking different noncommentary information (specified by industry) into considerations.
- 2. Using Rating Prediction to detect and remove unreliable reviews If the predicted rating and the user rating of a review disagree with each other explicitly.