



hrm

**How to read  
these menus?**

# Information Needed At Overseas Restaurants

Multiple Response, n=429

Menu with **photos** - 322(75.1%)

Source: Survey on Dining Experiences of Overseas Travelers, [HCI International 2020](#)

# Information Needed At Overseas Restaurants

Multiple Response, n=429

Menu with **photos** - 322(75.1%)

Multiple **languages** - 266(52.7%)

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# Information Needed At Overseas Restaurants

Multiple Response, n=429

Menu with **photos** - 322(75.1%)

Multiple **languages** - 266(52.7%)

**English speaking** employees - 137(31.9%)

Source: Survey on Dining Experiences of Overseas Travelers, HCI International 2020

**ชิงเกอร์ คอมโบ 109.-**

ชุดข้าวไก่กรอบ  
แกงเขียวหวานปิ้งวุ้ล 82.-

ชุดไก่แซ่บปิ้งวุ้ล 82.-

คอมโบ ไก่ไม้บักระดูก 79.-

ชุดคุณโบ

ชุดข้าวไก่กรอบ  
แกงเขียวหวานปิ้งวุ้ล 82.-

เดอะบอช 149.-

เดอะบอช ออลสตาร์ 159.-

เดอะบอช ออลไรซ์ 159.-

รายการอาหารที่ต้องเพิ่มเงิน:  
ชิ้นไก่แซ่บปิ้งวุ้ล 15.-  
ชิ้นไก่ปิ้งเป็นเนื้อ เม뉴: 62.  
ชิ้นไก่กรอบเผาเมืองเขียวหวานปิ้งวุ้ล เม뉴: 62.

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ชิ้นไก่กรอบเผาเมืองเขียวหวานปิ้งวุ้ล เม뉴: 62.



01 | Mixed TEMPURA of  
Glass Shrimp Rice Bowl  
富山湾 白えびかき揚げ丼  
¥2,480



02 | Udon Noodles Served  
in the Pot  
元祖 鶴巣きのうどん  
¥1,880



03 | Buckwheat Noodles with  
Duck Meat and Leek  
鶴巣きのうどん  
¥1,680



04 | NOTO 8  
Rice Bowl  
鶴巣八穀丼  
¥1,680

### < Udon Noodles > おうどん

08 | Udon Noodles with Curry  
名物 金澤カレーうどん  
¥1,480

09 | Udon Noodles with  
Mixed TEMPURA of Glass Shrimp  
白えびのかき揚げおうどん  
¥1,680

10 | Udon Noodles with  
KAGA Vegetables and Seafood Tempura  
加賀野菜と日本海の天ぷらうどん  
¥1,680

### < Buckwheat Noodles > お蕎麦

11 | Buckwheat Noodles with  
Mixed TEMPURA of Glass Shrimp  
白えびのかき揚げ蕎麦  
¥1,680

12 | Chilled Buckwheat Noodles with  
KAGA Vegetables and Seafood TEMPURA  
Japanese Sweets and Matcha Green Tea Set  
加賀野菜とえび天つき冷やし天ぷら蕎麦  
抹茶と和菓子セット  
¥2,000

### < Udon Noodle Hot Pot > 鶴巣きうどん

13 | Miso Udon Noodles with  
Chicken and Vegetables Served in the Pot  
鶏とお野菜の味噌煮おうどん  
¥1,680

14 | Udon Noodles with  
"JIBUNI"(Duck meat and soy milk skin)  
Served in the Pot  
鶏と湯葉の治部煮煮おうどん  
¥1,680

### < Rice Bowl > お丼もの

15 | Pork Cutlet Rice Bowl  
豚ロースかつ丼  
¥1,680

16 | Seafood Rice Bowl  
季節の海鮮丼  
¥1,680

### < Local Dishes > 鶴巣郷土料理

17 | "JIBUNI"(Duck meat and  
soy milk skin)  
金澤名物 治部煮  
¥1,680



Even worse  
case...

So, we have mainly been using  
Google Lens or Papago.

# But,

GENERAL TECHNOLOGY

## I ditched Google Translate for ChatGPT during my travels, here's why

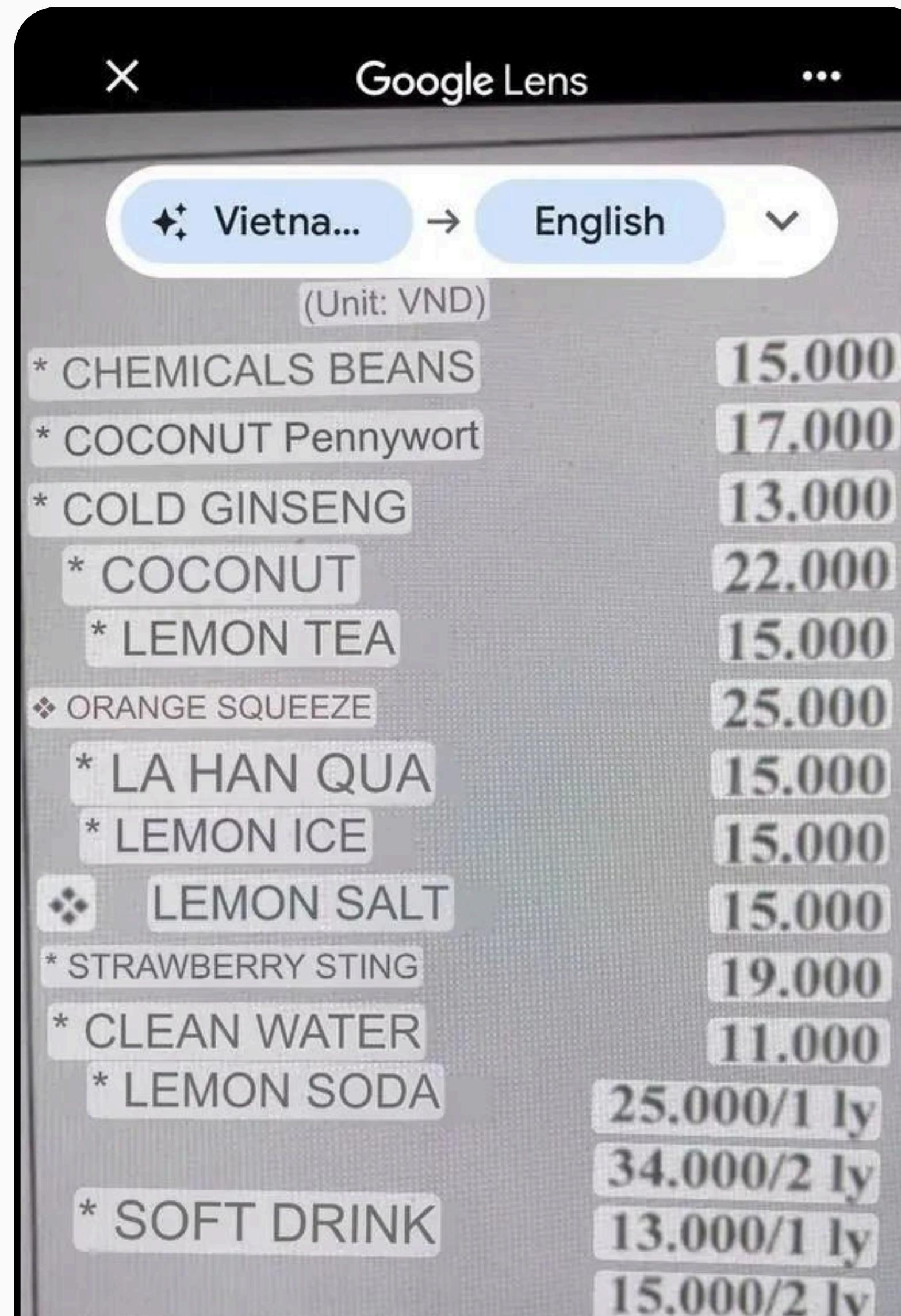
When Google Translate failed, ChatGPT came to my rescue.

By Calvin Wankhede

• May 26, 2024



# Google Lens



# ChatGPT

The ChatGPT interface shows a translated menu from Vietnamese to English. The menu is titled "Giải khát" (Drinks) and lists various items with their prices in Vietnamese. The list includes:

Item	Price (VND)
RAU MÁ ĐẬU	15.000
RAU MÁ DỪA	17.000
SÂM LẠNH	13.000
TRÁI DỪA	22.000
TRÀ CHANH	15.000
CAM VÀT	25.000
LA HÂN QUÀ	15.000
DÀ CHANH	15.000
CHANH MUOI	15.000
STING DẦU	19.000
NUỐC SUOI	11.000
SÔDA CHANH	25.000/1 ly 34.000/2 ly
NUỐC NGỌT	13.000/1 ly 15.000/2 ly
BIA LON 333, HEINEKEN	

Below the menu, there is a text input field containing the instruction "Translate this Vietnamese menu to English". A file attachment icon shows a screenshot from May 20, 2024, at 09:20:16. The ChatGPT model responds by providing the English translation of the menu.

Translate this Vietnamese menu to English

Screenshot 2024-05-20 092016.jpg

ChatGPT

Sure! Here is the translation of the Vietnamese menu to English:

**Drinks (Prices in VND)**

- RAU MÁ ĐẬU: Pennywort with Beans - 15,000
- RAU MÁ DỪA: Pennywort with Coconut - 17,000
- SÂM LẠNH: Cold Herbal Tea - 13,000
- TRÁI DỪA: Coconut - 22,000
- TRÀ CHANH: Lemon Tea - 15,000

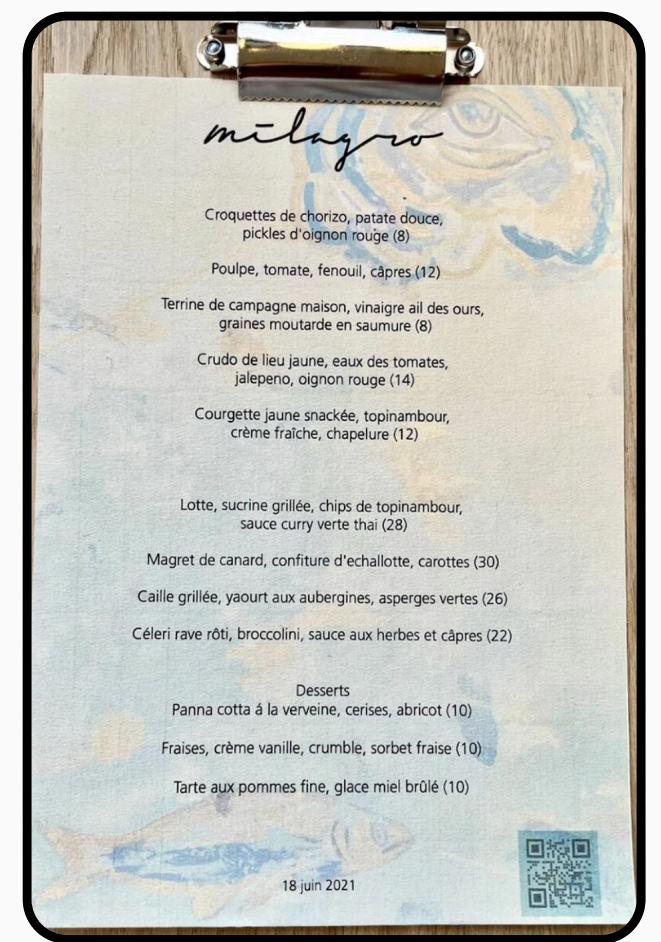
# A Restaurant Menu Translator, for Korean Travelers Abroad

# A Restaurant Menu Translator, for Korean Travelers Abroad



# Demo





Menu Recognition Request

Check whether it's a menu.



GPT-4o mini

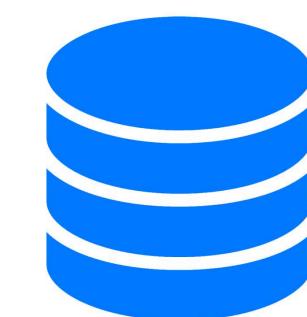


GPT-4o



Menu Translation

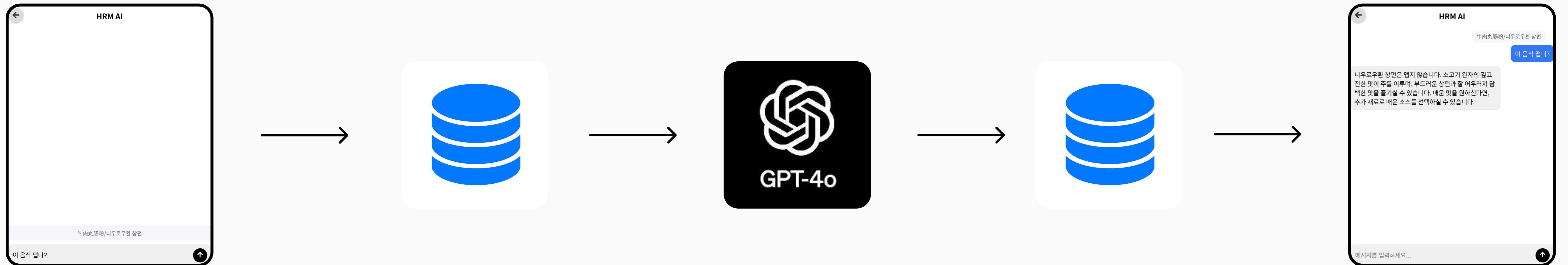
Restaurant Summary



Store Restaurant & Menu Data

트로피컬 패션 맛.	
<b>COCA COLA / DIET</b>	코카콜라 / 다이어트 콜 4.5 ***
<b>COKE / SPRITE</b>	라 / 스프라이트
정통 탄산 음료.	
<b>BARQ'S ROOT BEER</b>	바크스 루트 비어 / 피 4.5 ***
<b>/ PIBB XTRA</b>	브 엑스트라
진한 룸 비어.	
<b>FRESH HOUSEMADE LEMONADE</b>	프레시 하우스메이드 6.5 ***
신선한 레몬에이드.	레모네이드
<b>ORGANICALLY SOURCED BREWED COFFEE</b>	유기농 원 4.5 ***
신선한 유기 커피.	두 커피
<b>ORGANIC HOT TEA</b>	유기농 핫티 4.5 ***
신선한 유기농 차.	
<b>ACQUA PANNA NATURAL SPRING STILL</b>	아쿠아 판나 내추 7.95 自然界 스프링 스틸 ***

Response



Menu Recognition  
Request

View Existing Menu  
Information and  
Chat History

Menu  
Translation

Store Chat

Response

# Challenges and Prompting Techniques

## Challenge 1

# Inconsistent Descriptions with Mixed Korean and English.

레스토랑 개요(레스토랑 유형, 요리 유형, 인기 메뉴  
상위 5개, 분위기, 가격(고급/저렴) + 처음 방문하는  
외국인이 알면 좋을 추가 정보 포함)

식당 요약

메뉴

### Restaurant Overview

This restaurant offers a cozy and rustic  
ambiance and specializes in Corsican cuisine.  
Highlights of the menu include a variety of  
meats and cheeses typical of Corsica, such as  
Figatellu and Lonzo. It is known for its relaxed  
atmosphere and friendly service. The price is  
moderate, offering gourmet dishes at  
reasonable prices. It's a great place for those  
looking to experience local flavors.

# Challenge 1

## Inconsistent Descriptions with Mixed Korean and English.

레스토랑 개요(레스토랑 유형, 요리 유형, 인기 메뉴 상위 5개, 분위기, 가격(고급/저렴) + 처음 방문하는 외국인이 알면 좋을 추가 정보 포함)



# Prompting Techniques

## Few-shot Learning

다음 스텝을 따라, 메뉴판을 다음 설명으로 바꿔줘:  
restaurant type, cuisine type, 추천 메뉴들, vibe, 가격(high or low) + 여길 처음 방문한 사람에게 도움이 될만한 정보 description에 대한 예시야.

```
[  
 {  
   "sectionName": "음식 스타일",  
   "description": "태국의 전통 요리 전문점으로  
샐러드와 매콤한 볶음 요리를 제공합니다."  
 },  
 {  
   "sectionName": "가격대",  
   "description": "요리의 가격은 160에서 300  
바트 사이입니다."  
 },  
 {  
   "sectionName": "Additional Information",  
   "description": "다양한 매운맛 단계를 제공합니다. 신선한 해산물과 허브로 만든 건강한 요리를 선보입니다."  
 }
```

# Few-shot Learning

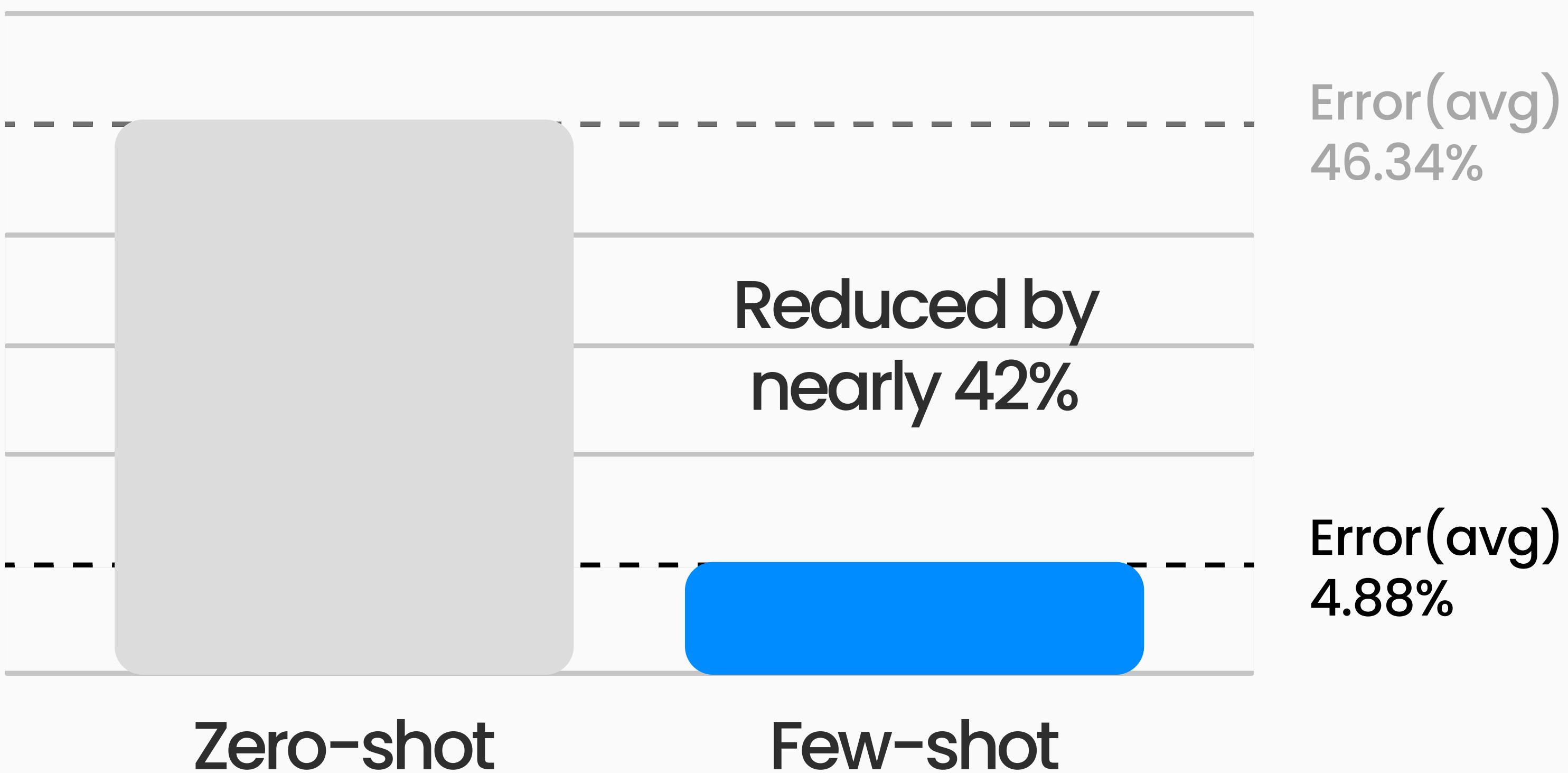
Language Mixed Descriptions Error(avg)



Source: Internal test( $n=40$ ), [Google Sheet](#)

# Few-shot Learning

## Language Mixed Descriptions Error(avg)



Source: Internal test( $n=40$ ), [Google Sheet](#)

# Challenge 2

## Inaccurate Menu Item Count

Menu_ID	Actual Count	Control	
		Count_C	Error_Rate_C
EN_001	13	13	0.00%
EN_002	7	7	0.00%
EN_003	20	13	35.00%
EN_004	28	28	0.00%
EN_005	48	28	41.67%
EN_006	22	6	72.73%
EN_007	36	36	0.00%
EN_008	20	16	20.00%
EN_009	10	10	0.00%
EN_010	50	17	66.00%
CN_001	103	15	85.44%
CN_002	92	35	61.96%
CN_003	47	3	93.62%
CN_004	6	6	0.00%
CN_005	6	6	0.00%
CN_006	18	17	5.56%
CN_007	57	10	82.46%
CN_008	15	15	0.00%
CN_009	13	7	46.15%
CN_010	42	10	76.19%

# Challenge 2

## Inaccurate Menu Item Count

Menu_ID	Actual Count	Control	
		Count_C	Error_Rate_C
EN_001	13	13	0.00%
EN_002	7	7	0.00%
EN_003	20	13	35.00%
EN_004	28	28	0.00%
EN_005	48	28	41.67%
EN_006	22	6	72.73%
EN_007	36	36	0.00%
EN_008	20	16	20.00%
EN_009	10	10	0.00%
EN_010	50	17	66.00%
CN_001	103	15	85.44%
CN_002	92	35	61.96%
CN_003	47	3	93.62%
CN_004	6	6	0.00%
CN_005	6	6	0.00%
CN_006	18	17	5.56%
CN_007	57	10	82.46%
CN_008	15	15	0.00%
CN_009	13	7	46.15%
CN_010	42	10	76.19%



# Prompting Techniques

## Sampling and Voting

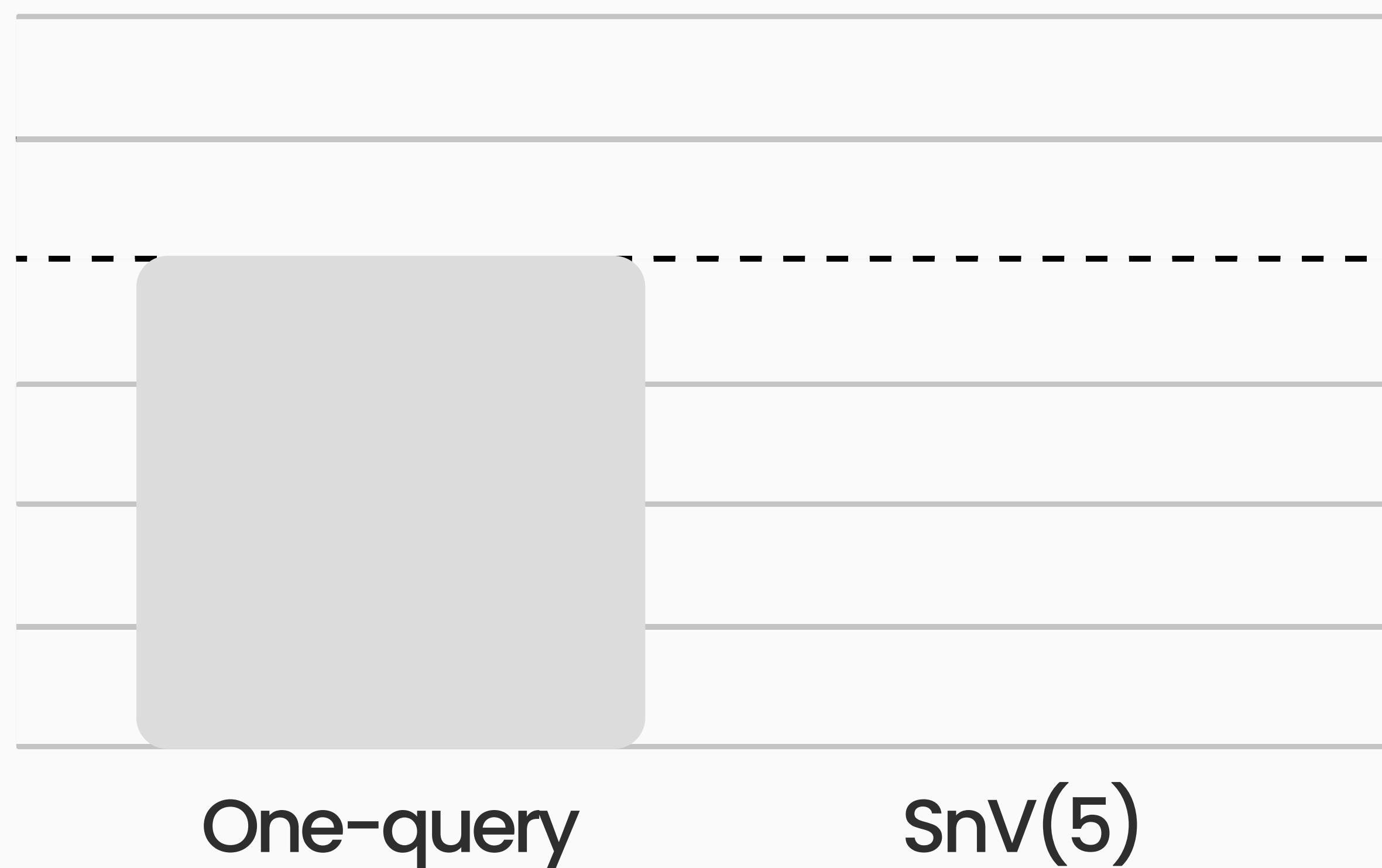
5 times

name은 현지어, pronunciation과 description은 한글로 제공되어야 해. 아래는 예시야.

```
{  
  "menus": [  
    {  
      "name": "kimchi",  
      "pronunciation": "김치",  
      "price": 10,  
      "description": "김치는 배추나 무에 고춧가루, 마늘, 젓갈 등을 넣어 발효시킨 한국의 전통 음식입니다. 매콤하고 짭조름한 맛이 특징이며 건강에도 좋습니다."  
    },  
    {  
      "name": "salmon salad",  
      "pronunciation": "샐몬 샐러드",  
      "price": 10,  
      "description": "연어 샐러드는 신선한 연어를 주재료로 한 샐러드로, 보통 각종 채소와 드레싱이 함께 어우러져 상큼하고 고소한 맛을 냅니다."  
    }  
  ]  
}
```

# Sampling and Voting

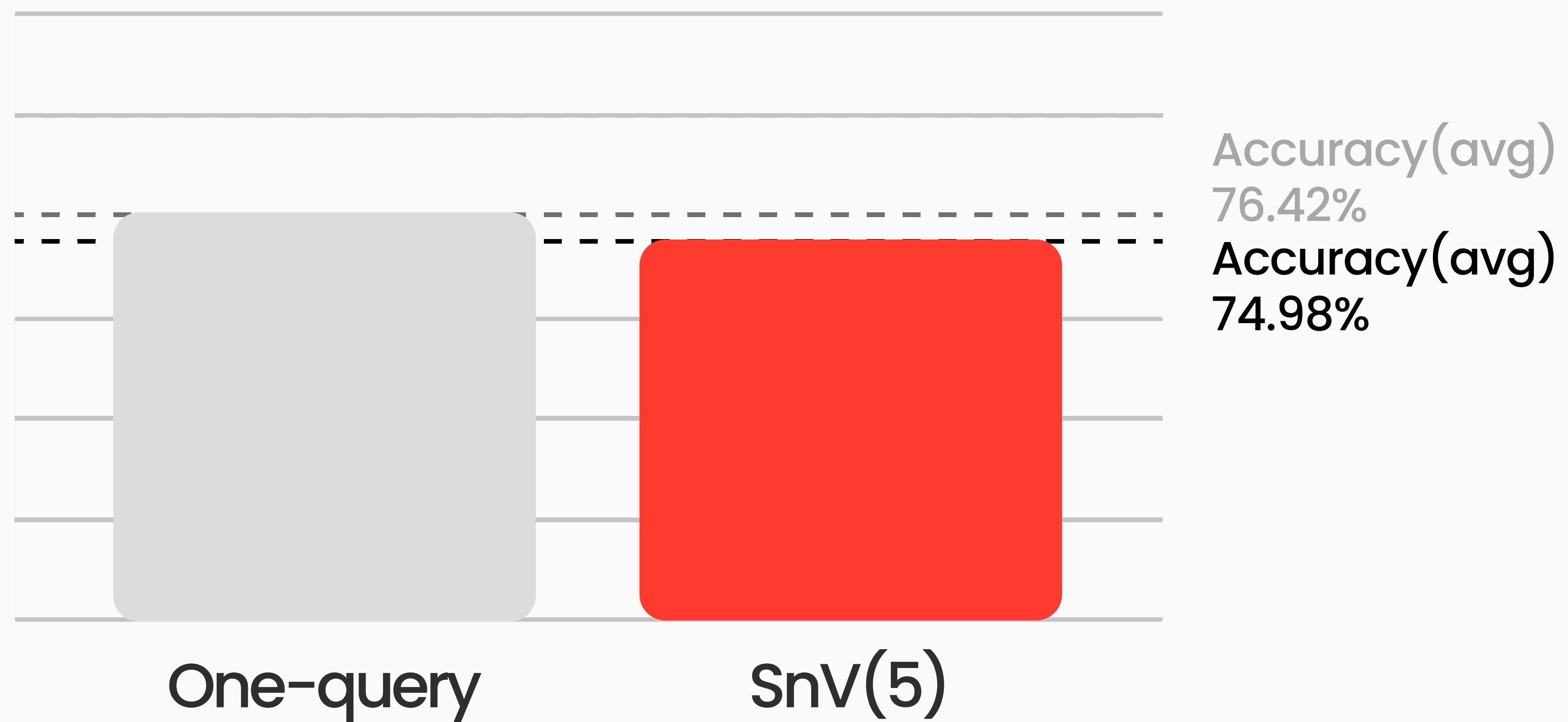
## Menu Item Count Accuracy(avg)



Source: Internal test( $n=40$ ), [Google Sheet](#)

# Sampling and Voting

## Menu Item Count Accuracy(avg)



Source: Internal test( $n=40$ ), [Google Sheet](#)

# Case Study

Why didn't menu count accuracy improve?

# Case Study

Why didn't menu count accuracy improve?

Case 1



Multiple options  
for a single menu item

# Case Study

# Why didn't menu count accuracy improve?

## Case 1



# Multiple options for a single menu item

# Case 2

热菜篇		青豆牛肉 青豆鸡丁 蒜苔肉丝 泡椒牛蛙 泡椒仔鸡 爆三样 火爆腰花 溜腰花 辣子鸡丁 泡菜肉丝 豆角肉丝		26元 24元 20元 40元 28元 28元 28元 28元 28元 18元 18元 20元	
泡椒魔芋鸭	45元	干煸牛肉丝	38元	青豆牛肉	26元
湘西土匪鸭	45元	肉闷豆角	20元	青豆鸡丁	24元
香辣鸡翅	40元	豆角烧茄子	16元	蒜苔肉丝	20元
凉菜篇				泡椒牛蛙 泡椒仔鸡 爆三样 火爆腰花 溜腰花 辣子鸡丁 泡菜肉丝 豆角肉丝	
川北凉粉	8元	红烧排骨	32元	泡椒牛蛙	40元
酸辣蕨跟粉	10元	糖醋排骨	32元	泡椒仔鸡	28元
干炸小黄鱼	12元	孜然羊肉	38元	爆三样	28元
凉拌苦瓜	10元	锅包肉	30元	火爆腰花	28元
		葱爆羊肉	35元	溜腰花	28元
	<th>葱爆肉片</th> <td>28元</td> <th>辣子鸡丁</th> <td>18元</td>	葱爆肉片	28元	辣子鸡丁	18元
	<th></th> <th></th> <th>泡菜肉丝</th> <td>18元</td>			泡菜肉丝	18元
	<th></th> <th></th> <th>豆角肉丝</th> <td>20元</td>			豆角肉丝	20元

More items,  
higher error rate

## Prompting Techniques

### CoT

다음 스텝을 따라, 메뉴판을 한글로 바꿔줘:

1. 메뉴 갯수를 먼저 신중히 생각해봐. 만약 잘 모르겠다면, 옆에 있는 금액 표시가 힌트가 될 수 있어.
2. 가격이 없거나, 여러 메뉴를 묶어서 하나의 가격을 써넣을 수 있으니 주의해. 만일 이럴 경우, 너는 메뉴를 한 아이템에 넣지 말고, 분리해야 해.
3. 누락되는 메뉴가 있는지 꼼꼼하게 확인해. 메뉴 개수가 **100**개 이상이 넘어갈 수 있어.
4. 그 다음으로, 그 메뉴 갯수에 맞춰서, 메뉴 설명을 집어넣어.

## Prompting Techniques

### CoT

Prompt 1

Multiple options  
for a single menu item

다음 스텝을 따라, 메뉴판을 한글로 바꿔줘:

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3. 누락되는 메뉴가 있는지 꼼꼼하게 확인해. 메뉴 개수가 **100**개 이상이 넘어갈 수 있어.
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## Prompting Techniques

### CoT

#### Prompt 1

Multiple options  
for a single menu item

#### Prompt 2

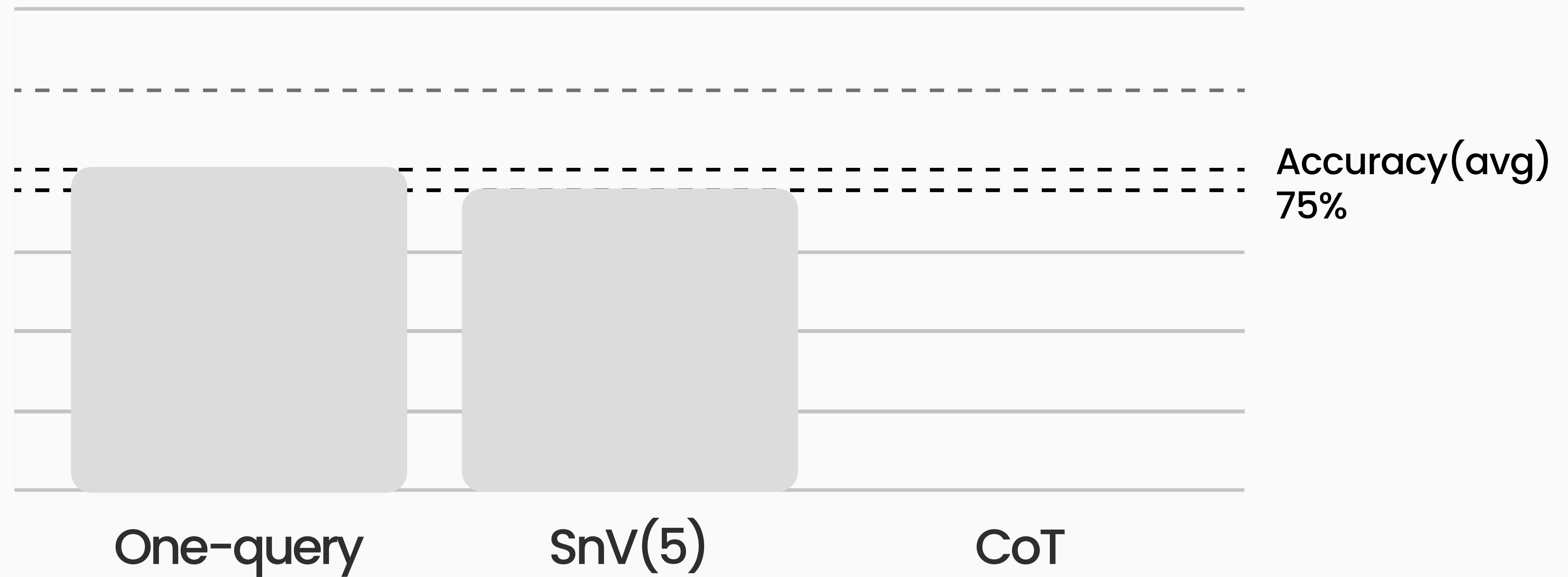
More items,  
higher error rate

다음 스텝을 따라, 메뉴판을 한글로 바꿔줘:

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2. 가격이 없거나, 여러 메뉴를 묶어서 하나의 가격을 써넣을 수 있으니 주의해. 만일 이럴 경우, 너는 메뉴를 한 아이템에 넣지 말고, 분리해야 해.
3. 누락되는 메뉴가 있는지 꼼꼼하게 확인해. 메뉴 개수가 **100**개 이상이 넘어갈 수 있어.
4. 그 다음으로, 그 메뉴 갯수에 맞춰서, 메뉴 설명을 집어넣어.

# CoT

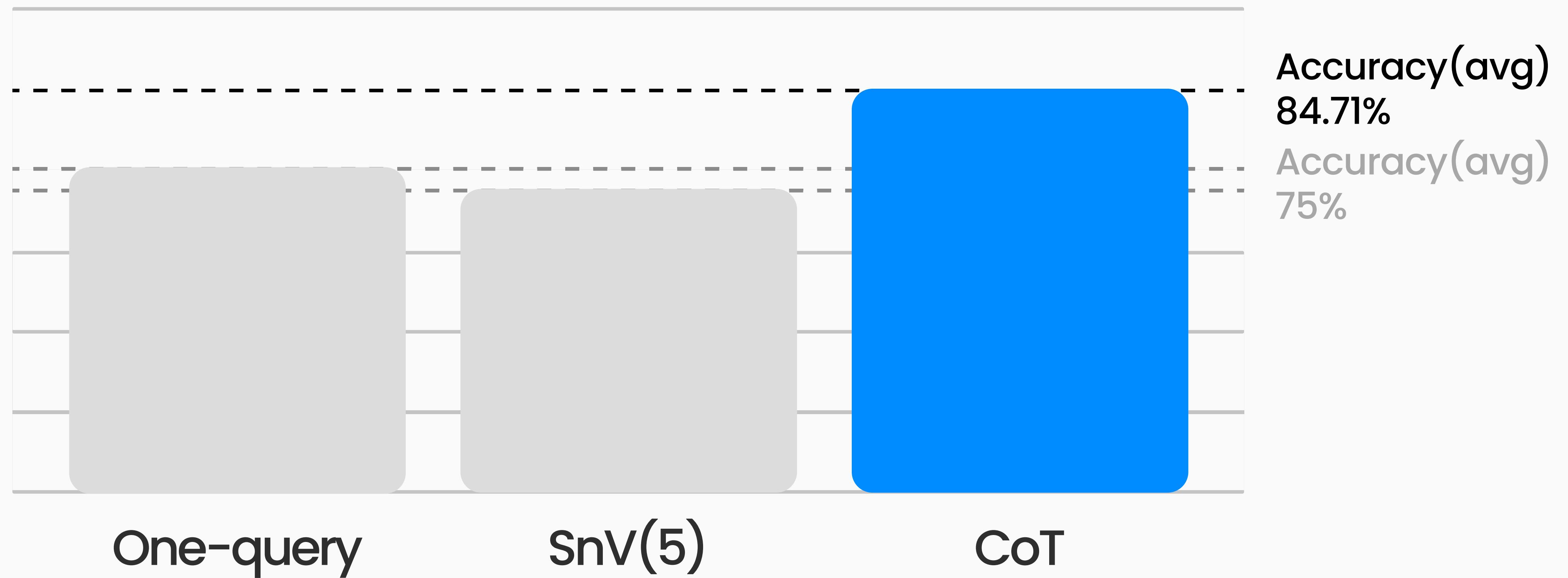
## Menu Item Count Accuracy(avg)



Source: Internal test( $n=40$ ), [Google Sheet](#)

# CoT

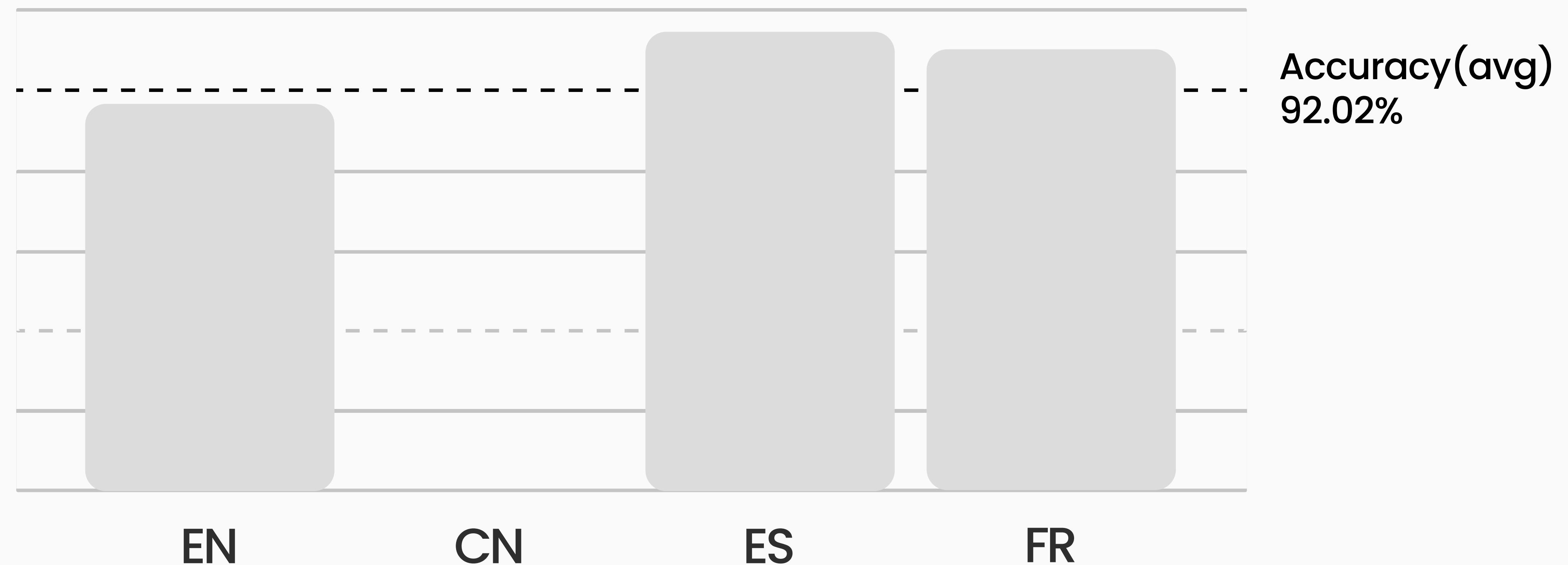
## Menu Item Count Accuracy(avg)



Source: Internal test( $n=40$ ), [Google Sheet](#)

# CoT

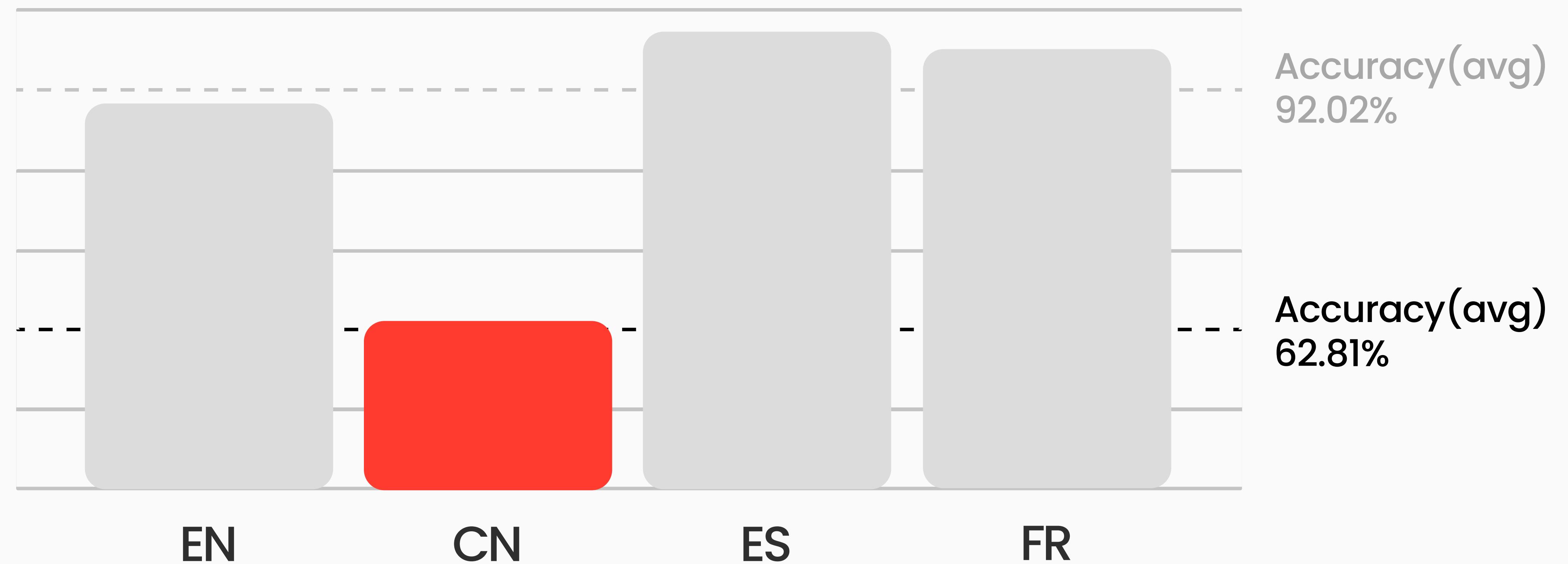
## Menu Item Count Accuracy (avg by language)



Source: Internal test ( $n=40$ ), [Google Sheet](#)

# CoT

## Menu Item Count Accuracy (avg by language)



Source: Internal test ( $n=40$ ), [Google Sheet](#)

## Challenge 3

# Slow Response Time

Original

Synchronous

## Challenge 3

# Slow Response Time

Original

Synchronous

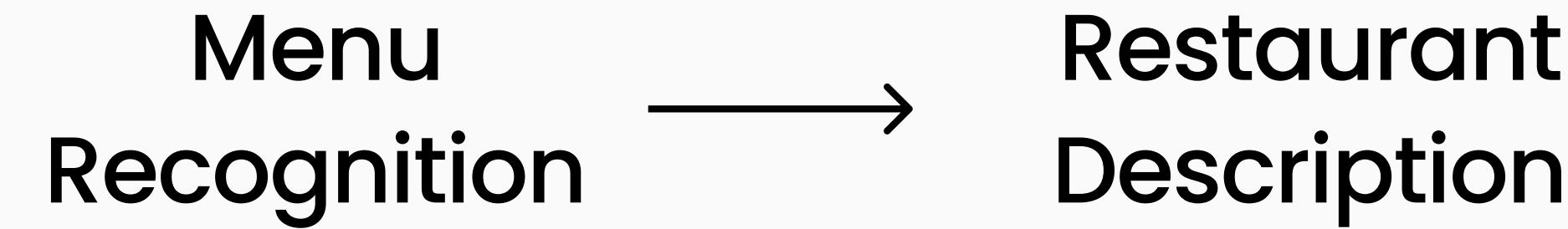
Menu  
Recognition

## Challenge 3

# Slow Response Time

Original

Synchronous



## Challenge 3

# Slow Response Time

Original

Synchronous

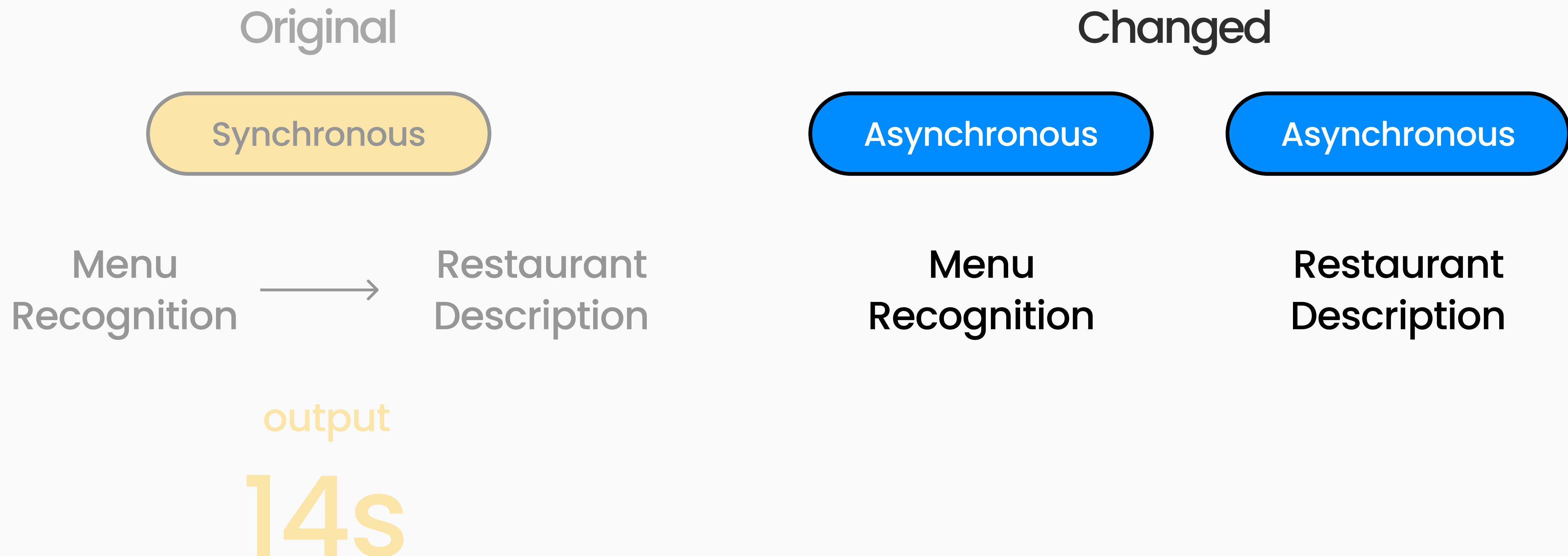
Menu  
Recognition → Restaurant  
Description

output

14s

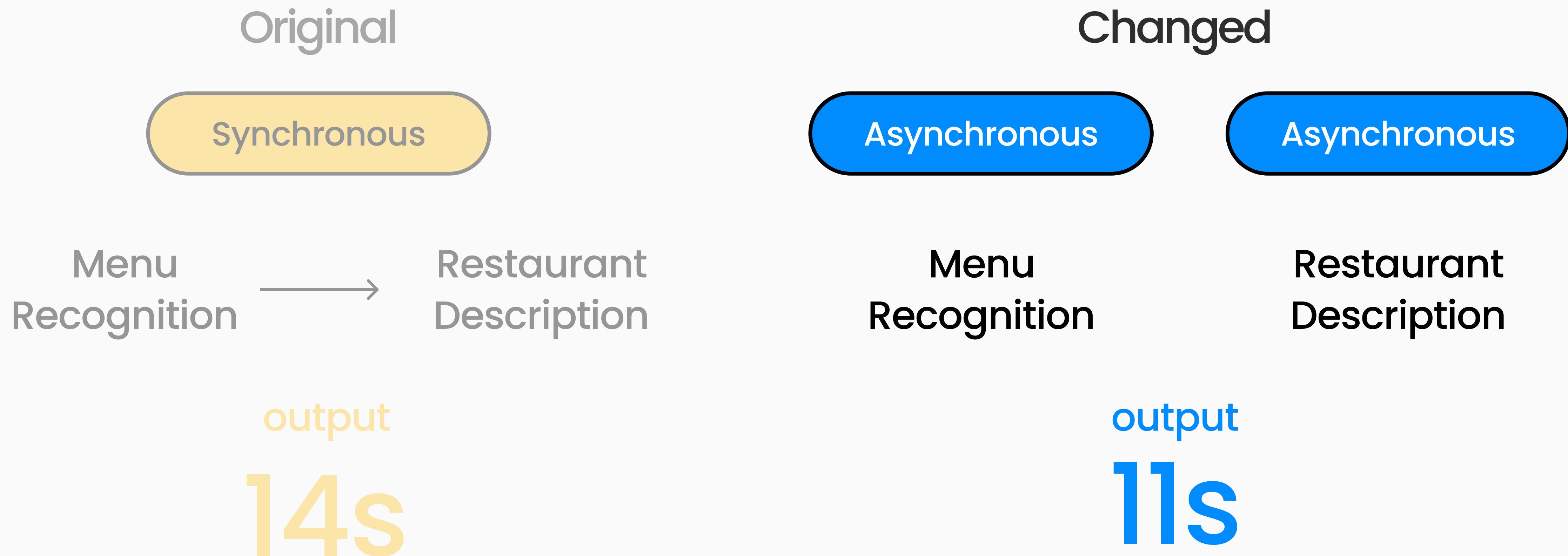
## Challenge 3

# Slow Response Time



## Challenge 3

# Slow Response Time



# Case Study

How much did the cost increase? (Based on 40)

Synchronous

\$0.0126  
per query

Asynchronous

\$0.0249  
per query

# Takeways

It's crucial to tailor prompting techniques  
to fit the specific situation at hand.

As the menu count increases, OCR accuracy  
gradually decreases (based on 40).

# Q & A

and...



Scan and Try  
[hrm now!](#)