Interactive Dashboard Visualization:

Santa Barbara Restaurants

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Dataset Introduction:

The purpose of this project was to publish an interactive dashboard that visualizes rating and review data about the restaurants in Santa Barbara, CA. The data was collected from the Yelp Open Dataset available online at https://www.yelp.com/dataset. The dataset is open use for academic research and is available for students to learn to work with databases using sample production data.

Data Cleaning/Database Creation:

The dataset was pared down to include only restaurants located in Santa Barbara along with geographical location, review stars, number of reviews, date of review, restaurant name, and restaurant category.

- Date column was formatted using pandas datetime function.
- Dataset was filtered down to only include 10 years of data.
- Category column was filtered down to include only 13 categories of restaurants.

ınt	categories		categories
10	Restaurants, Breakfast & Brunch	8	American (Traditional)
10	Restaurants, Breakfast & Brunch	ul	American (Traditional)
10	Restaurants, Breakfast & Brunch	H6fr	American (Traditional)
10	Restaurants, Breakfast & Brunch	tQ	American (Traditional)
10	Restaurants, Breakfast & Brunch	94	American (Traditional)

Color Design Considerations:

- Our color design is consistent throughout the dashboard. We chose this color palette because of our dataset's proximity to the Los Angeles Lakers, believing our target audience would more likely be fans of the Lakers and we liked the look of the palette.

	#fdb827	(253,184,39)
	#542583	(84,37,131)
	#000000	(0,0,0)
	#aaaaaa	(170,170,170)

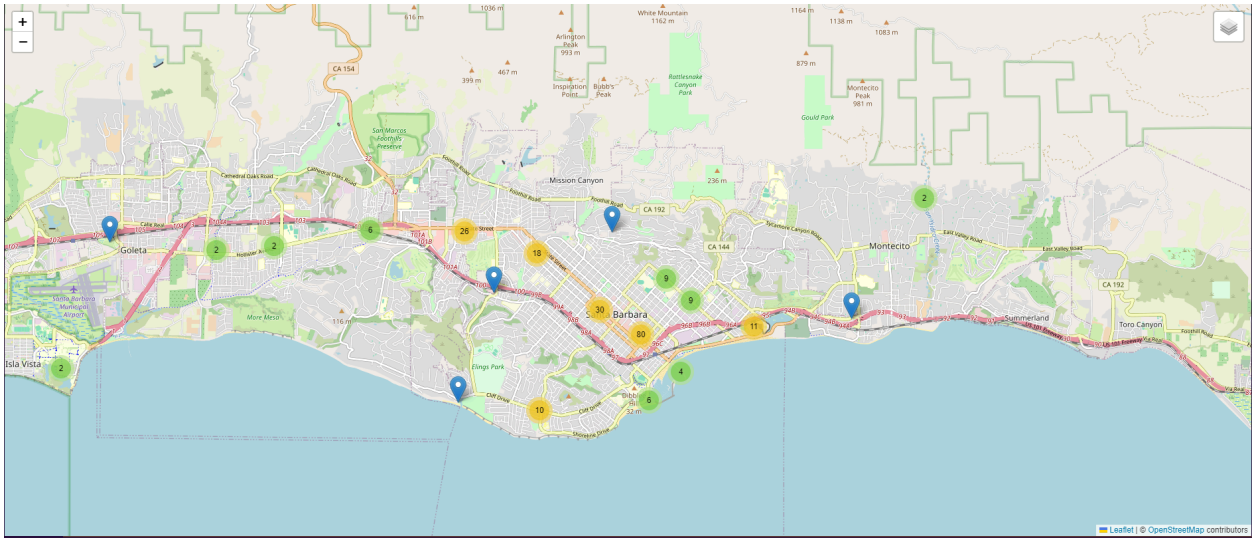
Website Architecture:

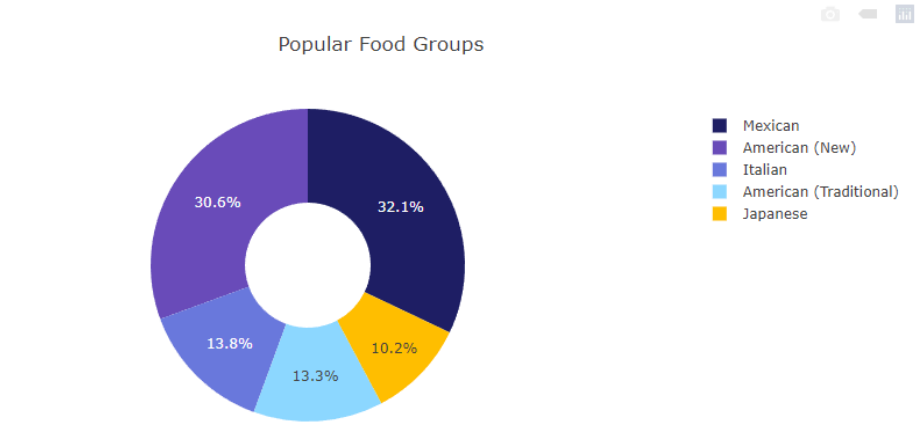
- Front-end:
  - HTML/CSS, JavaScript,
- Back-end:
  - Flask Framework
- Database
  - SQL Database (SQLite)

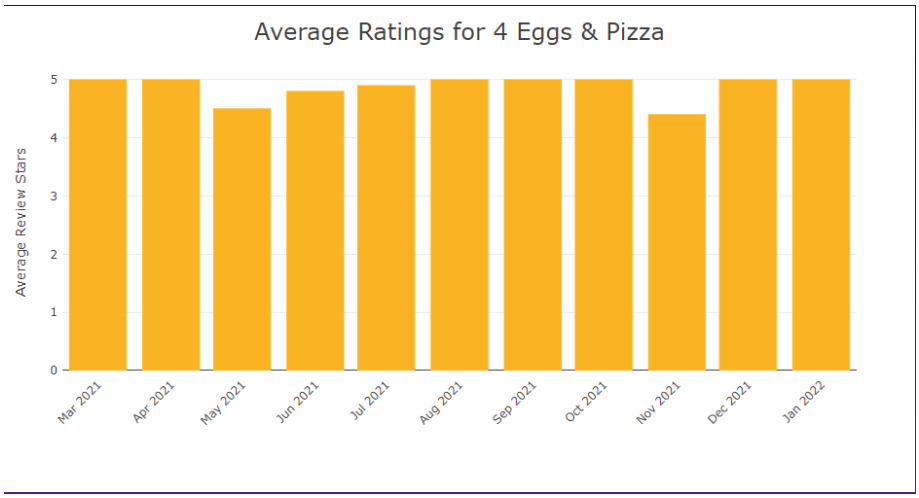
Dashboard Design Concepts:

An interactive dashboard was created as the core feature of the application, allowing users to filter Santa Barbara restaurants based on a 1-5 star rating on the Dashboard tab and by Restaurant Name on the Restaurants tab. The visualizations respond dynamically based on the user's input on the dropdown filter. For the dashboard, our key design concepts were clarity, consistency, and simplicity.

- **Map Visualization**: The map visualization displays the locations of restaurants located in Santa Barbara. Leaflet Library was used to create marker clusters and add a heatmap layer to the map visualization.
- **Donut Chart**: The donut chart visualization shows the distribution of restaurant categories. The chart displays our top 5 (most reviewed) categories in the dataset. The donut chart is implemented using the Plotly.js library
- **Bar Chart**: The bar chart displays the average stars received grouped by month and also displays the count of reviews on the bar label. This allows the consumer to see any trends upward or downward affecting a restaurant's average star rating. The bar chart is implemented using the Plotly.js library.
- **Data Table**: Provides detailed information about each restaurant, including name, address, category, star rating, and the number of reviews. The data table is implemented using the DataTables JavaScript library


Goleta
Mission Canyon
Barbara
Montecito
Summerland
Toro Canyon
Isla Vista
Leaflet | © OpenStreetMap contributors


Popular Food Groups
30.6%
32.1%
13.8%
13.3%
10.2%
Mexican
American (New)
Italian
American (Traditional)
Japanese


Average Ratings for 4 Eggs & Pizza
Average Review Stars
0
1
2
3
4
5
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Oct 2021
Nov 2021
Dec 2021
Jan 2022

Food Table

10 entries per page

Search:

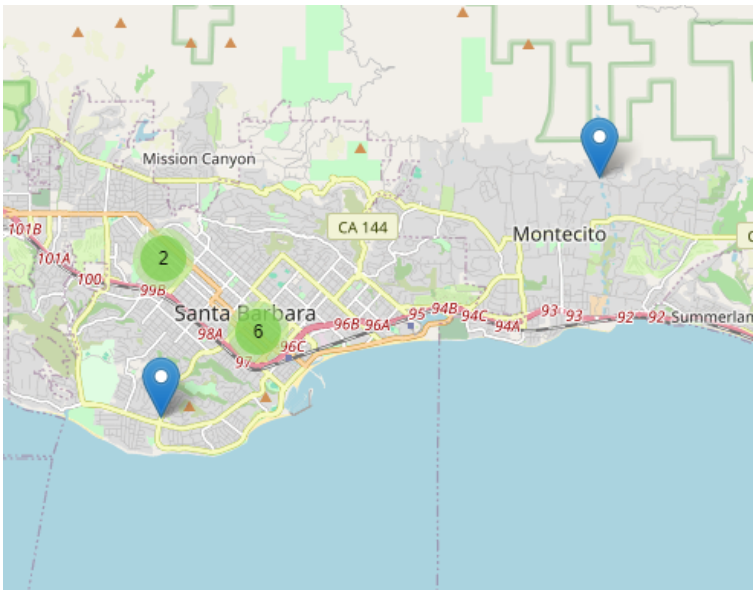
Name	Address	Category	Stars	Total Reviews
4 Eggs & Pizza	1221 State St, Ste 10	Vietnamese	4.8	61
Aksum Restaurant	815 E Figueroa St	Ethiopian	4.9	9
Angel Oak	8301 Hollister Ave	American (New)	3.8	32
AR Catering	6034 Hollister Ave	Mexican	4	1
Arigato Sushi	1225 State St	Japanese	3.9	50
Arnoldi's Cafe	600 Olive St	Italian	4	21
ASIE	511 State St	American (New), Chinese, Japanese	3	59
Backstage Dueling Piano Bar	409 State St	American (New)	4.8	41
Baja Sharkeez	525 State St	Mexican	2.8	41
Barbareño	205 W Canon Perdido St	American (New), American (Traditional)	4.4	41

Showing 1 to 10 of 225 entries

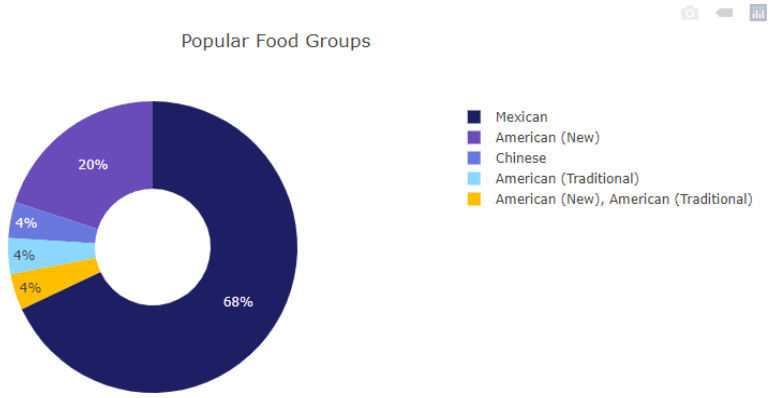
« ‹ 1 2 3 4 5 ... 23 › »

Research Questions:

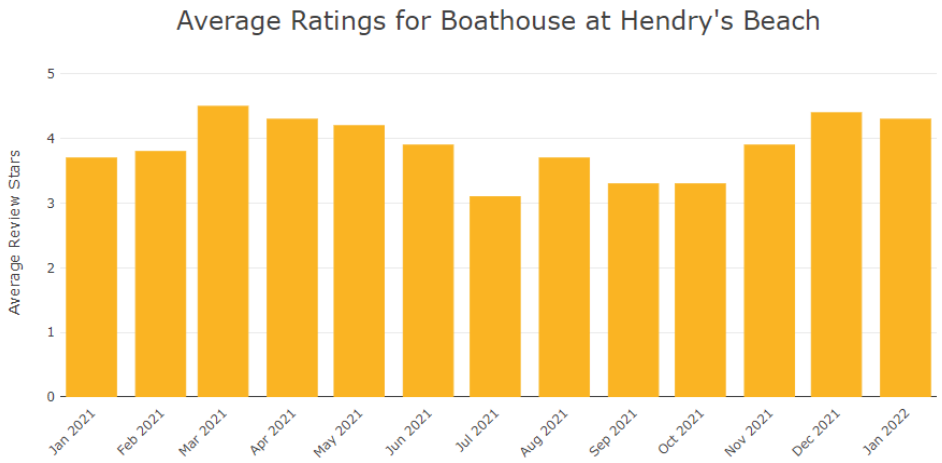
- Where are the highly rated restaurants located?
    - Our map visualization will answer this research question. After filtering the visualization to 5 stars you will notice that the majority of the five star restaurants are located in downtown Santa Barbara.



- Which categories of restaurants are highly rated?
    - Our donut chart visualization will answer this research question. After filtering the visualization to 5 stars you will see that Mexican is the highest rated category with 68% of 5 star reviews.



- How does a restaurant's average rating change month to month?
    - On the Restaurants tab, the bar chart visualization can show the average review rating by month and can be filtered by restaurant so that you're able to identify any review trends over time.



Bias/Limitations:

Limitations of this project deal with the size of the dataset selected and our approach to categories. To ensure faster load times for the website, we chose to only represent Santa Barbara. We also had multiple categories tagged for each restaurant in the dataset, which we reduced in data cleaning for better visuals. This leads to bias in the dataset through omission.

Future Work

This project has several avenues for future work. This includes:

- Addition of a filter for number of reviews
- Expanding to a larger dataset (Additional cities, entire state, multiple states)
- Addition of a custom logo
- Improved code organization

Conclusion/Reflection:

In conclusion, we found most Santa Barbara yelpers like Mexican food best and that their best chance of finding restaurants is in the downtown area. We also found that average stars over-all is consistent at 4 stars, but can vary wildly restaurant to restaurant.

Work Cited:

Bootswatch. *Slate Theme*. 2024, https://bootswatch.com/slate/.

iStock. *iStockphoto Stock Images and Photos*. 2024, https://www.istockphoto.com/.

Yelp. *Yelp Open Dataset*, 2024, https://www.yelp.com/dataset.