

# Operational Strategies for Restaurants Offering **North American Cuisines** in the US

---

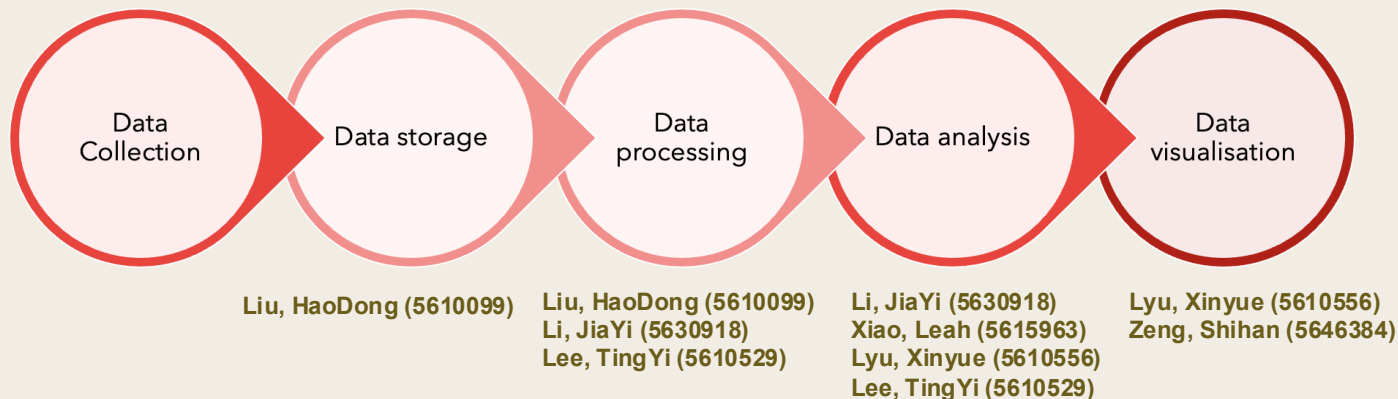
A Data-Driven Approach



Photo by Tasty.com

# Collaboration

## 1. Following Data Pipeline



## 2. Working on Cloud



# Table of Content

01

---

Data Exploration:  
North American  
Cuisine Leads the  
Market

02

---

Operational  
Strategy  
Optimization

03

---

A New Blue Ocean:  
Hawaiian Cuisine

04

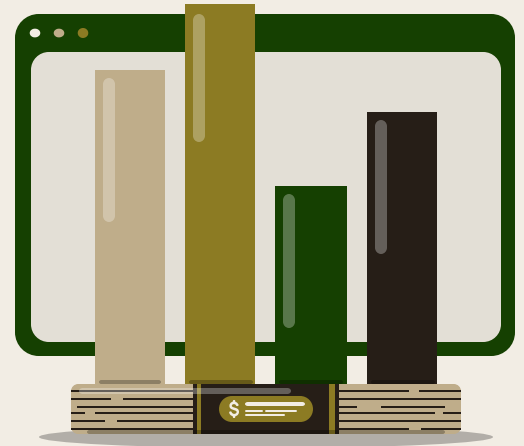
---

Summary

# 01

---

## Data Exploration: North American Cuisine Leads the Market

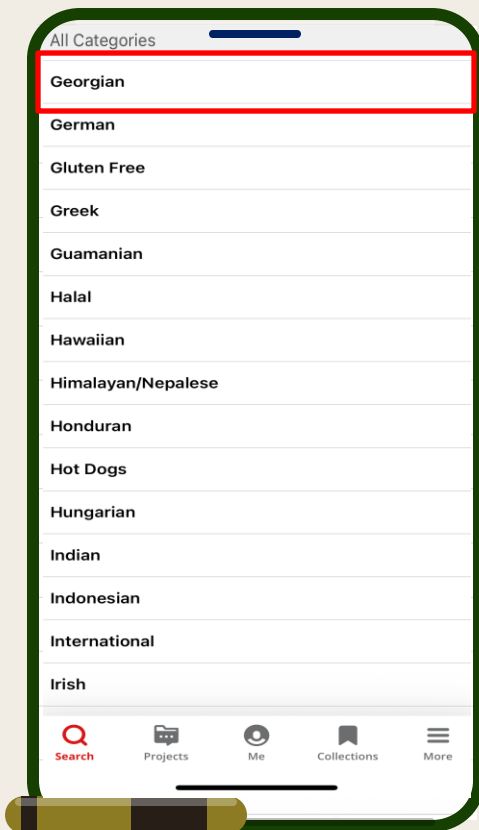


# 1.1 Data Filtering and Categorization Process

## 01 Review category filters in the App

- Restaurant
- Key words: Asian Fusion, American, Greek, Irish....

## 02 Mapped into 7 Cuisine Groups



# 1.1 Data Filtering and Categorization Process

01 Review category filters in the App



Asian Cuisine



African Cuisine



European Cuisine



South American Cuisine



Middle Eastern & Mediterranean Cuisine



North American Cuisine



Pacific Cuisine

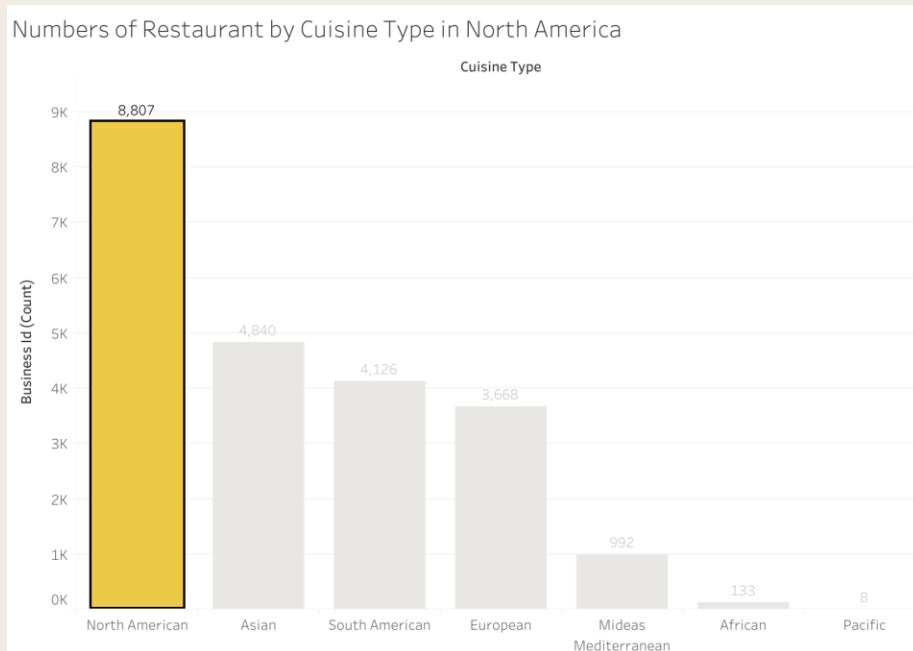
02 Mapped into 7 Cuisine Groups

# 1.2 Dominant Cuisine Type in North America

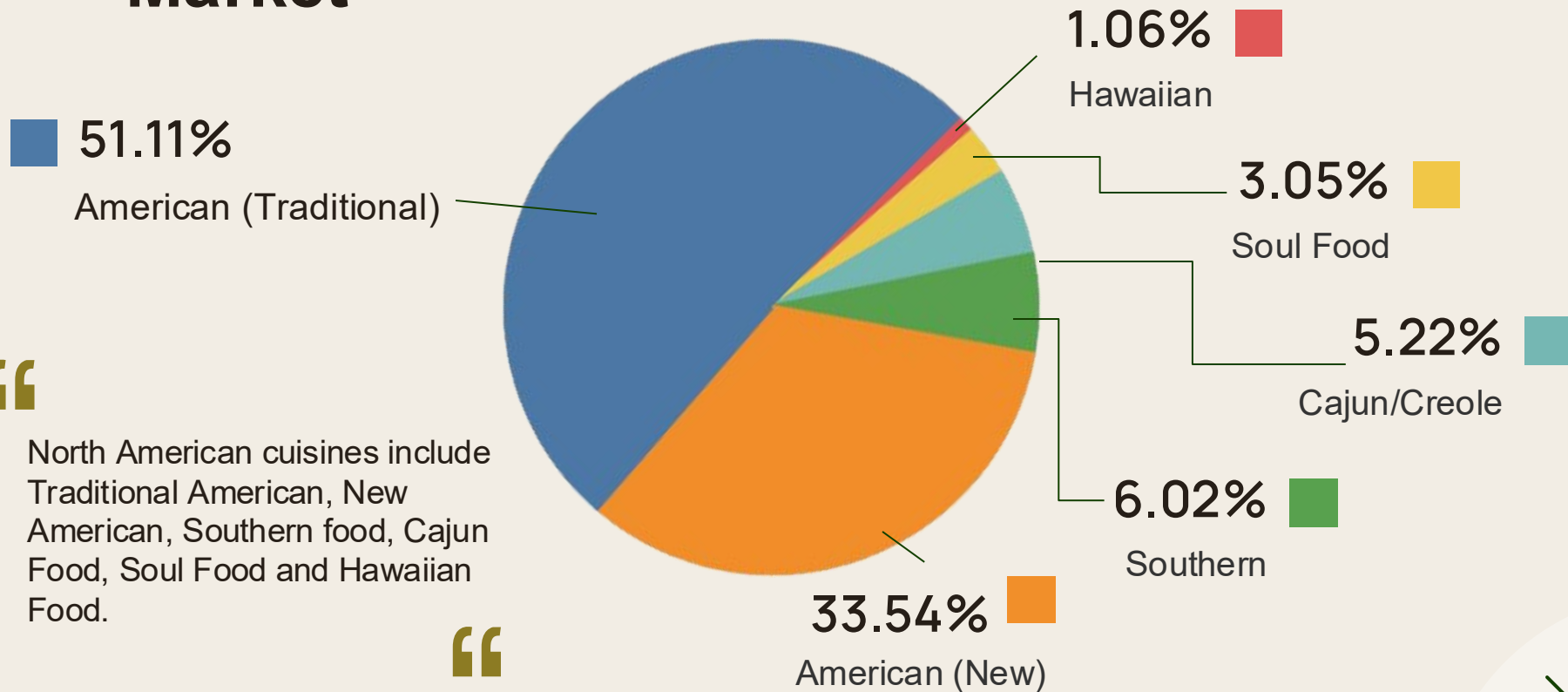
“

North American restaurant is the dominant cuisines type in the US.

”



# 1.3 North American Restaurants in the US Market



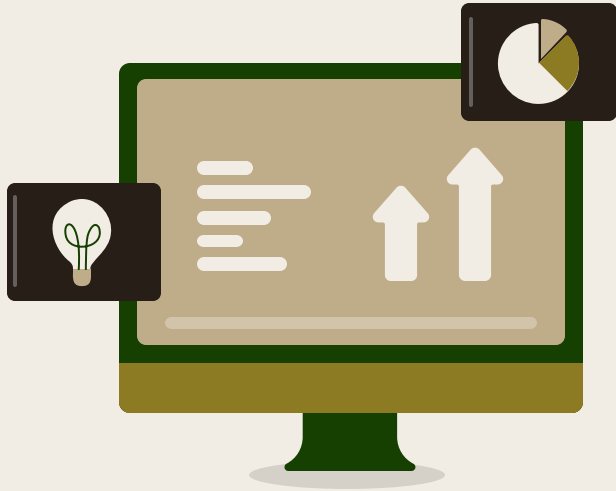
“

North American cuisines include Traditional American, New American, Southern food, Cajun Food, Soul Food and Hawaiian Food.

”



02



# Operational Strategy Optimization

## 2.0 Four Pillars of Operational Strategy

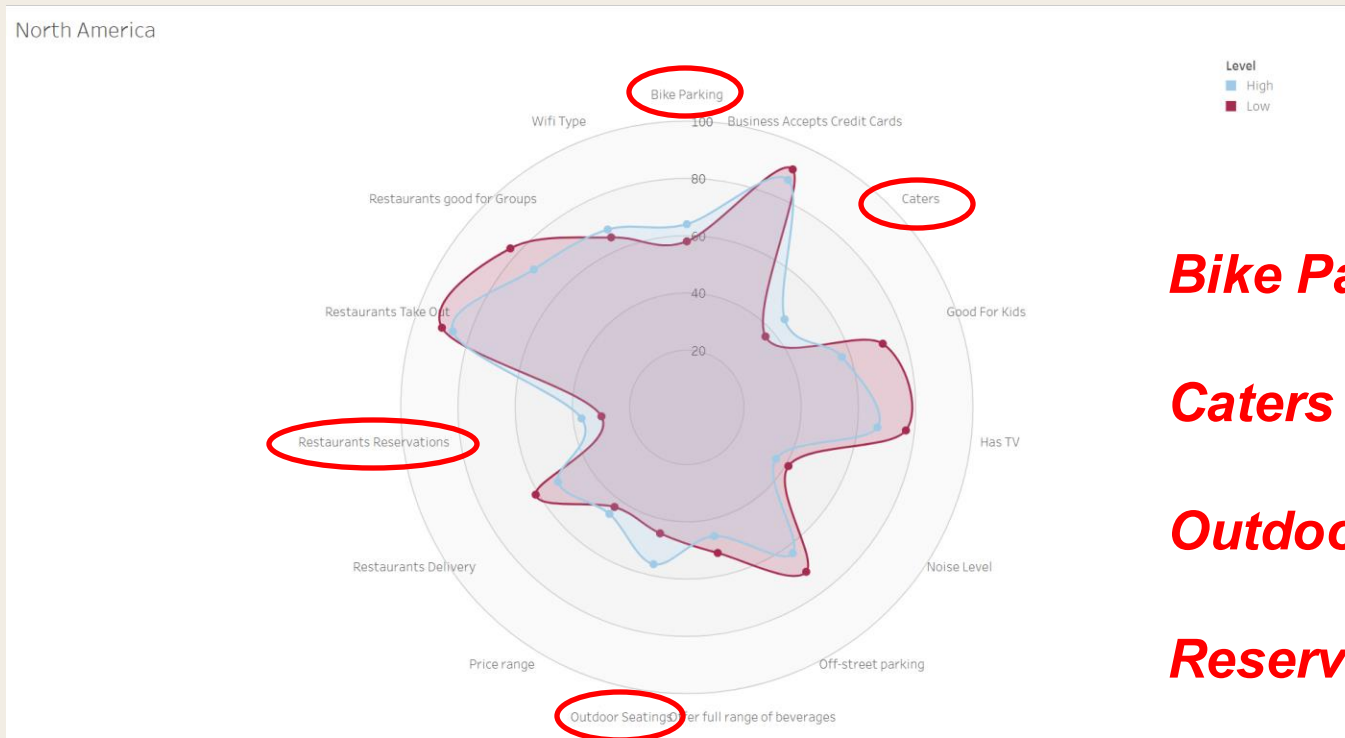


## 2.1 In-store Setup Optimization

**Which in-store setups Make a North American Restaurant Get Better Ratings?**

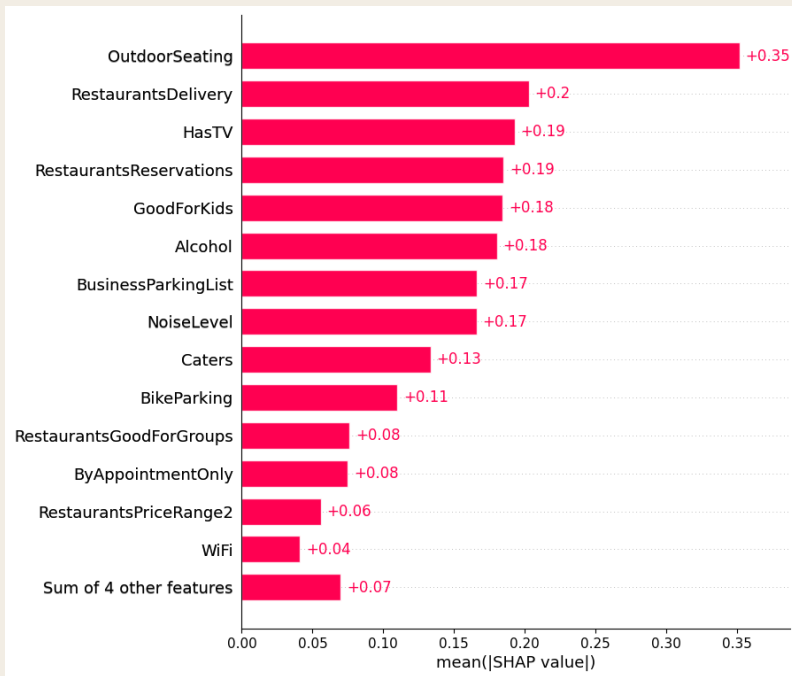


# Profile Contrast of North American Cuisine Restaurants *high stars(>=4) vs. low stars(<4)*



***Bike Parking,  
Caters Service,  
Outdoor Seatings,  
Reservation Service***

# Top Predictive Features Influencing North American Cuisine Ratings



**Algorithm:** LightGBM Classifier

**Target:** Restaurant Stars  
( $\geq 4$  or  $< 4$ )

**Accuracy:** 0.69

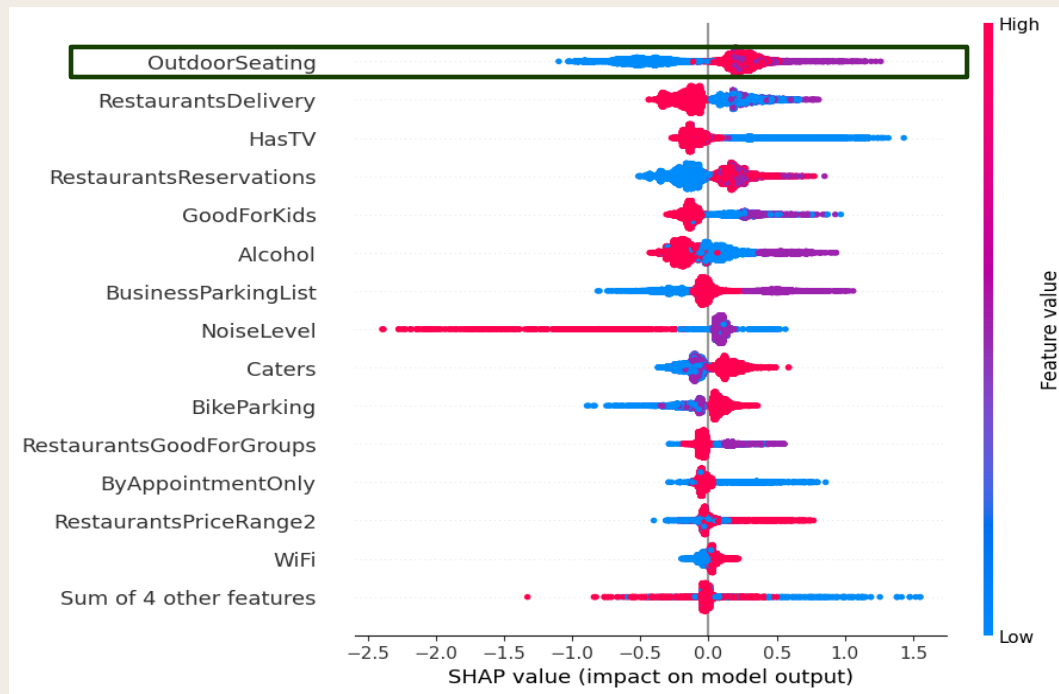
**F1 Score:** 0.71

**Explanation Tool:** SHAP  
(SHapley Additive exPlanations)

# How each contributes to Rating?

## Interpretation Guide

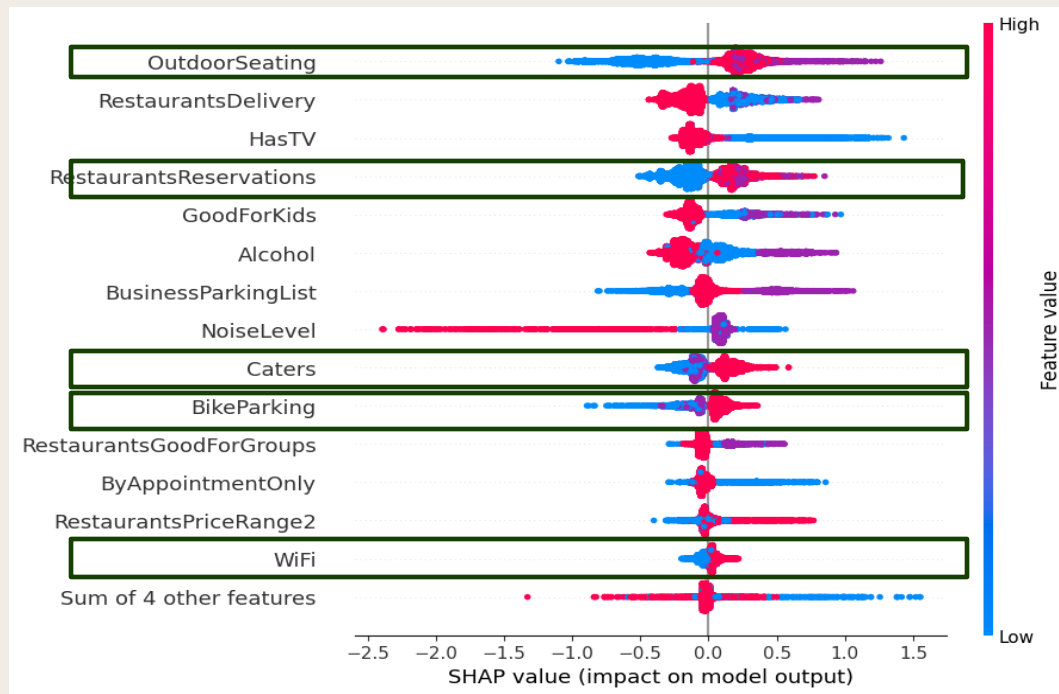
- Each point represents one sample and its SHAP value for a specific feature.
- The position on the x-axis shows how much that feature pushed the prediction up or down.
- The color indicates the strength of feature — red for high, blue for low, purple for medium.



# How each contributes to Rating?

## Category 1:

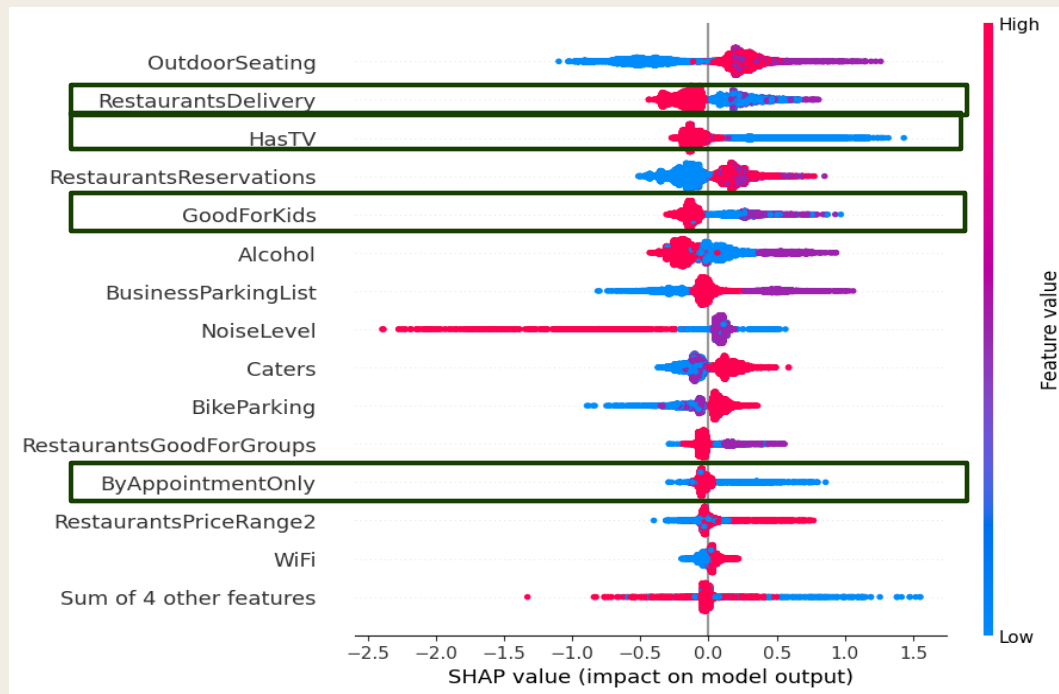
*Significant Positive*



# How each contributes to Rating?

## Category 2:

### *Significant Negative*

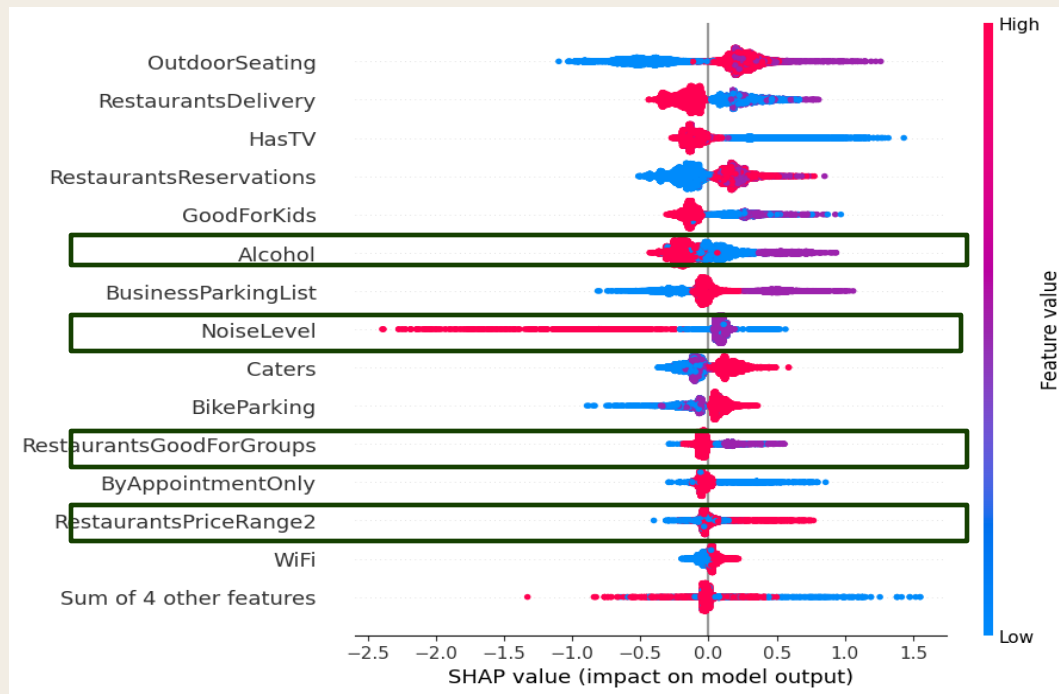




# How each contributes to Rating?

## Category 3:

*Unclear*



# Key Features

C  
O  
N  
T  
R  
I  
B  
U  
T  
I  
O  
N

NEGATIVE



POSITIVE

Delivery

TV

Good For kids

Appointment Only

Alcohol

Noise Level

Price Range

Good For Groups

Outdoor Seating

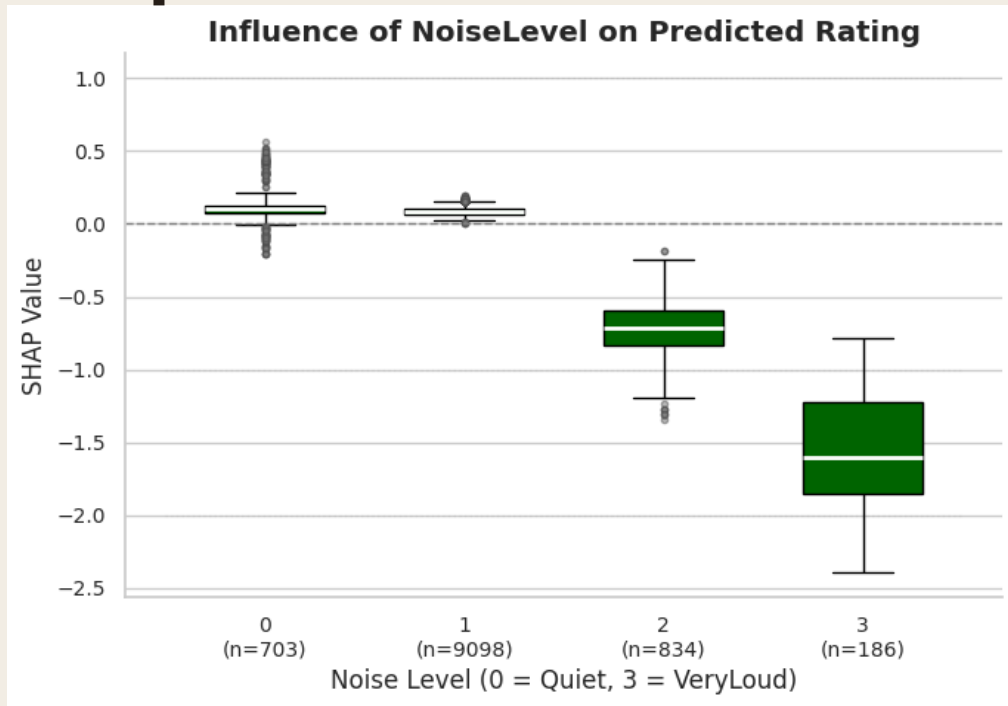
Reservable

Caters

Bike Parking

WIFI

# Influence of Noise Level — SHAP Interpretation

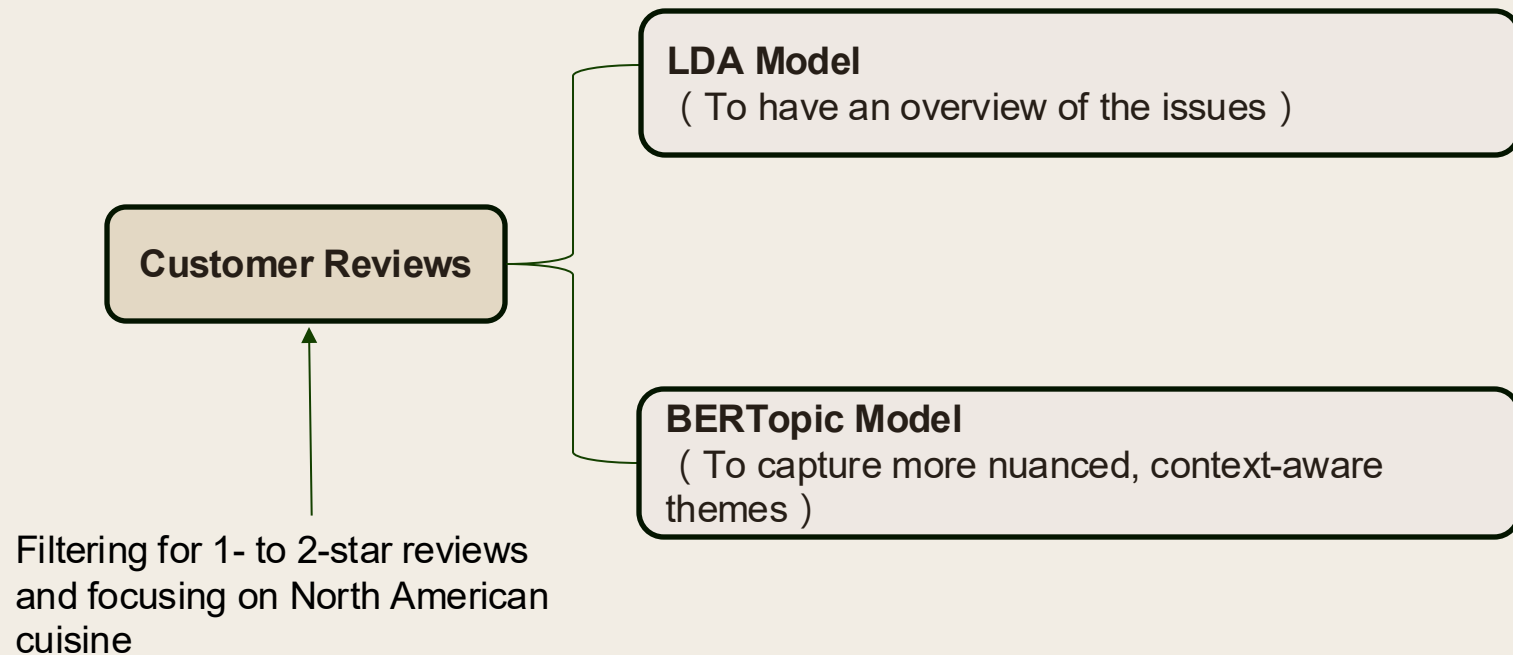


- High noise levels significantly reduce predicted ratings, while moderate noise appears favorable—possibly reflecting a preference for vibrant dining environments.
- In contrast, extremely quiet settings show wide variability in impact, depending on the restaurant's positioning and context.

# Actionable Strategies to Improve Ratings

1. Improve **Accessibility** and Basic **Convenience**
  - Allow **reservations**, but avoid reservation-only policies
  - Ensure visible and usable **parking** (street parking preferred)
  - Offer **catering services and bike parking**
  - Provide stable and accessible **Wi-Fi**
2. Create a balanced atmosphere for **dine-in experience**
  - Add **outdoor seating** to enhance comfort and openness
  - Maintain **moderate background noise** to support atmosphere
  - Avoid unnecessary **TV** installation unless strategically needed
  - Offer limited **alcohol options**; avoid full bar configurations
3. Align **Brand Positioning** with Customer Expectations
  - Avoid over-positioning as a **child-friendly restaurant** unless essential to your concept
  - Consider upgrading to a higher price tier within feasible range
  - De-emphasize on delivery-centric positioning

## 2.2 Review-Based Service Improvement



## 2.2 Review-Based Service Improvement

**LDA Model**  
(To have an overview of the issues)

**Most low-rated reviews:**  
Service issues.

**Highlighted concerns:**  
Wait time.

**Insight:**

**Delayed service** is a key driver of customer **dissatisfaction** among low rated North American restaurants.

**BERTopic Model**  
(To capture more nuanced, context-aware themes)



## 2.2 Review-Based Service Improvement

**LDA Model**  
(To have an overview of the issues)

### Keywords :

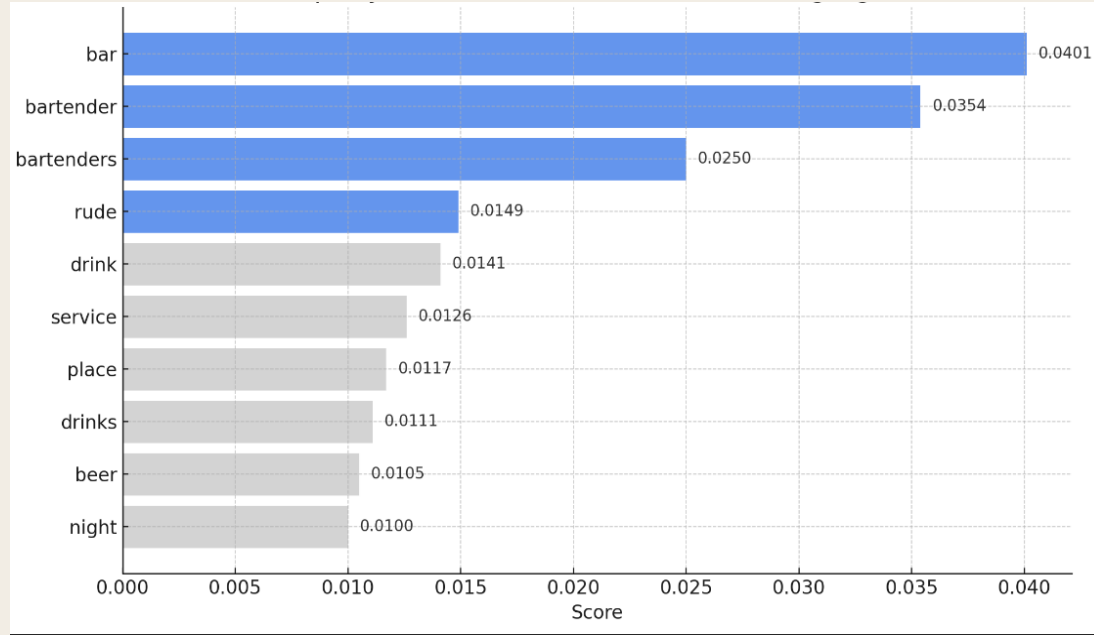
*bar, bartender, rude.*

### Highlighted concerns:

Bartender behavior

**BERTopic Model**  
(To capture more nuanced, context-aware themes)

**Insight:** Customers felt the bartenders were **impolite** or **unprofessional** among low rated North American restaurants.



## 2.2 Review-Based Service Improvement

**LDA Model**  
(To have an overview of the issues)

### Keywords :

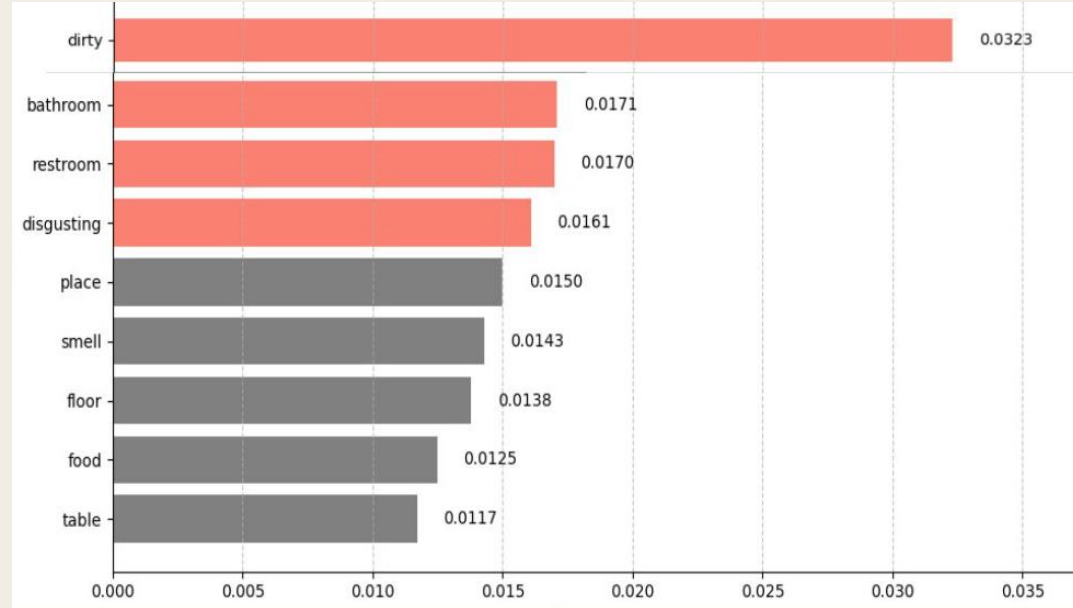
*bathroom, dirty, disgusting*

### Highlighted concerns:

Facility hygiene

**BERTopic Model**  
(To capture more nuanced, context-aware themes)

**Insight:** Customers felt the **restrooms** are **disgusting** among low rated North American restaurants.





## 2.2 Review-Based Service Improvement

### Main actions for improvement

**Reduce customer wait times:** especially for ordering and receiving food. One recommendation is introducing self-service ordering.

**Enhance staff training:** especially focusing on bartenders, to improve service attitude and professionalism.

**Maintain clean and hygienic facilities:** especially bathrooms, to improve the overall dining experience.

## 2.3 Hourly Check-in Patterns & Insights

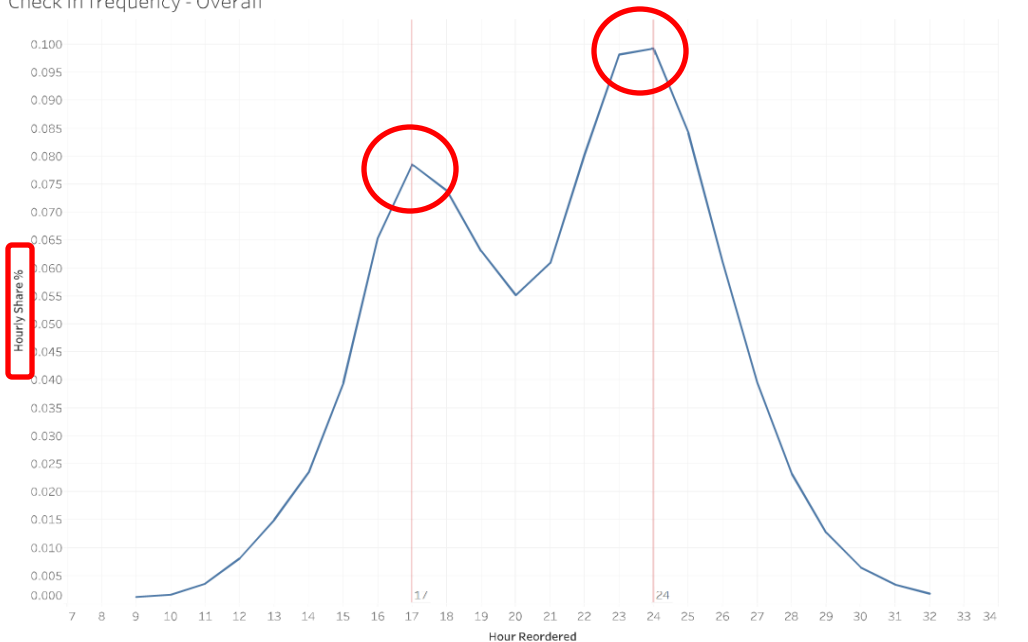
### Hourly Share (%)

Ensures fairer comparisons by minimizing biases due to varying restaurant sizes

### Two distinct peaks

Do not align with meal times, indicates customers often check in after meals.

Check in frequency - Overall



The trend of Hourly Share % for Hour Reordered

Encourage immediate post-meal check-in with:

- Small rewards
- Digital coupons
- Loyalty points

## 2.3 Category-Specific Check-in

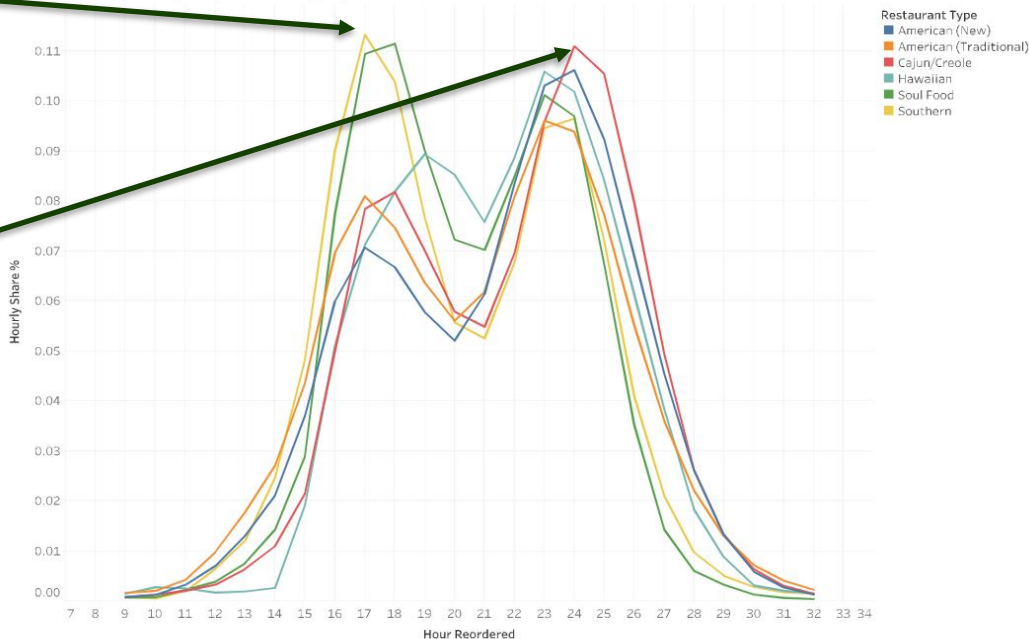
### Soul Food & Southern

- Offer **lunch** combos or fast service specials
- Position as "Comfort food that's fast and fresh"

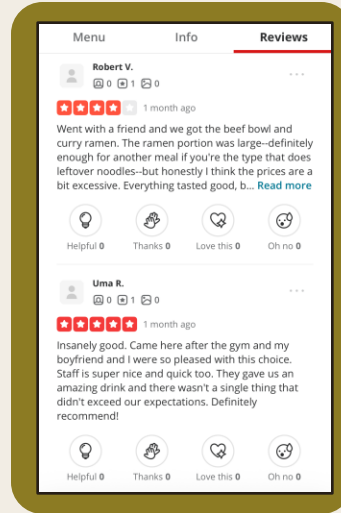
### Cajun/Creole

- Promote live music **nights**
- Bundle meals with drink specials
- Run social check-in promotions

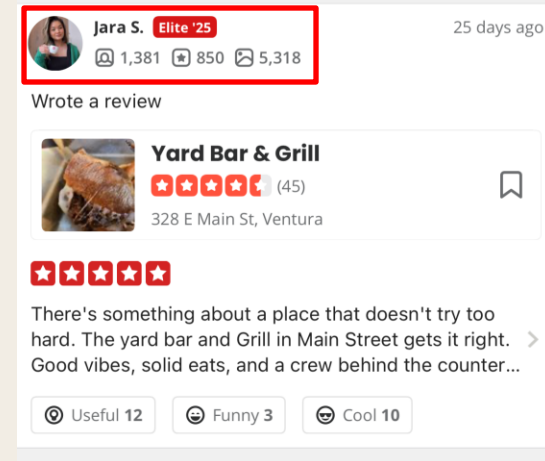
Check in frequency - By Subcategory



## 2.4 Turning eWOM into Business Performance



### High- impact Users



People often check reviews before choosing where to eat(Xia and Ha, 2023)

Active and trusted reviewers stand out in the community, their voices tend to influence others more.(Luca, 2011)

## 2.4 Turning eWOM into Business Performance

Compliments >150

elite

✓ 2019 ✓ 2020  
✓ 2021 ✓ 2022

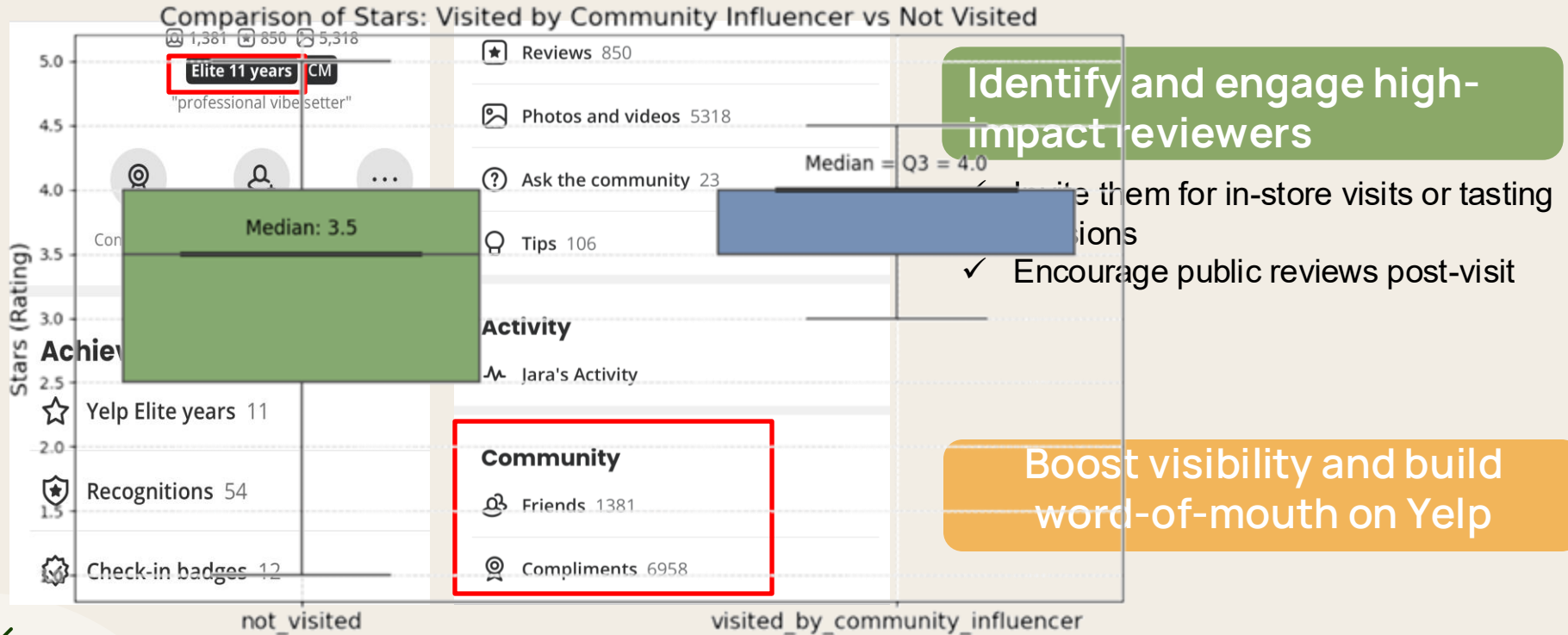


friends

>200

High- impact Reviewers

## 2.4 Turning eWOM into Business Performance



# 03

## **A New Blue Ocean: Hawaiian Cuisine**

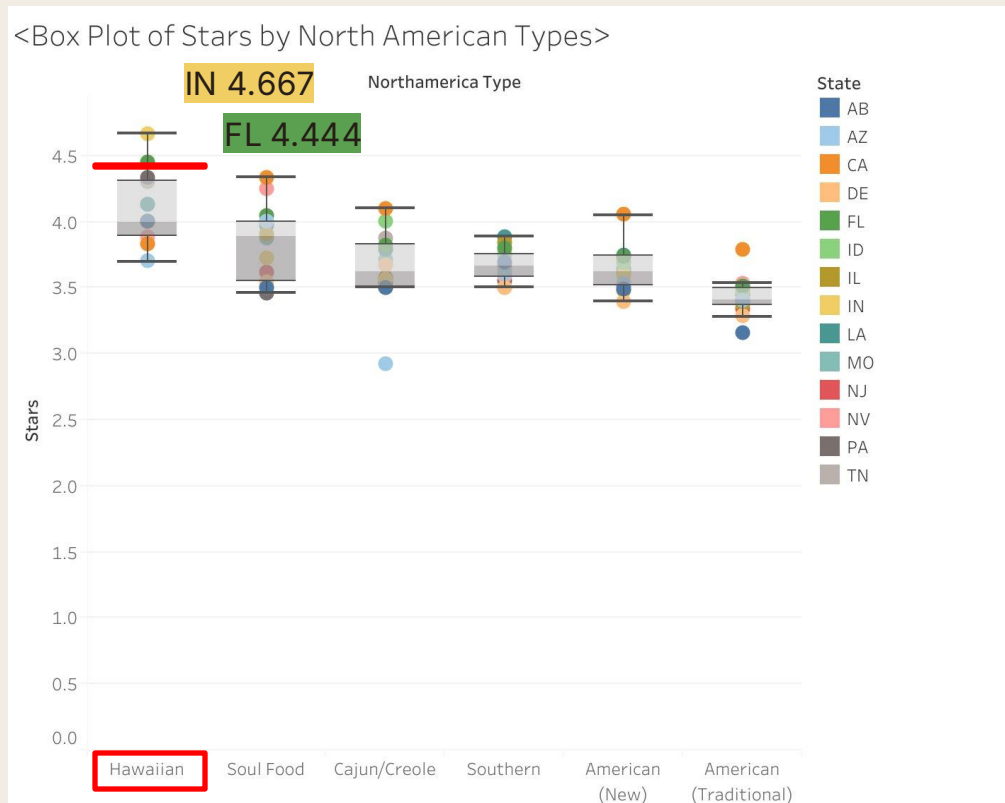


## 3.1 The Best Stars Rating in North American Restaurants

“

Hawaiian restaurants perform the best between types of North American cuisines in the US.

”





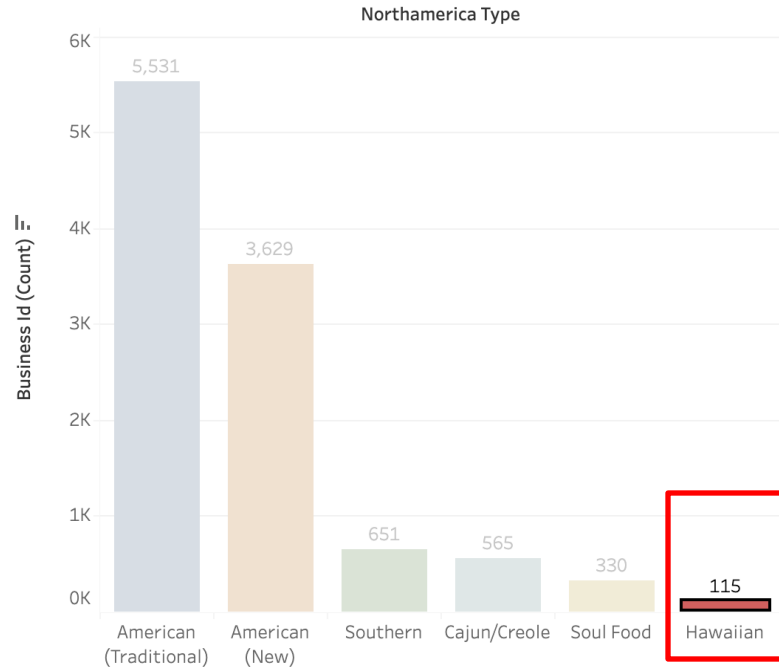
## 3.2 The New Opportunity of North American Cuisines

“

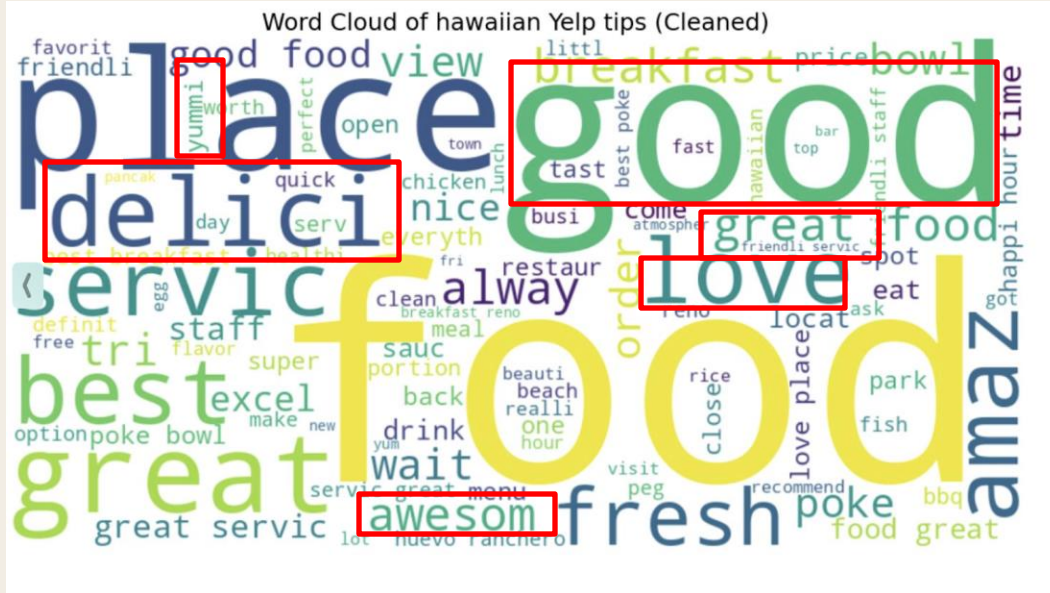
Hawaiian restaurant is the less competitive but the most market potential North American cuisines in the US.

”

<Numbers of Restaurant by North American Cuisine Types>



### 3.3 Customer Feedback for Hawaiian Restaurants



“

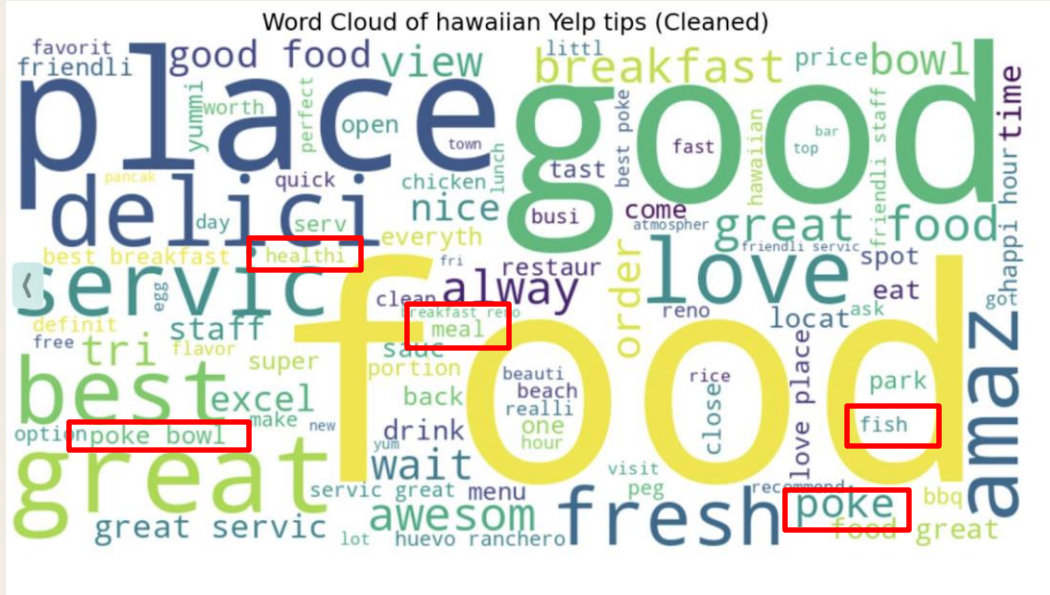
Positive words indicate high customer satisfaction and a favorable perception of Hawaiian restaurant .

“

Positive words:

"good", "great", "delici", "amaz", "love", "yummi", "awesome"

### 3.3 Customer Feedback for Hawaiian Restaurants



“

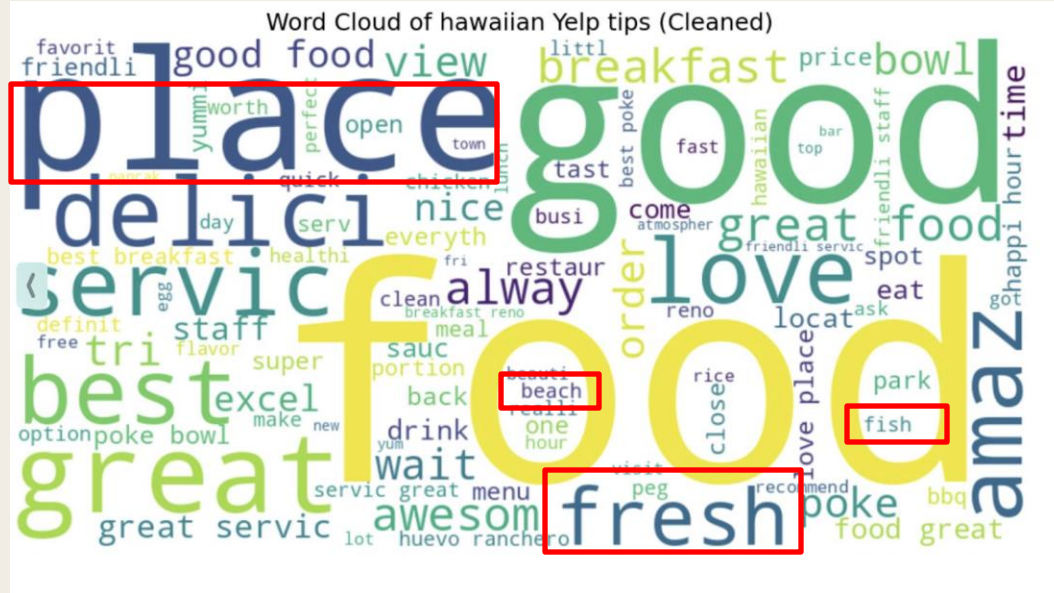
# Hawaiian restaurant aligns with consumer preferences.

“

Food related words:

"poke", "bowl", "meal", "healthi", "fish"

### 3.3 Customer Feedback for Hawaiian Restaurants



“

This suggests that customers associate the restaurant with a coastal atmosphere and fresh, high-quality seafood.

”

### 3.4 Why Hawaiian Restaurants is the New Blue Ocean?

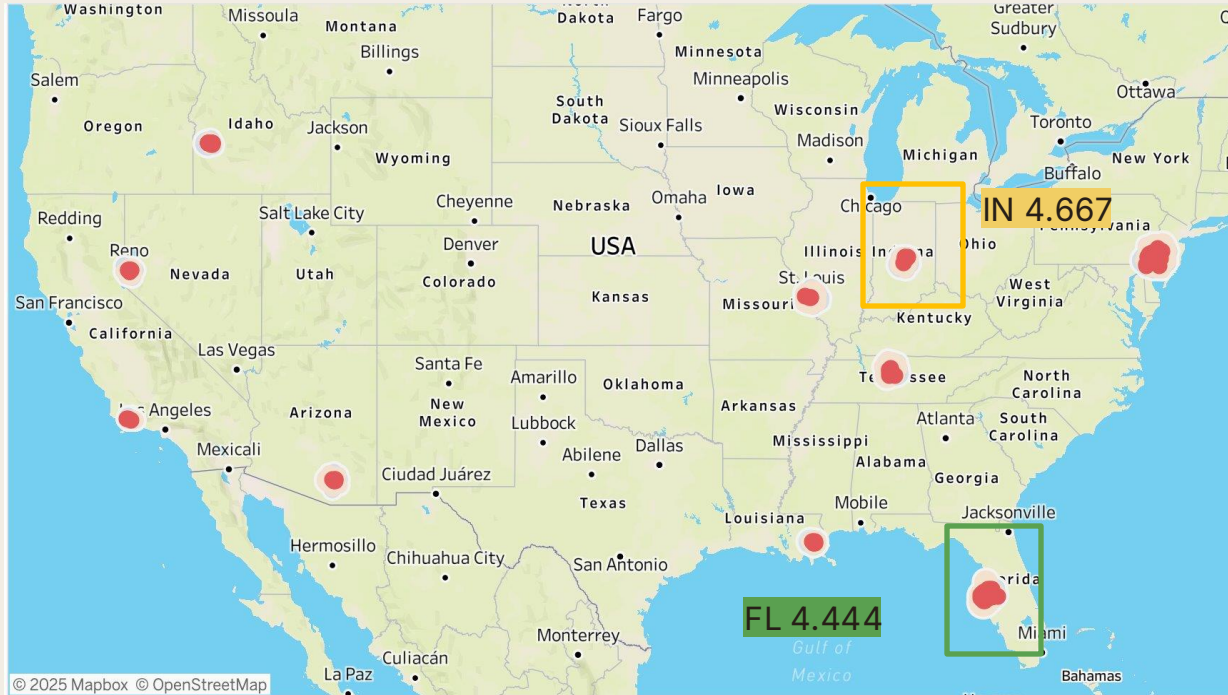


“

Hawaiian Restaurant is the new blue ocean in the US.

”

## 3.5 The Recommended Location of New Hawaiian Restaurants



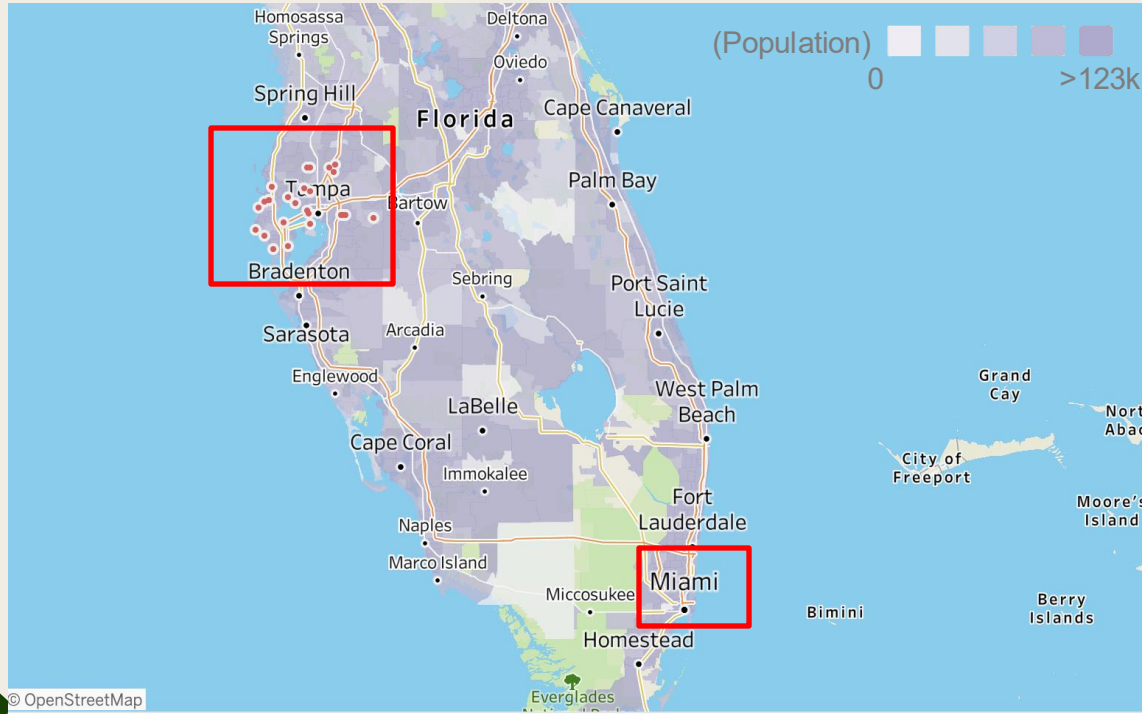
“

Indiana and Florida has the highest stars for Hawaiian Restaurants among other states. But, Florida has coastal atmosphere.

”



## 3.5 The Recommended Location of New Hawaiian Restaurants

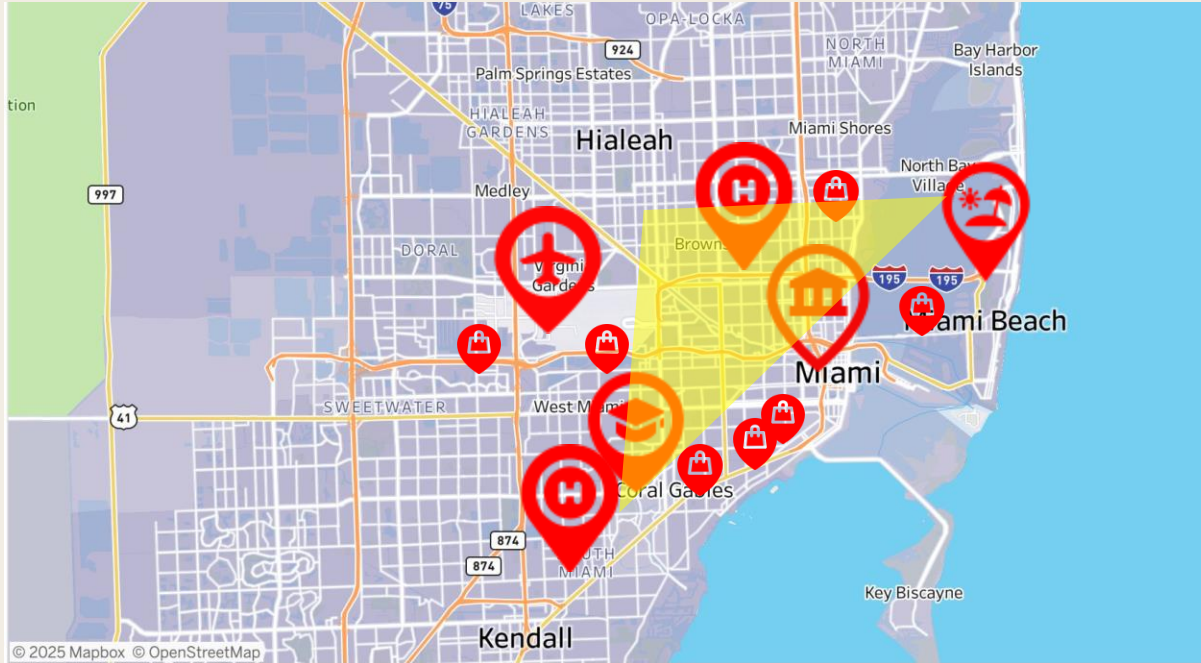


“

Tampa city already has 27 Hawaiian Restaurants. To find a new place, Miami city is the largest city in Florida and its population is up to 464.7K (World Population Review, 2024).

”

## 3.5 The Recommended Location of New Hawaiian Restaurants



“

Miami is the recommended location to open new Hawaiian Restaurants.

”



# 04

## Summary



## 4.1 Summary

1

Outdoor seating, reservable options are recommended to provide.

2

Reducing the waiting time of ordering, enhancing staff training, maintaining clean and hygienic facilities are suggested.

3

Encouraging timely post-meal check-ins and tailoring promotions to category-specific peak times can optimize traffic and engagement.

4

Leveraging high-impact users with strategic eWOM drives ratings.

5

Hawaiian restaurant is the new blue ocean and the Miami city is the recommended location to expand due to its well-known coastline and population amount.



# Thank You!

---