

DS304.P21

# DỰ ĐOÁN MỨC ĐỘ HÀI LÒNG CỦA KHÁCH HÀNG

Nhóm 11

- 23521488 – Trần Đức Thiện
- 23521563 – Đinh Bảo Thy
- 23521565 – Võ Ngọc Anh Thy

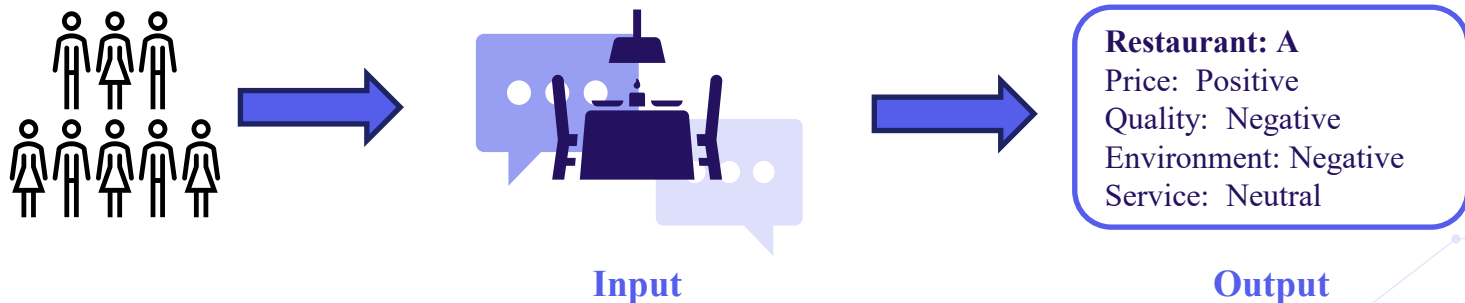
# 1. GIỚI THIỆU

**Bối cảnh:** Sự bùng nổ dữ liệu từ mạng xã hội và TMDT tạo ra lượng lớn bình luận khách hàng

→ **Mục tiêu & Lợi ích?**

## Bài toán lớn (Generalized Problem)

Phân Tích Phản Hồi Khách Hàng Theo Khía Cạnh Cho Nhà Hàng



# 1. GIỚI THIỆU

## Bài toán nhỏ (Specialized Problem):

Phân Tích Cảm xúc Bình Luận của Khách Hàng Dựa Trên Khía Cạnh

- **Nhiệm vụ 1:** Phát hiện khía cạnh
- **Nhiệm vụ 2:** Phân loại cảm xúc dựa trên khía cạnh



price is nice but  
quantity of curry not  
good, the place was ok



Price: Positive  
Quality: Negative  
Environment: Neutral  
Service: -  
Other: -

## 2. BỘ DỮ LIỆU

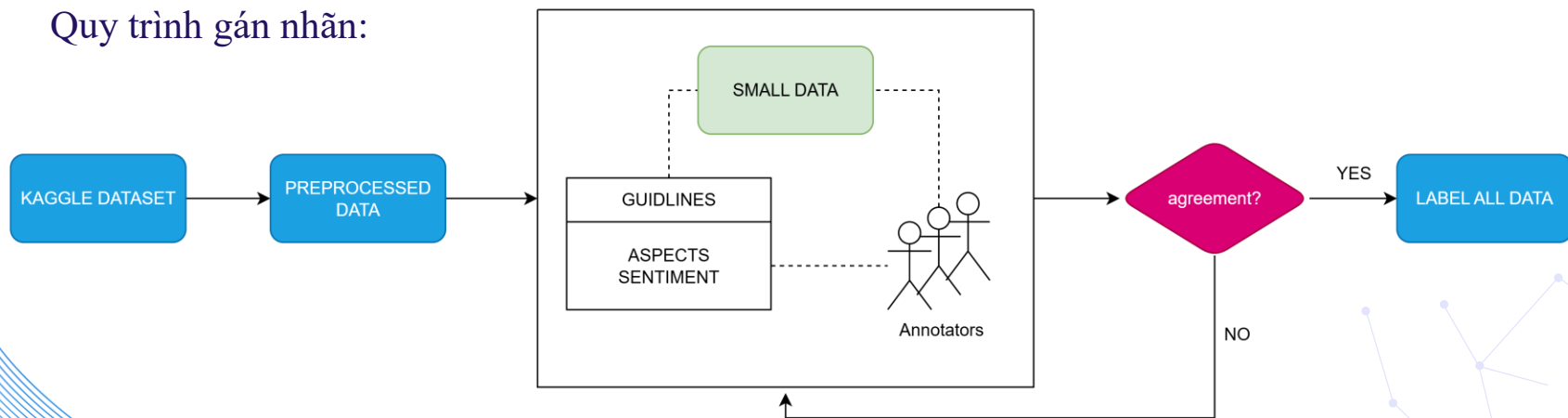
Aspects
Price
Quality
Environment
Service
Other

### Sentiment

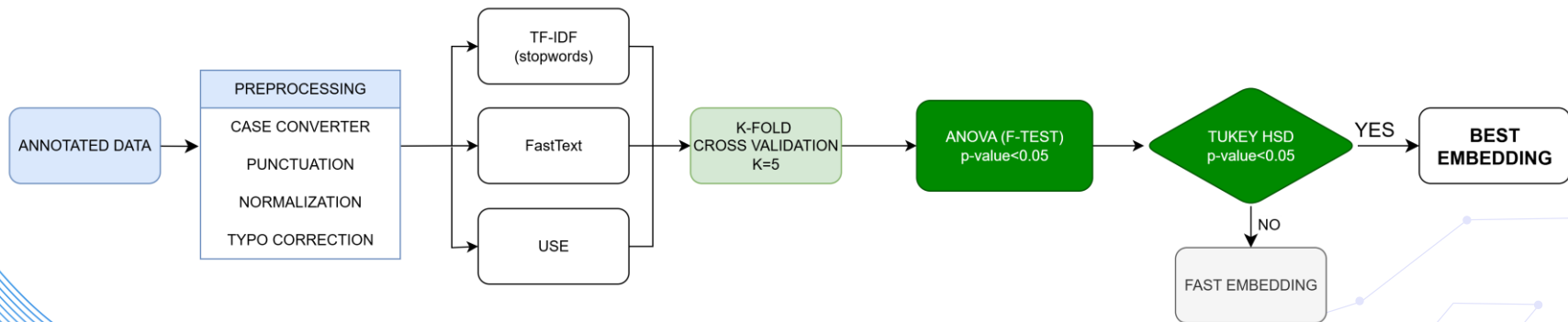
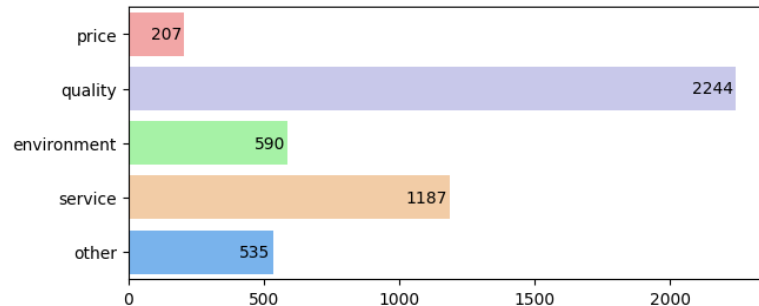
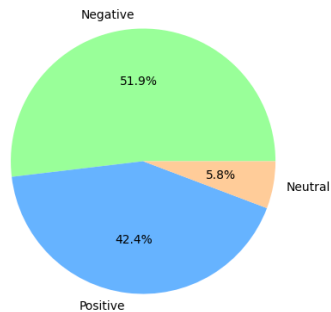
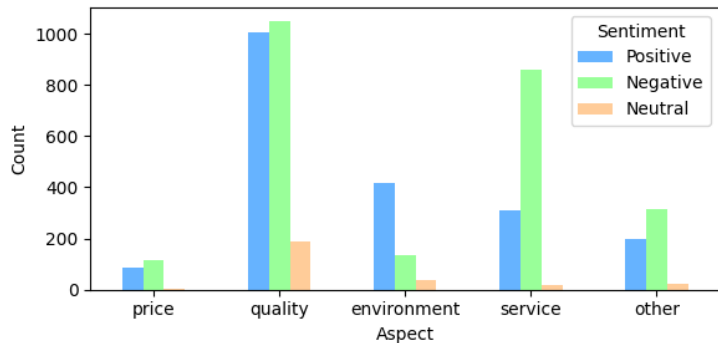
Positive  
Negative  
Neutral  
None

Aspects	Total_samples	Agree_samples	Agreement_rate	Fleiss_Kappa
Price	1123	1090	0.9706	0.7583
Quality	1123	890	0.7925	0.7522
Environment	1123	1035	0.9216	0.8020
Service	1123	1020	0.9083	0.8215
Other	1123	946	0.8424	0.5785

Quy trình gán nhãn:

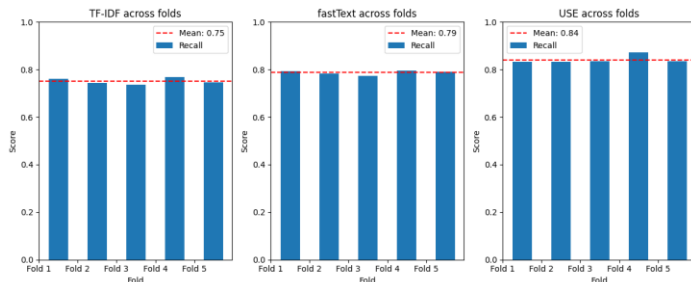


## 2. BỘ DỮ LIỆU



## 2. BỘ DỮ LIỆU

### Aspect Recognition



**F-statistic**

83.6676

**p-value**

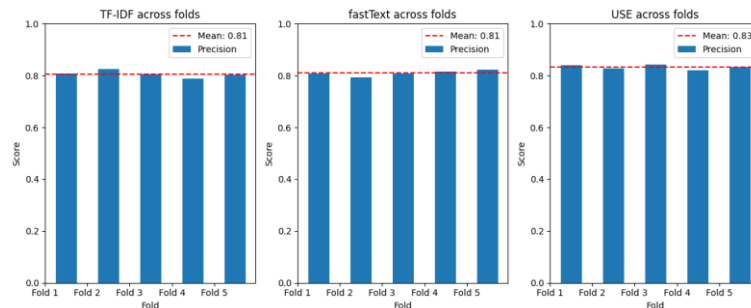
0.0000000898

Tukey HSD kết quả:

Multiple Comparison of Means - Tukey HSD, FWER=0.05

group1	group2	meandiff	p-adj	lower	upper	reject
FAST_TEXT	TF-IDF	-0.0398	0.0003	-0.0589	-0.0207	True
FAST_TEXT	USE	0.0526	0.0	0.0335	0.0717	True
TF-IDF	USE	0.0924	0.0	0.0733	0.1115	True

### ABSA



**F-statistic**

9.4222

**p-value**

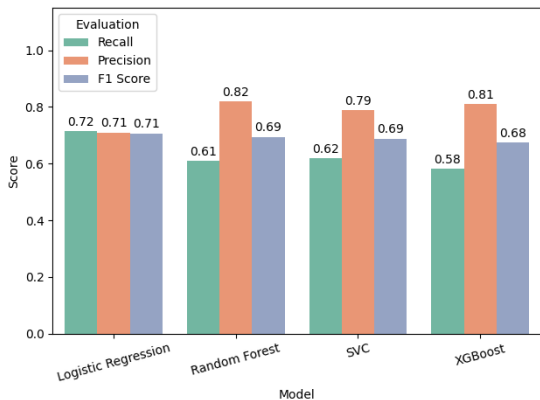
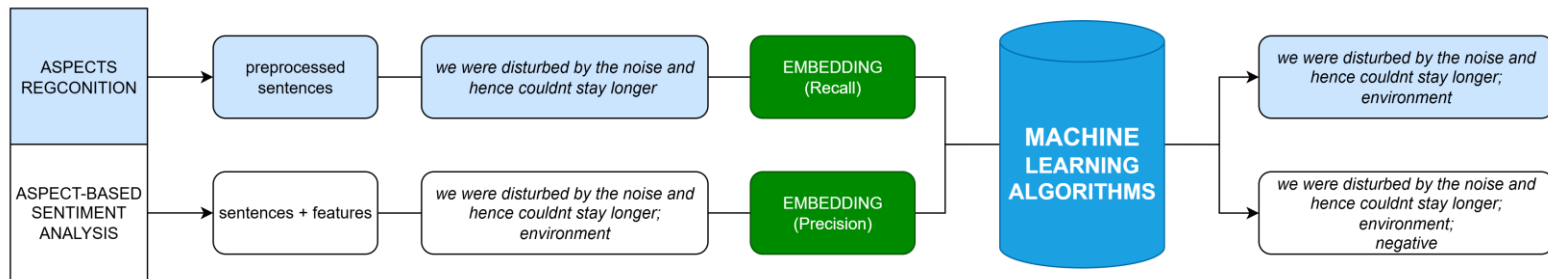
0.00347

Tukey HSD kết quả:

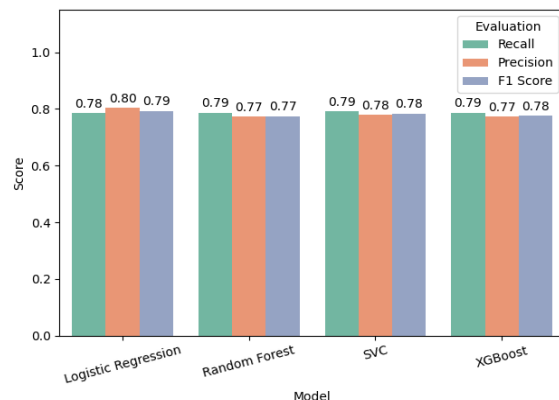
Multiple Comparison of Means - Tukey HSD, FWER=0.05

group1	group2	meandiff	p-adj	lower	upper	reject
FAST_TEXT	TF-IDF	-0.0057	0.72	-0.0253	0.0138	False
FAST_TEXT	USE	0.0243	0.016	0.0047	0.0438	True
TF-IDF	USE	0.03	0.004	0.0104	0.0496	True

### 3. MÔ HÌNH

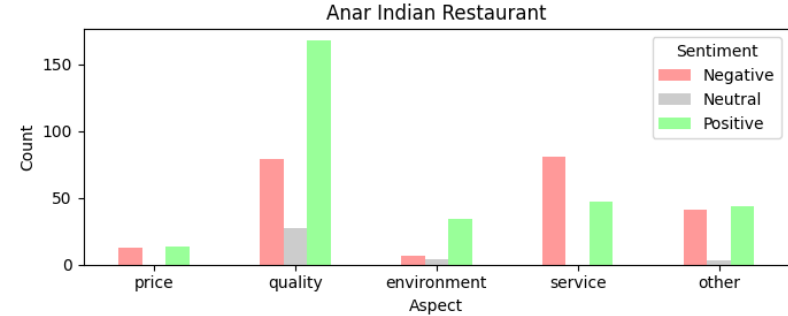
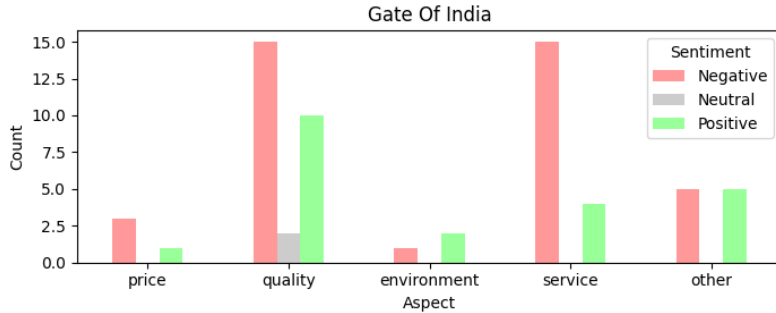


Aspect Regconition



Aspect-based Sentiment Analysis

## 4. ỨNG DỤNG – BÀI TOÁN LỚN



Price	Quality	Environment	Servive	Other
Negative	Negative	Positive	Negative	Neutral

Price	Quality	Environment	Servive	Other
Neutral	Positive	Positive	Negative	Neutral



# 5. KẾT LUẬN

## HẠNH CHẾ

	sentence	price	quality	environment	service	other
	we ordered egg bryan and we were delivered chicken bryan with chicken replaced with eggs	0	1	0	0	0
	but the place turned out to be a cheap place where people are allowed to smoke everywhere	1	0	1	0	0
	yes the offer free ice cream if you write good reviews for them	0	1	0	0	0
	worst quality we found spider at glass of beer and we informed to them but there was no response from their side	0	0	0	1	0
	worst food ever i had	0	1	0	0	1

	sentence	y_pred	y_test
	so please give the food tasty [ASP] quality	Positive	Negative
	main course could have more variety and some taste [ASP] quality	Positive	Negative
	overall it is a bit expensive but if you have some free time to spend do visit this place [ASP] price	Positive	Negative
	weird however the food was served quickly [ASP] service	Negative	Positive

# 5. KẾT LUẬN

## HƯỚNG PHÁT TRIỂN

- Thực nghiệm embeddings chuyên sâu
- Áp dụng mô hình học sâu (Deep Learning)
- Ứng dụng vào hệ thống thực tế

*Thank you  
for listening*