

**Las Vegas:  
The Strip or Downtown?  
Comparative Analysis of  
Restaurants in Old and  
New Las Vegas**

**Group O  
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# Agenda

Old & New Las Vegas

A Map of Las Vegas

Review of key research questions

Analysis:

- Overview of Yelp dataset

- Some findings from exploratory analysis

- Topic modeling applied to reviews

- Consumer preference models by geographic location

Implications

Next Steps

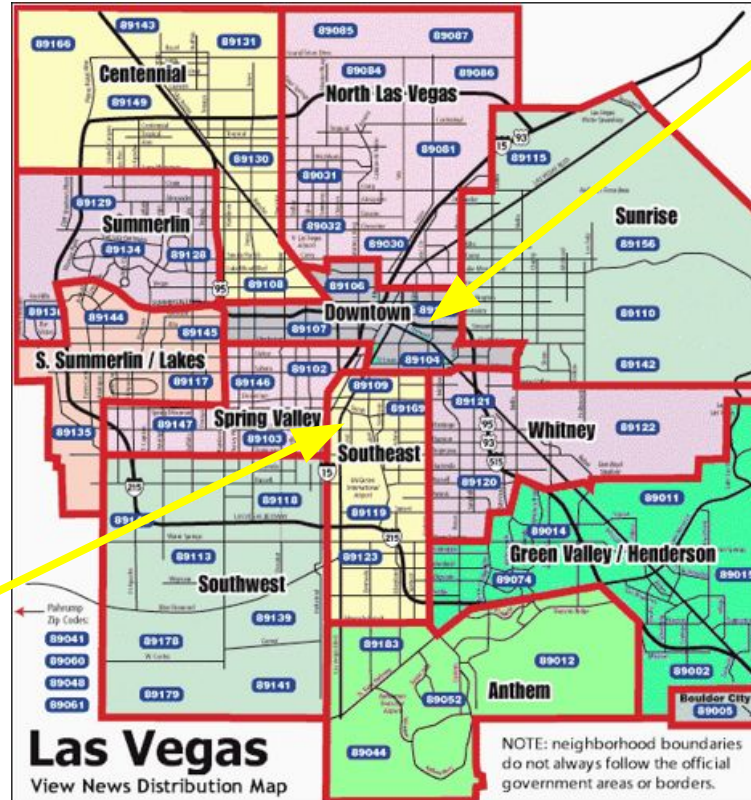
Appendix

# Old and New Las Vegas

- There are two main districts that travelers/gamblers to Las Vegas visit:
  - Downtown or The Strip in Las Vegas:
    - Downtown Las Vegas (Old Las Vegas)
      - Historic center of Las Vegas, Nevada.
      - All the casinos and hotels are relatively close together.
      - Less expensive than those in the Strip Las Vegas as it requires less minimum bet for different table games.
      - Popular across the budget minded traveler and the serious gambler
    - The Las Vegas Strip (New Las Vegas)
      - Features mega resorts that one often sees in television shows or movies.
      - Popular across the high-end sightseers or less serious gamblers

# A Map of Las Vegas

## Downtown, “Old Vegas”



## The Strip, “New Vegas”

# Review of Key Research Questions

1. How restaurants are visually distributed in the map in Las Vegas?
2. How high/low rated restaurants in Old and New Las Vegas differ in terms of their business attributes?
3. Would the sentiment toward key business attribute differ in two regions, due to different preferences of the traveler groups in each region?

# Analysis

# Yelp Dataset

## Yelp Dataset Challenge - Round 9

### Size:

4.1 million reviews from 1 million users for 144,000 businesses

4 countries (US, UK, Germany, Canada) and 15 cities

Variety of businesses: Restaurants, Beauty & Spas, Pet Services, Home Cleaning, etc.

### Business Dataset

Name of business (with business ID), Categories, Attributes, Star ratings, Review Count

### Review Dataset

Review text, Star rating, user ID

# Interactive Business Data in Las Vegas

Show  entries

Search:

	neighborhood	name	postal_code	categories	stars
1	Downtown	Robo Duck Truck	89101	[u'Food', u'Restaurants', u'Food Trucks', u'Asian Fusion']	4.5
2	Downtown	El Ausente	89104	[u'Mexican', u'Restaurants']	5
3	Downtown	Lola's A Louisiana Kitchen	89102	[u'Cajun/Creole', u'Restaurants']	4
4	Downtown	Jimmy John's	89102	[u'Delis', u'Food Delivery Services', u'Food', u'Sandwiches', u'Restaurants']	3.5
5	Downtown	Rachel's Kitchen	89106	[u'Restaurants', u'Juice Bars & Smoothies', u'American (New)', u'Food', u'Cafes', u'Sandwiches']	4.5
6	Downtown	Cilantro Taco Grill	89101	[u'Restaurants', u'Mexican']	1.5
7	Downtown	Jimmy John's	89101	[u'Food Delivery Services', u'Restaurants', u'Fast Food', u'Sandwiches', u'Food']	4
8	Downtown	Magnolia's Veranda	89101	[u'American (Traditional)', u'Restaurants']	3
9	Downtown	Top of Binion's Steakhouse	89101	[u'Steakhouses', u'Restaurants', u'Bars', u'Wine Bars', u'Seafood', u'Nightlife']	4
10	Downtown	Pura Vida Bakery & Bystro	89102	[u'Food', u'Caribbean', u'Restaurants', u'Vegan', u'Bakeries']	3.5

Showing 1 to 10 of 1,158 entries

Previous

1

2

3

4

5

...

116

Next



# Interactive Review Counts/Average Rating per Restaurant in Downtown and the Strip

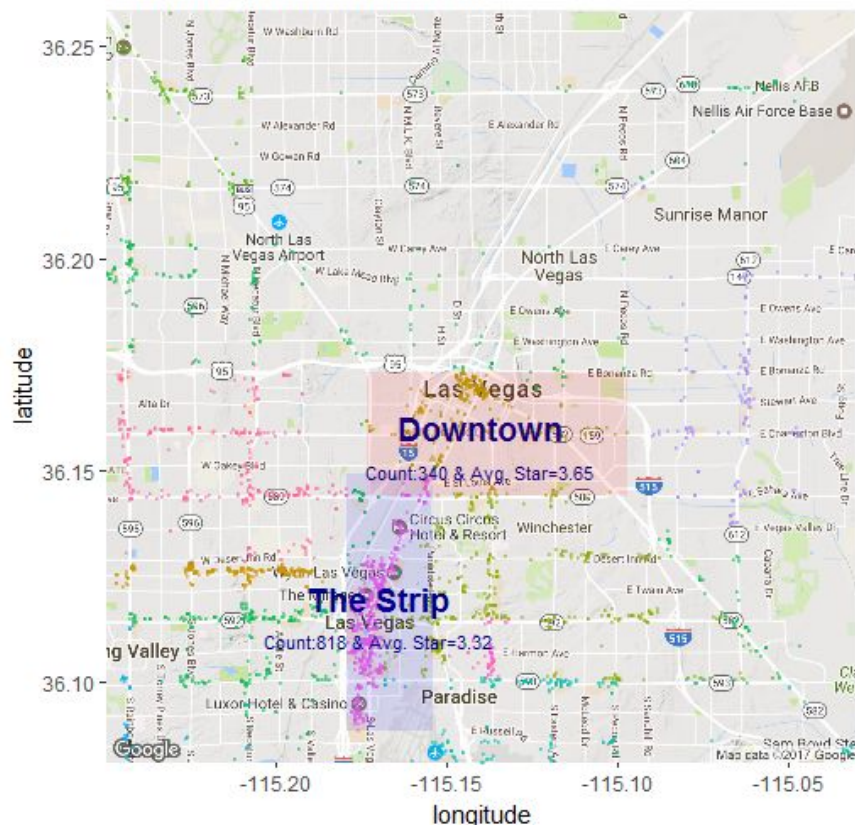
Show  entries

Search:

	Neighborhood	Restaurant Name	Review Counts	Average Rating
70	Downtown	Pizza Rock	5	4.0
233	The Strip	Pizzeria Francesco's	5	3.8
12	Downtown	Cadillac To Go	4	3.3
65	Downtown	Ogden Mart	4	3.5
92	Downtown	Tortas El Rey	4	3.8
126	The Strip	Burger Lounge	4	4.0
130	The Strip	California Pizza Kitchen	4	3.5
191	The Strip	Johnny Rockets	4	4.0
199	The Strip	Lasalsa Fresh Mexican Grill	4	4.8
210	The Strip	McDonald's	4	4.5

# Spatial Distribution of Restaurants in Las Vegas

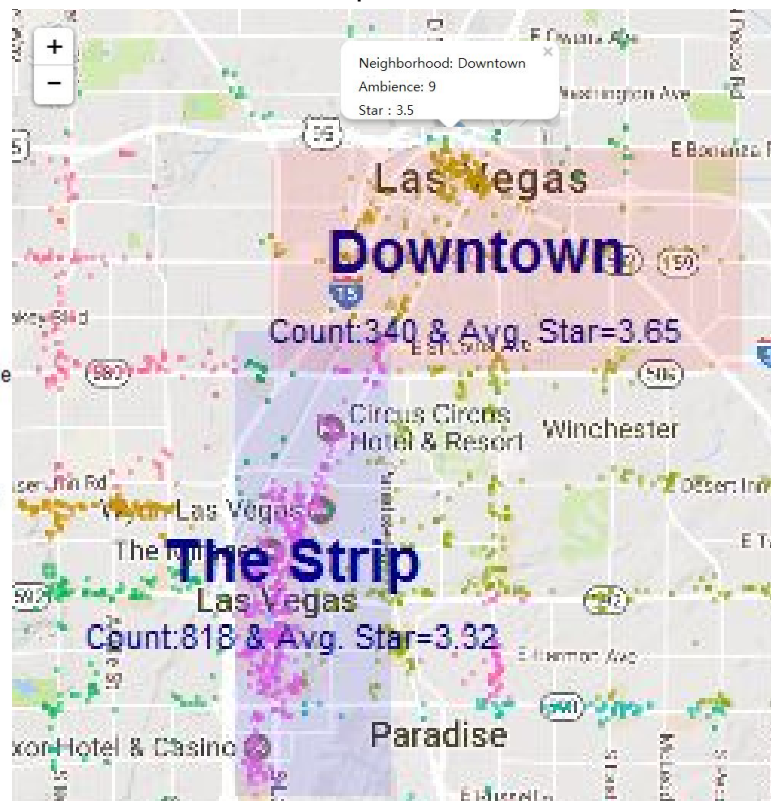
Overall Restaurants in Las Vegas



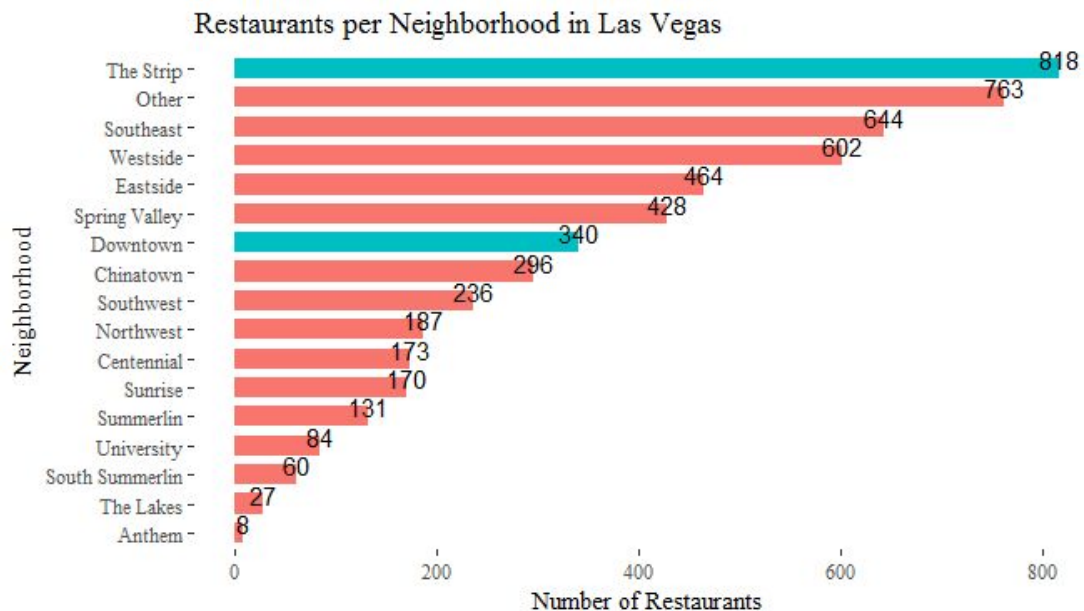
Leaflet - Interactive Map

neighborhood

- Anthem
- Centennial
- Chinatown
- Downtown
- Eastside
- Northwest
- Other
- South Summe
- Southeast
- Southwest
- Spring Valley
- Summerlin
- Sunrise
- The Lakes
- The Strip
- University
- Westside



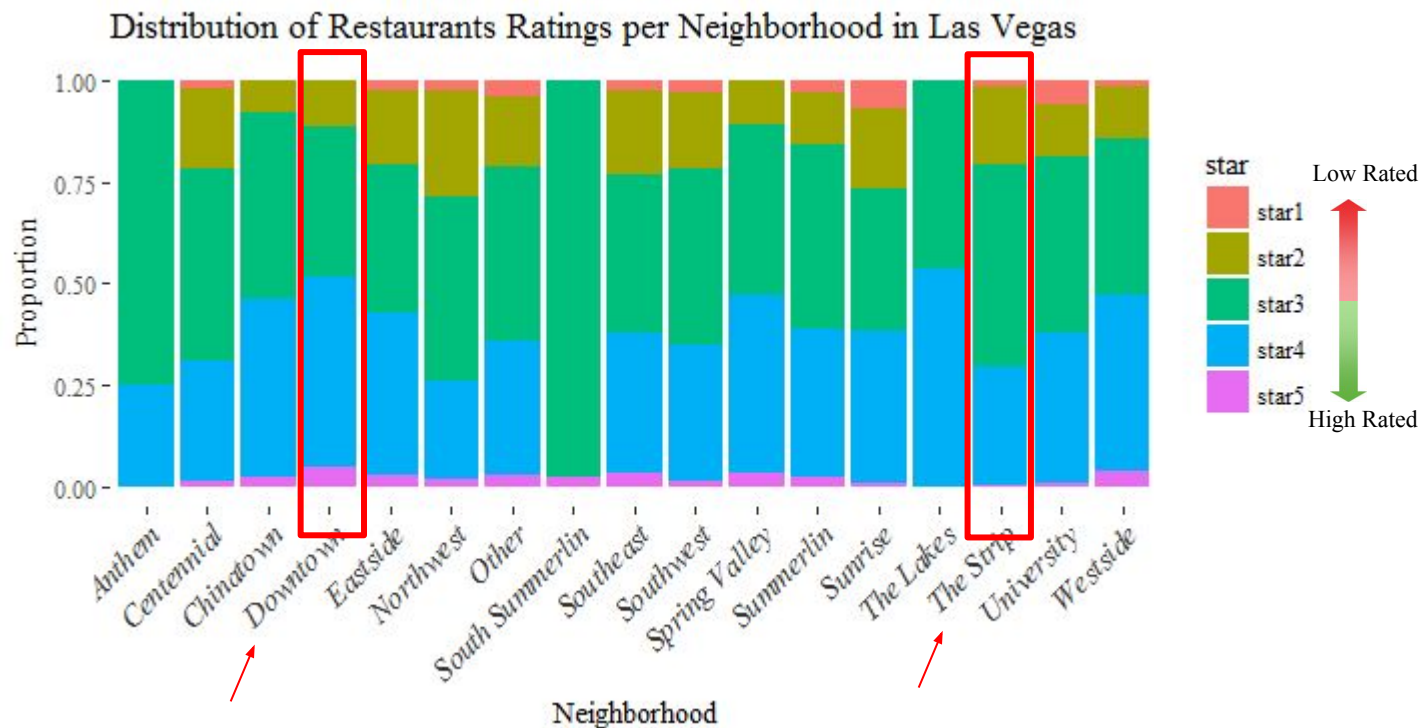
# Spatial Distribution of Restaurants in Las Vegas



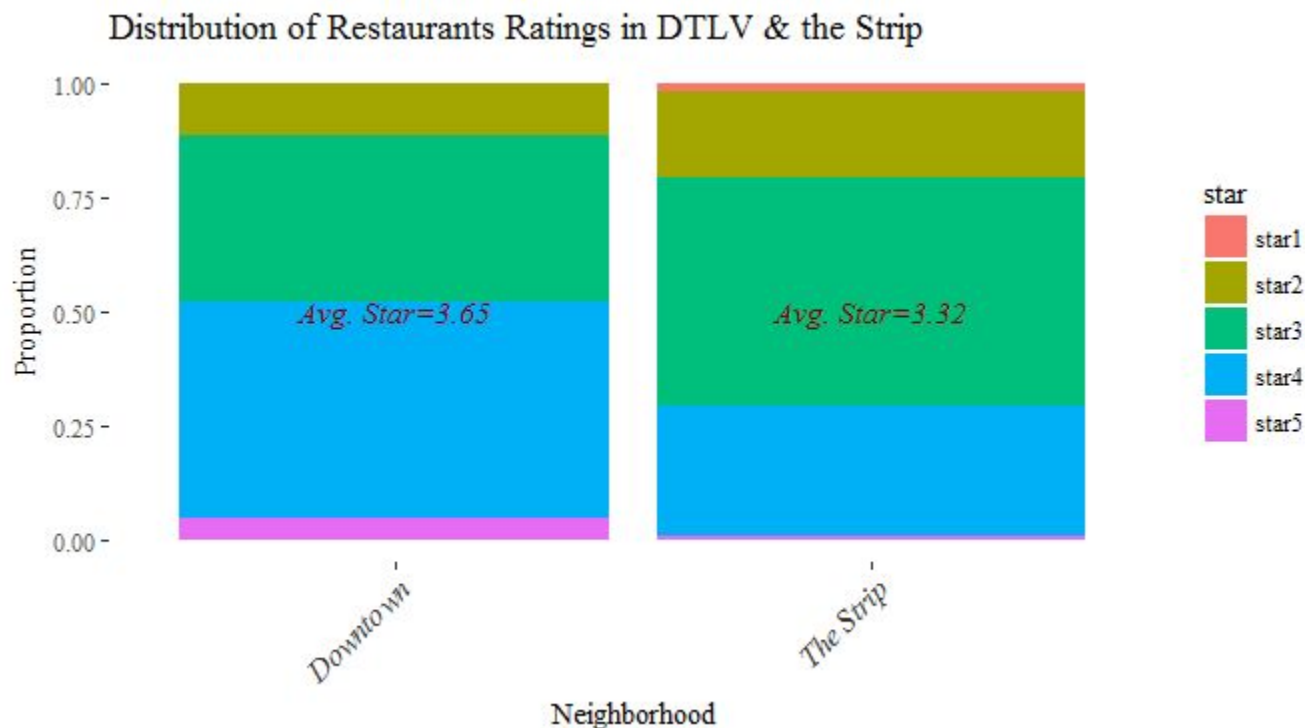
Selected Cities



# Varied Restaurant Ratings per Neighborhood in LV

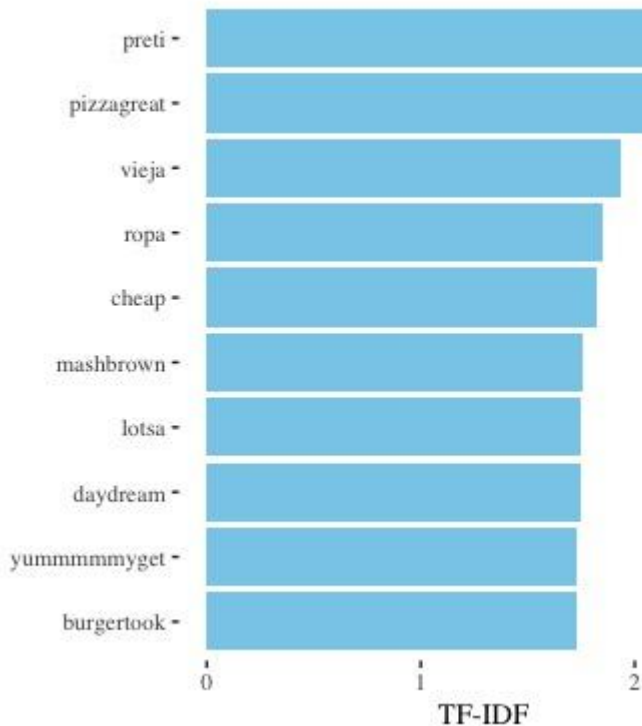


# Downtown has Higher Ratings than The Strip

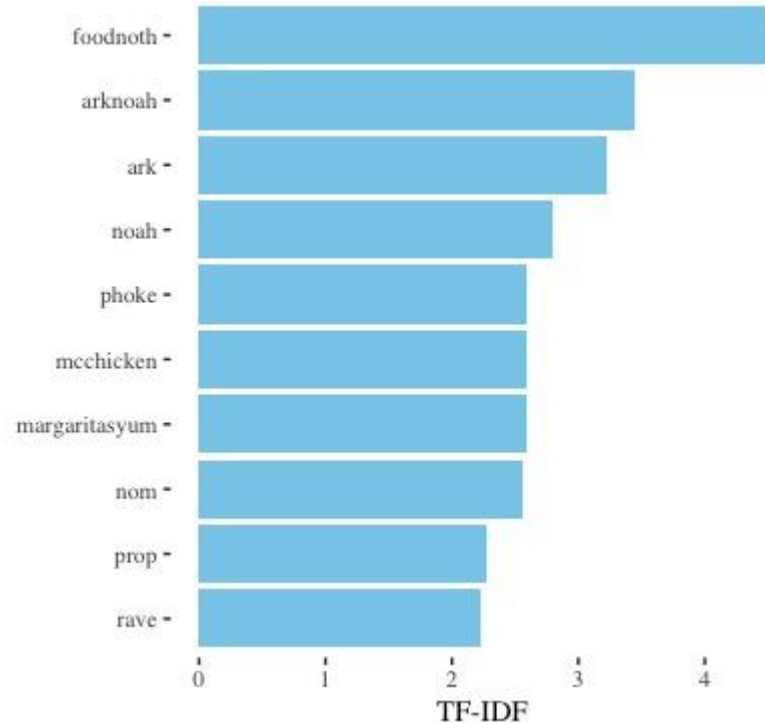


# Frequent Words Used in Each Neighborhood

**The Frequent Words Used in Downtown**



**The Frequent Words Used in The Strip**



## Different wordcloud of The Strip vs. Downtown

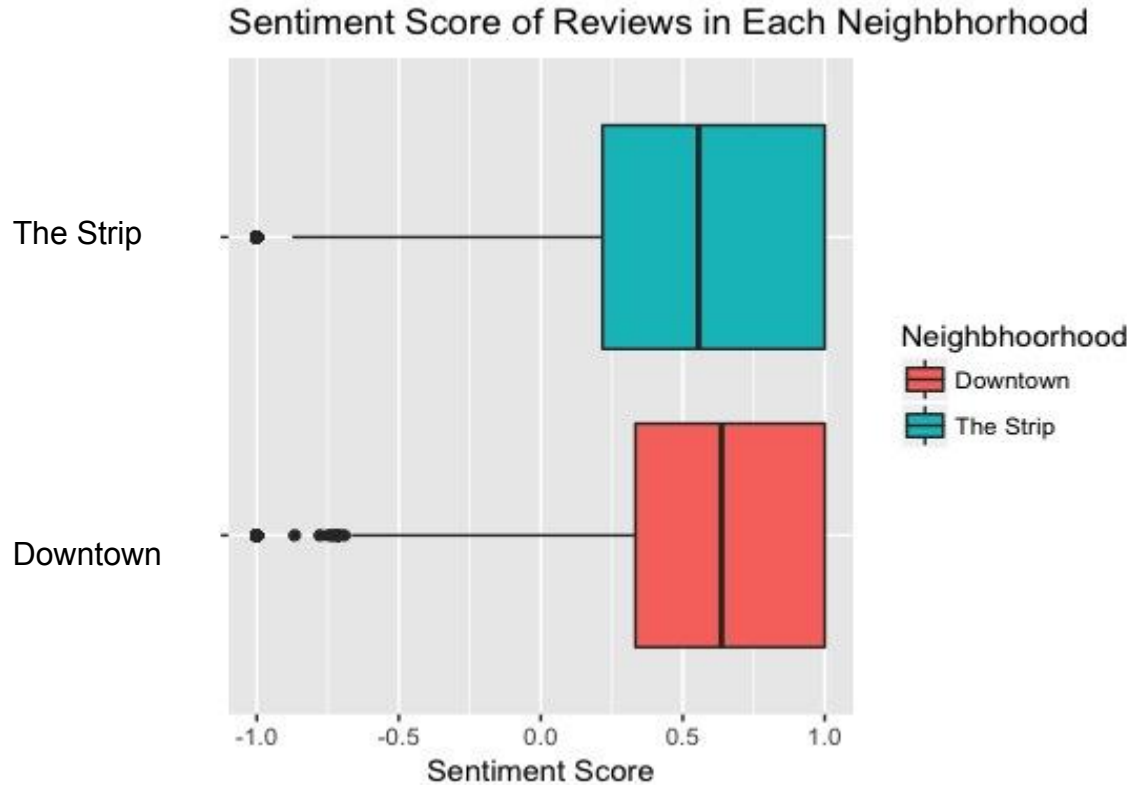


## Downtown



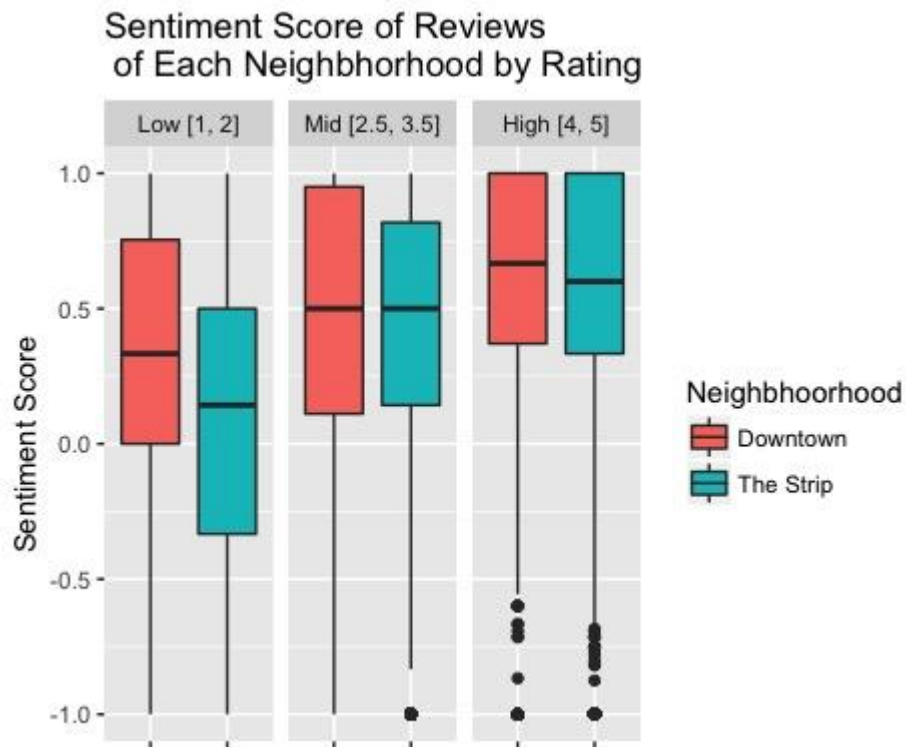
# The Strip

## Sentimental score of The Strip vs. Downtown in General are similar

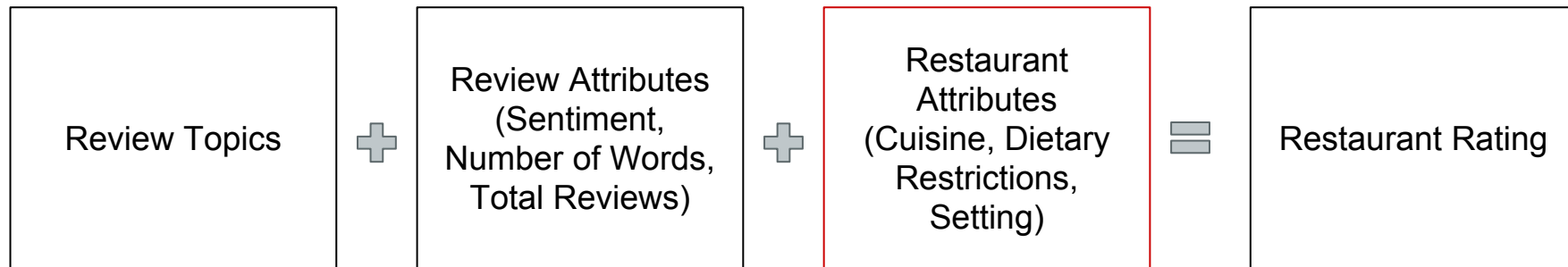




# Sentiment Analysis of The Strip vs. Downtown by Star Rating



# Next, We Built a Consumer Preference Model



# Next, We Built a Consumer Preference Model

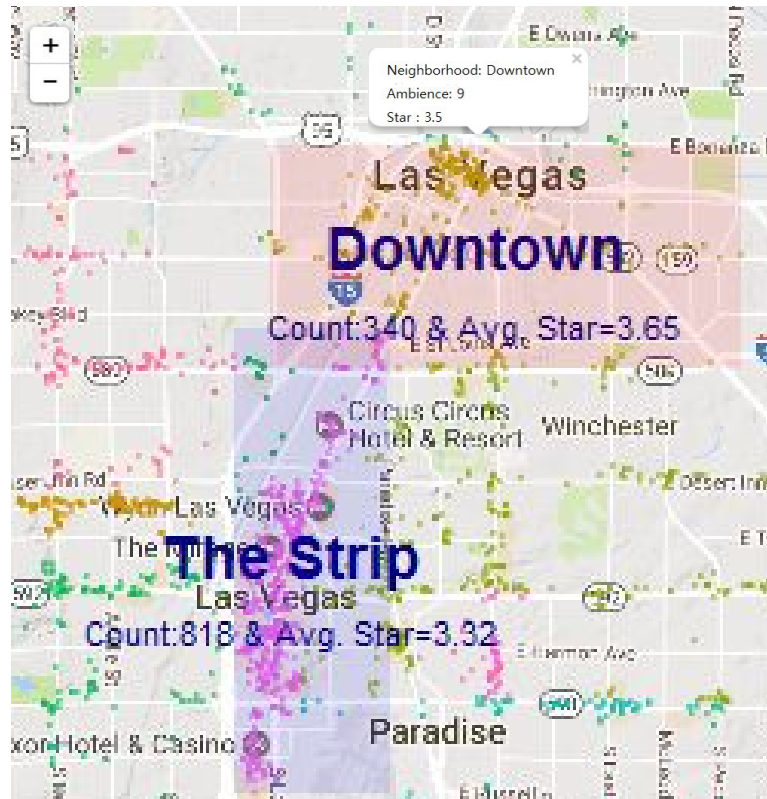
46

Alcohol	Caters	RestaurantsTakeOut
Ambience	Corkage	background_music
BikeParking	DietaryRestrictions	DietaryRestrictions
BusinessAcceptsCreditCards	RestaurantsCounterService	WheelchairAccessible
BusinessParking	RestaurantsReservations	classy
DriveThru	BestNights	AgesAllowed
GoodForKids	CoatCheck	AcceptsInsurance
GoodForMeal	GoodForDancing	HairSpecializesIn

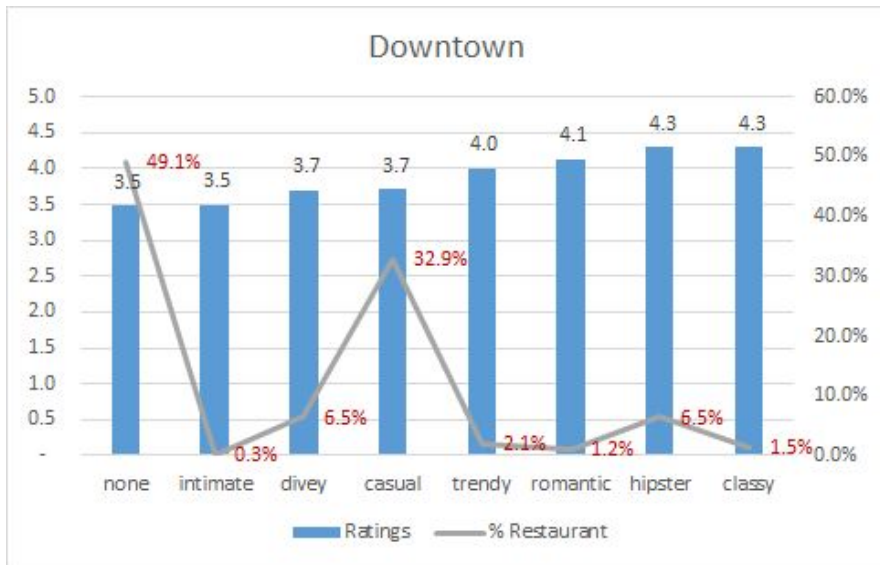
#	Binary Variables_hc	Category	Category_keyword
1	Alcohol. none	Alcohol	none
2	Ambience.romantic	Ambience	romantic
3	Ambience.intimate	Ambience	intimate
4	Ambience.classy	Ambience	classy
5	Ambience.hipster	Ambience	hipster
6	Ambience.divey	Ambience	divey
7	Ambience.touristy	Ambience	touristy
8	Ambience.trendy	Ambience	trendy
9	Ambience.upscale	Ambience	upscale
10	Ambience.casual	Ambience	casual

# Spatial Distribution of Restaurants in Las Vegas

Leaflet - Interactive Map



# Ratings per Ambiance of Restaurants in Old and New Vegas



Overall, similar trend of ratings per ambiance, but restaurant customers in the Strip prefers “Classy” and “Upscale” restaurants a bit more.

# Ratings per Alcohol attribute of Restaurants in Old and New Vegas



The Strip region's restaurants are high-rated if they sell alcohol drinks

Downtown restaurants slightly have this trend, too, but boozy option is more popular in the Strip.

# Implications & Next Steps

# Implications

- More spatial clusters of restaurants in New Vegas
- High-End \$\$\$ Restaurants are preferred and exist more in New Vegas
- Overall sentiment score for two regions are similarly distributed and somewhat popular
- However, consumers in the Strip are more likely to get negative sentiment in low rated restaurants
- Casual restaurants are welcomed in both areas
- Up-scaled/romantic restaurants are welcomed in both areas

Consumers in Old Vegas is more budget-minded than those of New Vegas

Consumers in New Vegas are more likely to be the traveler for specific events, funs, and traveling



# Next Steps

Include more business attributes for restaurants (e.g. Wi-Fi, attributes, price range etc.) to improve consumer preference models in Leaflet

Publish our work in HTML public webpage

**Thank you!**

# Appendix

# Source

GitHub:

[https://github.com/Columbia-University-QMSS/QMSS\\_G4063\\_final\\_project\\_Veronica\\_Eileen.git](https://github.com/Columbia-University-QMSS/QMSS_G4063_final_project_Veronica_Eileen.git)

Dataset: [https://www.yelp.com/dataset\\_challenge](https://www.yelp.com/dataset_challenge)