STAT628-Group 14

Yelp Data Project

Breakfast & Brunch Places in Indianapolis

12-05-2023

Safa Eltgani

Osama Kheshaifaty

Chixu Ni

Motivation:

Breakfast/brunch restaurants have seen growth in popularity in the recent years

Indiana due to abundance of data available

Original Question:

What factors contribute to greater customer satisfaction in 'Breakfast & Brunch' restaurants and how they can be leveraged to enhance their average ratings?

Data Summary:

Factors:

1. Number of Trips Taken by Postal Code
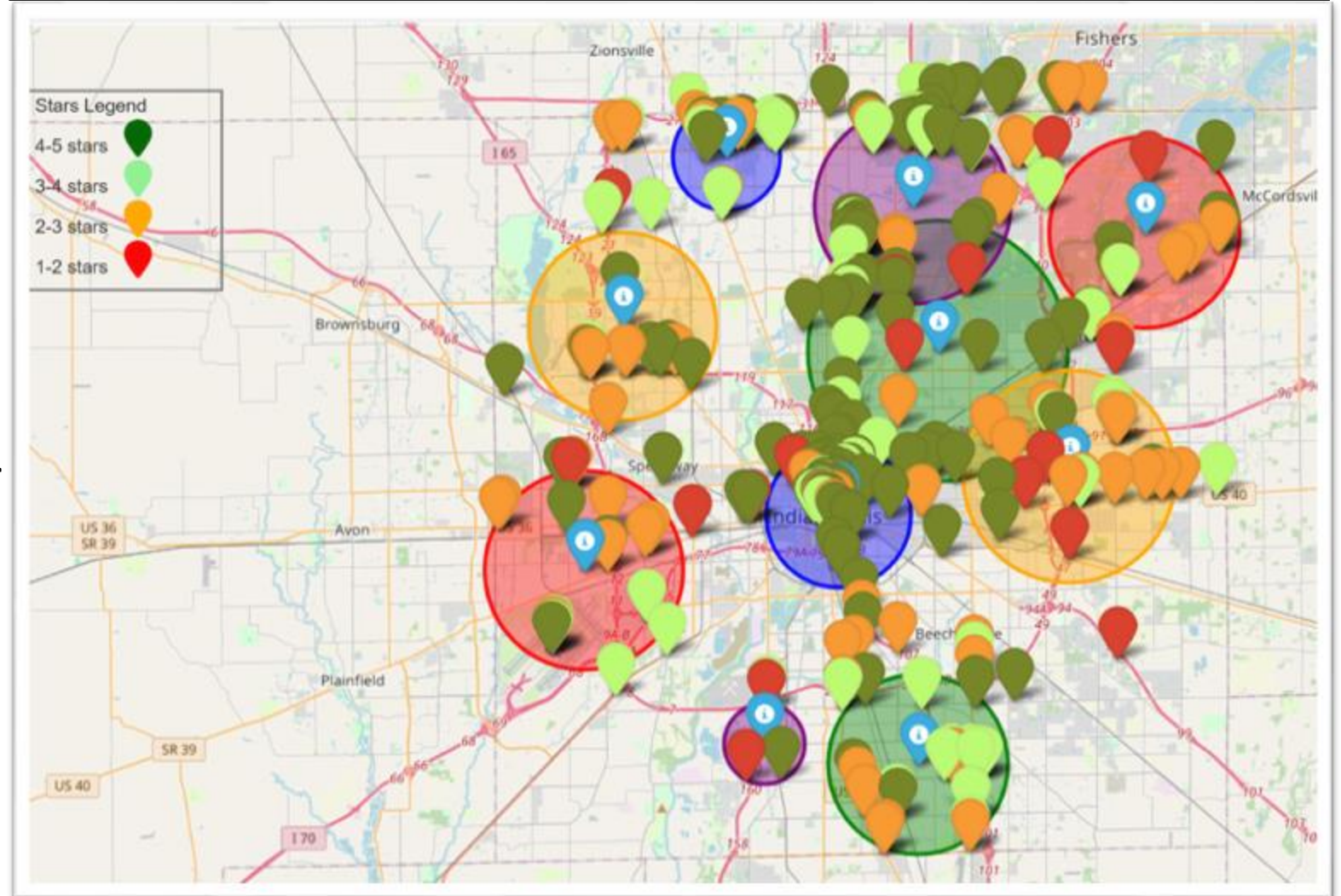2. Operating Days & Hours
3. Reviews of Key Menu Food Items

n = 41,300 reviews from m = 337 businesses

Total number of words in reviews after removing stopwords is 2.8 million
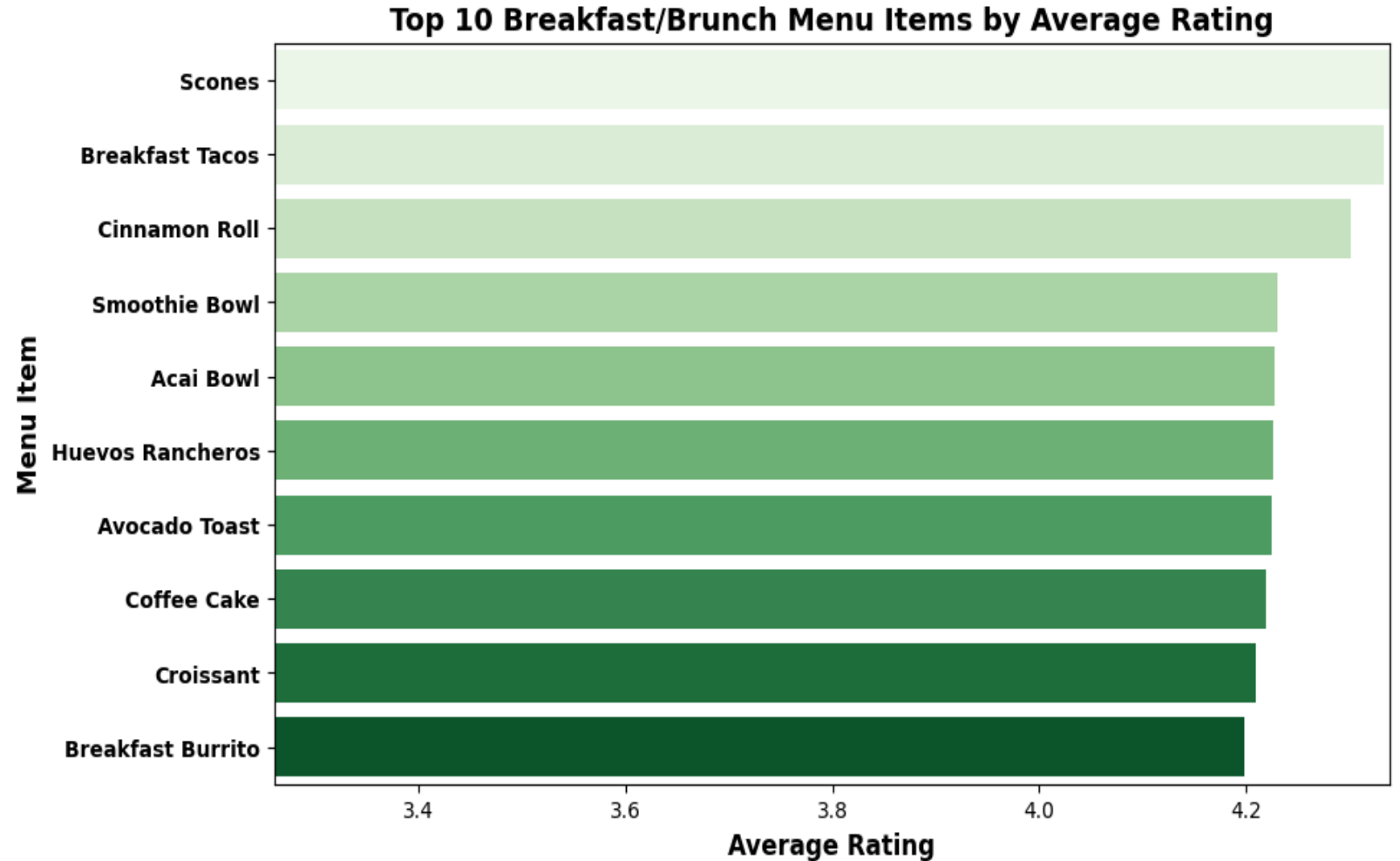
Geographical location

- K-means clustering method

- Red and orange areas have higher trips and lower ratings

- Green and blue area fewer trips but higher ratings

Clustered Based on Location & Trips

Stars Legend
- 4-5 stars
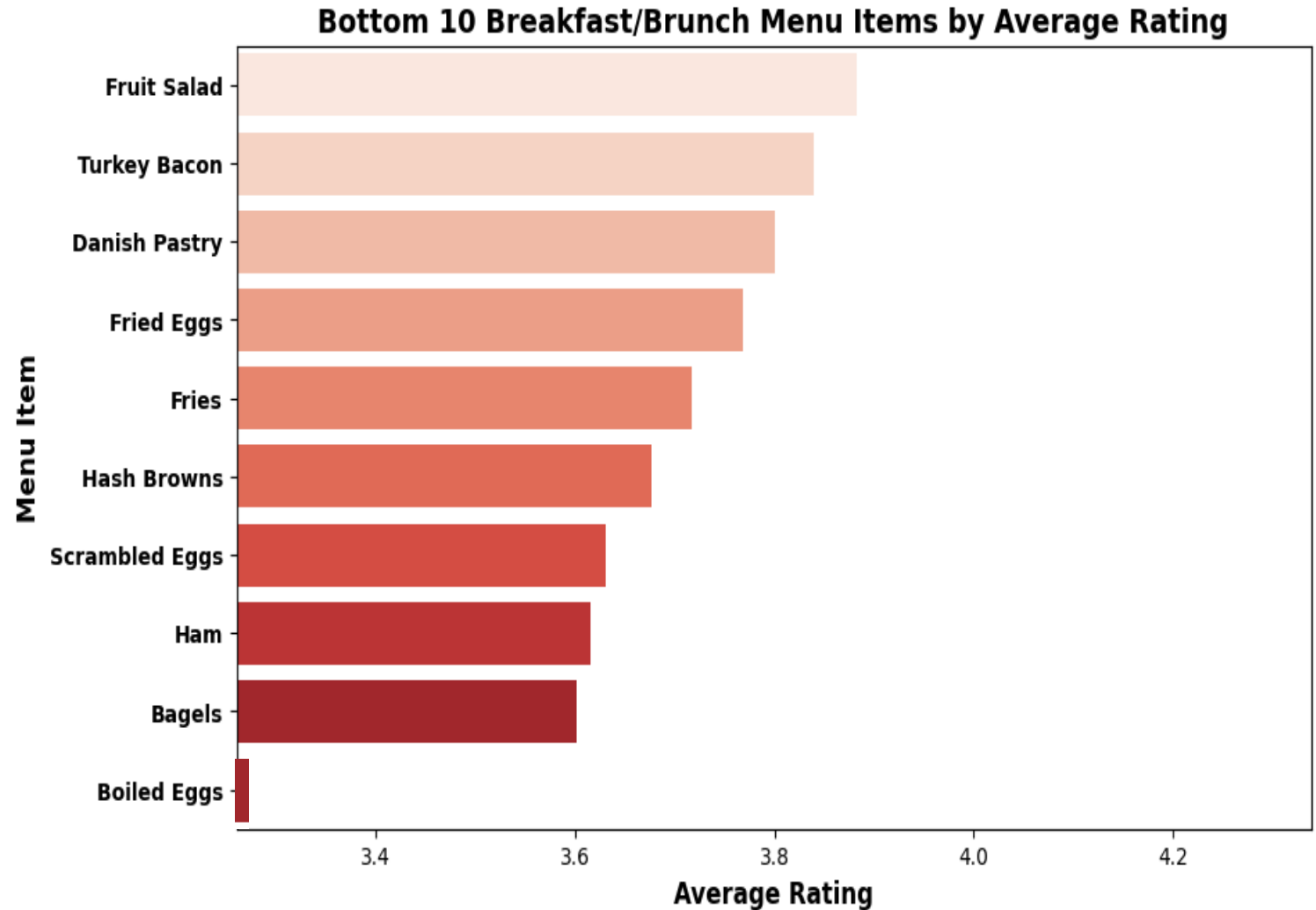- 3-4 stars
- 2-3 stars
- 1-2 stars

Menu:

- Positive reviews (rating > 3)

- Items sorted based on average rating in reviews that mention them

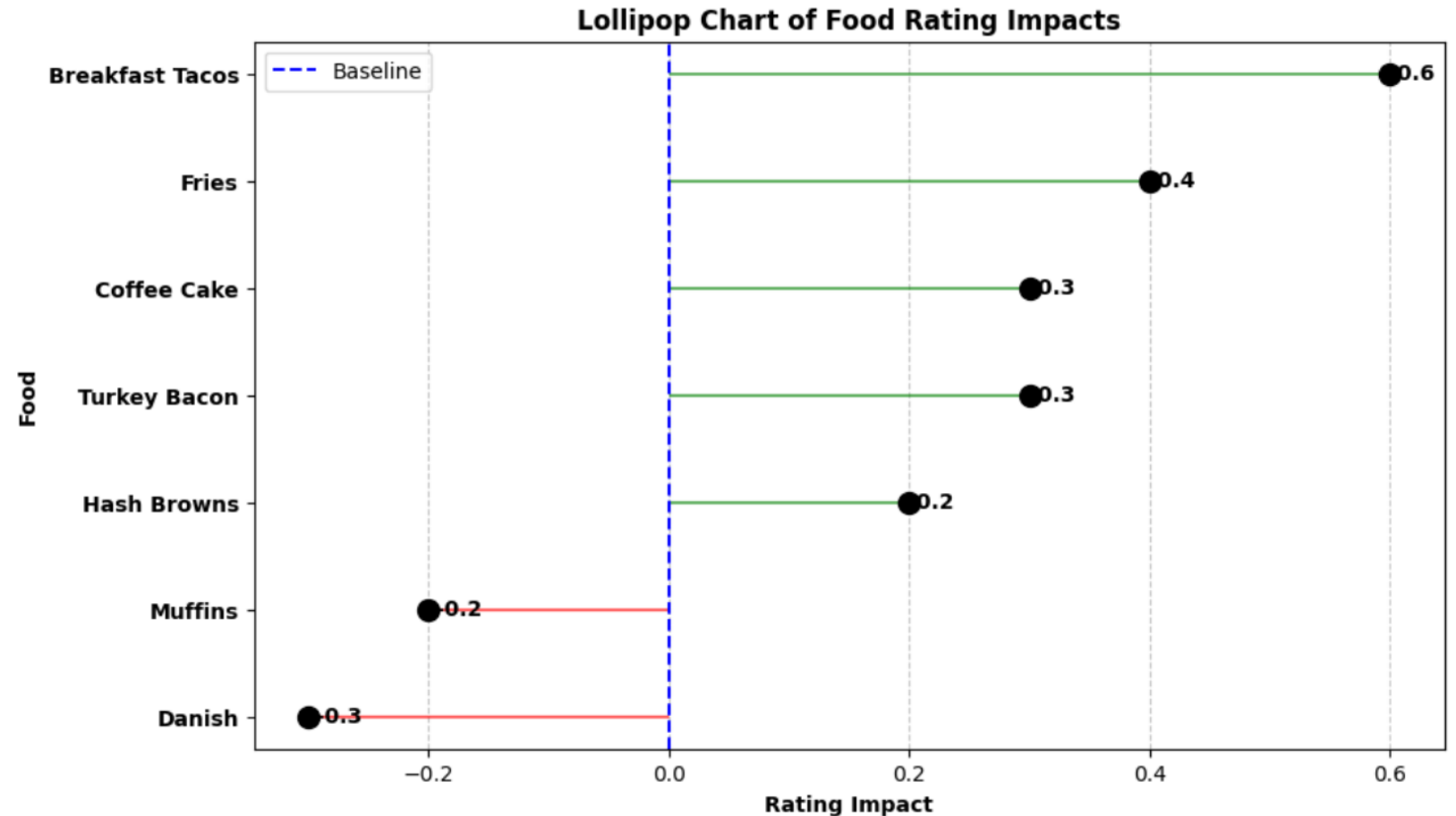- Scones & Breakfast Tacos seem to be associated with higher ratings

Top 10 Breakfast/Brunch Menu Items by Average Rating

Menu:

- Items sorted based on average rating in reviews that mention them

- Bagels & Boiled Eggs seem to be associated with lower ratings.

Bottom 10 Breakfast/Brunch Menu Items by Average Rating

Sentiment Analysis of Food Items

- We can see the positive sentiment increases average rating.

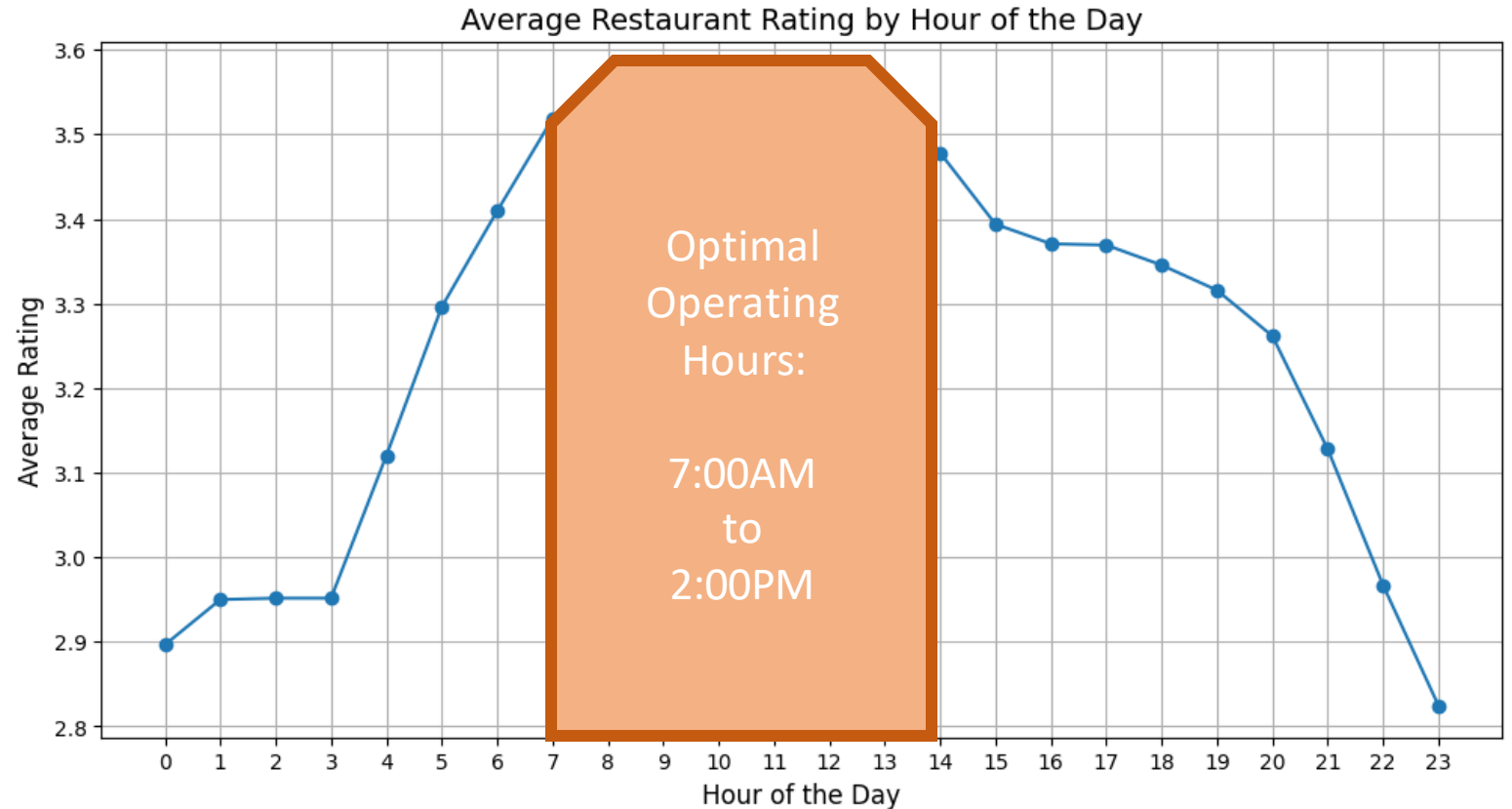- Offering good quality Breakfast Tacos, Turkey Bacon, Fries can help improve ratings

*Significance greater than 0.2 difference

Lollipop Chart of Food Rating Impacts
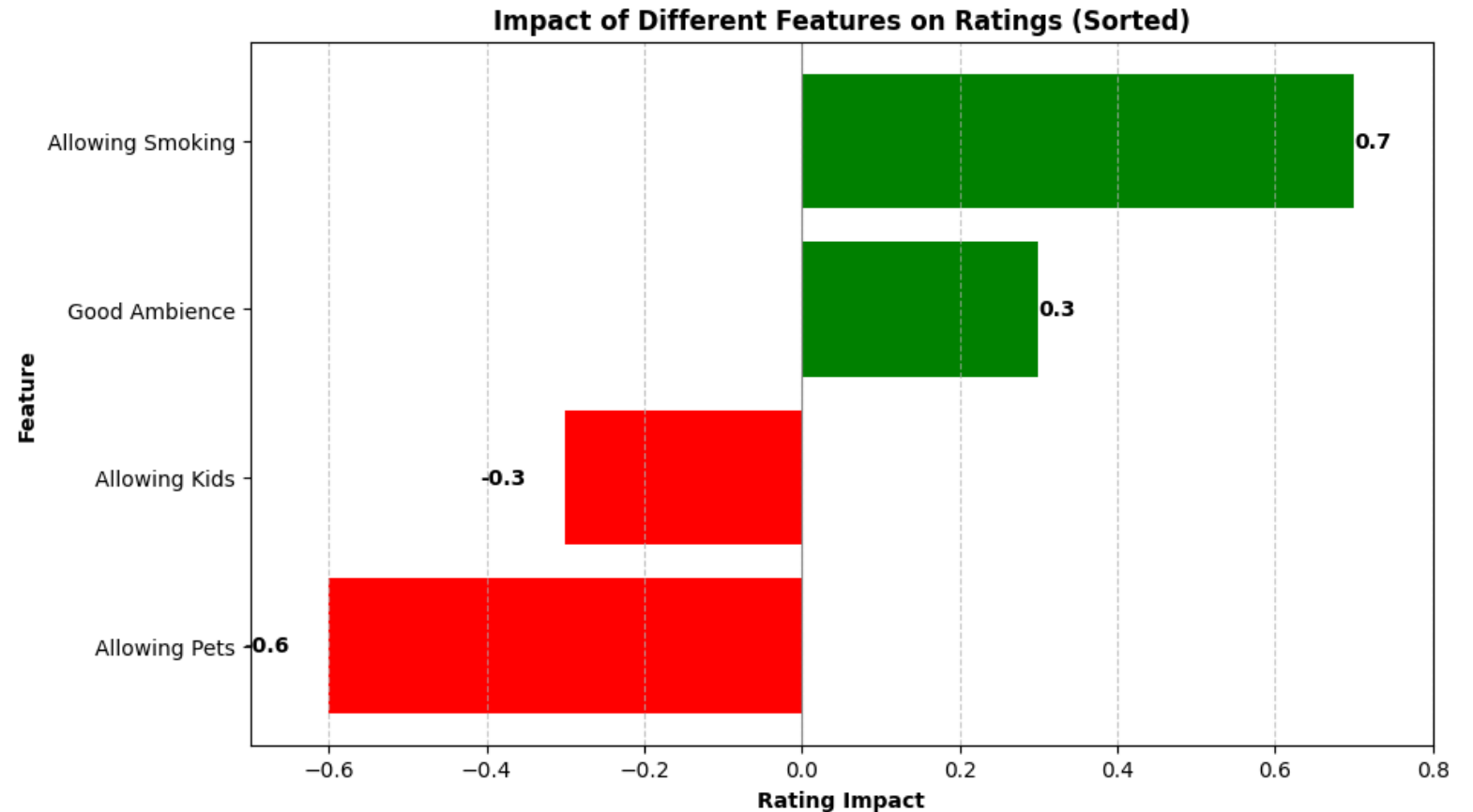
Working Hours Ratings Average:

- Restaurants that open 7am-2pm have higher ratings

  (Local brunch places

   vs. Lower quality diners)

- No correlation between increasing hours and ratings
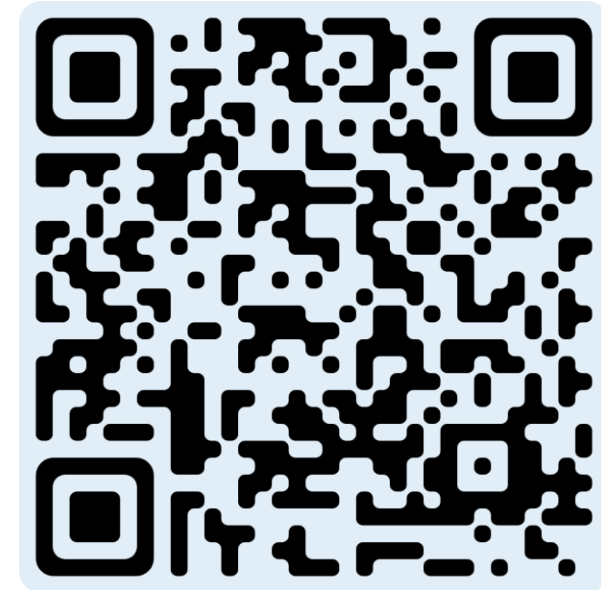
- Recommended Operating Range: 7am-2pm

Average Restaurant Rating by Hour of the Day

Optimal Operating Hours:

7:00AM
to
2:00PM

Sentiment Analysis of Business Attributes

- Most positive:

Allowing smoking, good ambience

- Most negative:

Allowing kids and pets

Impact of Different Features on Ratings (Sorted)

Feature	Rating Impact
Allowing Smoking	0.7
Good Ambience	0.3
Allowing Kids	-0.3
Allowing Pets	-0.6

Summary:

- Recommendations:
  - Downtown restaurants require people to travel less and tend to have higher reviews
  - Food: Breakfast taco, Fries, Coffee cake, Turkey bacon, Has browns
  - Operating time: 7am-2pm
  - Attributes: Ambience, smoking

Scan for demo

Breakfast/Brunch Restaurant Analysis (shinyapps.io)

https://osama-kheshaifaty.shinyapps.io/Module3_Group14/

References

- https://www.usatoday.com/story/money/2016/05/09/fast-food-industry-breakfast-menus/83963224/
- https://www.npd.com/news/press-releases/2022/breakfast-was-u-s-restaurant-industry-bright-spot-in-august/