

## 1. Project code:

[https://github.com/yanzhuo2001/SI507\\_final\\_project](https://github.com/yanzhuo2001/SI507_final_project)

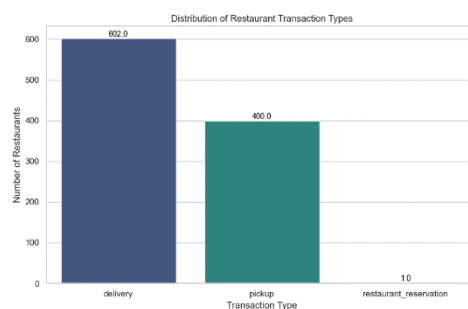
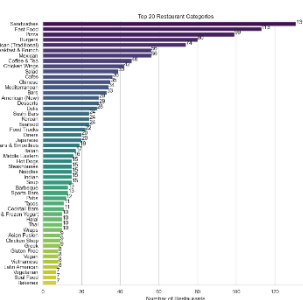
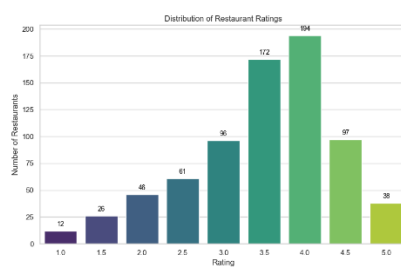
## 2. Data sources (1/2 – 1 page)

**Origin:** Yelp's API (api\_key = 'xjBZe7\_IvwLXcaUPxWrfcvMT-Xw1rUxNlx4PSdvHx6jSzUp-YYZyHL03SzXGIIWR8261\_pGwuoTo8hhAZEioWQlhB9k1freKyv8v-IMMSihaQZyakMhlPHXO\_c\_ZXYx'; url = 'https://api.yelp.com/v3/businesses/search')

**Data format:** JSON file

**Access method using caching:** Utilized Python's requests library to access Yelp's API. Implemented pagination to retrieve multiple records, with a limit of 50 results per request, up to a maximum of 1000 results. And finally saved this results into a json file “ann\_arbor\_restaurants.json”. Data summary: 1003 records available for Ann Arbor on Yelp and successfully retrieved 1003 restaurant records.

**Key fields in records:** Each record contains essential information such as restaurant name, categories, rating, location coordinates, price, review count, and Yelp page URL. Some distribution graphs are attached below:



## 3. Data Structure:

**Data Organization:** Utilizing NetworkX for creating a graph-based data structure and Pandas for managing data in DataFrame format. This approach allows efficient handling and manipulation of restaurant data.

Screenshots showing progress: attached below.

(1) After searching for a restaurant name, it will show the results and matched restaurants on the map. The link for each restaurant is accessible for users to reach the page on Yelp for this restaurant. And users can also click the small positioning icon on the map to reach that page.

(2) After choosing all categories that users want to filter and click the apply filters, the matched restaurants will be shown on the screen. And other functions in the search step will still be available.

### Restaurant Finder

Search

Categories:

Any

African

American (New)

American (Traditional)

Price:

Any

Minimum Rating:

Any

Minimum Review Count:

Any

Transactions (comma separated):

Any

Sort By:

None

Apply Filters

#### Restaurants

Name	Categories	Rating	Price	Review Count	Transactions
No Thai	Thai	3.0	\$\$	229	delivery
No Thai	Thai	3.5	\$	83	delivery
No Thai	Thai	3.0	\$	151	delivery
No Thai	Thai	3.0	\$	175	delivery
Thai Spoon	Thai	3.0	nan	46	delivery; pickup
Manee Thai Restaurant	Thai	3.0	\$\$	187	delivery; pickup
Tuprim Thai Cuisine	Thai; Noodles; Soup	3.5	\$\$	356	delivery; pickup
The Commons	Buffets	3.0	nan	1	None
Applebee's Grill + Bar	American (Traditional); Sports Bars; Burgers	3.5	\$\$	73	delivery; pickup
BTB Burrito	Mexican	3.5	\$	226	delivery; pickup

#### Map

### Restaurant Finder

Search

Categories:

Any

African

American (New)

American (Traditional)

Price:

\$\$

Minimum Rating:

3.0

Minimum Review Count:

30

Transactions (comma separated):

pickup

Sort By:

Name

Apply Filters

#### Restaurants

Name	Categories	Rating	Price	Review Count	Transactions
aMa Bistro	Breakfast & Brunch; American (New); Sandwiches	3.0	\$\$	137	delivery; pickup
Thompson & Co.	American (New); Cocktail Bars	4.0	\$\$	143	delivery; pickup
Fresh Forage	American (New); Gluten-Free; Vegetarian	4.5	\$\$	188	delivery; pickup
CoreLife Eatery	American (New); Salad; Soup	4.0	\$\$	87	delivery; pickup
Carson's American Bistro	American (New); Seafood; Bars	3.0	\$\$	210	delivery; pickup
California Pizza Kitchen	Pizza; American (New); Salad	3.0	\$\$	107	delivery; pickup
Bobcat Bonnie's	American (New); Gastropubs	4.0	\$\$	138	delivery; pickup
Angelo's On The Side	American (New); Breakfast & Brunch	3.5	\$\$	40	pickup; delivery

#### Map

## 4. Interaction and Presentation Plans

**User Capabilities:** Searching for restaurants by name; Filtering restaurants based on categories, price, ratings, and other criteria; Viewing detailed information about each restaurant; Displaying restaurants on an interactive map using Folium.

**Technologies Used:** Web Interface – Flask; Mapping - Folium for visualizing restaurant locations on a map.

**User Interaction:** Users can interact with the application via a web interface. They can input search queries, apply filters for categories, price, and ratings, and view restaurant details. The interface also displays an interactive map pinpointing the location of each restaurant.