
Restaurant Recommendation System

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Drawbacks of Yelp

- Too many options
- No tailored recommendations

Breakfast & Brunch East Village, Manhattan, NY

Manhattan > East Village > Restaurants

Showing 1-10 of 257

\$ \$\$\$\$ Open Now Order Delivery Order Takeout Make a Reservation All Filters

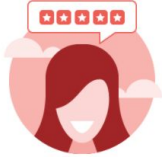
Sort By	Neighborhoods	Distance	Price	Features	Category
Best Match Highest Rated Most Reviewed	<input checked="" type="checkbox"/> East Village <input type="checkbox"/> Highland Park <input type="checkbox"/> Bushwick <input type="checkbox"/> Sunset Park More Neighborhoods	Bird's-eye View Driving (5 mi.) Biking (2 mi.) Walking (1 mi.) Within 4 blocks	<input type="checkbox"/> \$ <input checked="" type="checkbox"/> \$\$ <input type="checkbox"/> \$\$\$ <input type="checkbox"/> \$\$\$\$	<input type="checkbox"/> Order Delivery <input type="checkbox"/> Order Takeout <input type="checkbox"/> Make a Reservation <input type="checkbox"/> Open Now 10:38 AM More Features	<input type="checkbox"/> Breakfast & Brunch <input checked="" type="checkbox"/> Restaurants <input type="checkbox"/> Bars <input type="checkbox"/> Food More Categories

Web app features

- Manageable number of recommendations
 - Tailored recommendations
 - Take popular times into account
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Data Sources

The Dataset



5,200,000 reviews



174,000 businesses



200,000 pictures



11 metropolitan areas

1,100,000 tips by 1,300,000 users

Over 1.2 million business attributes like hours, parking, availability, and ambience

Aggregated check-ins over time for each of the 174,000 businesses

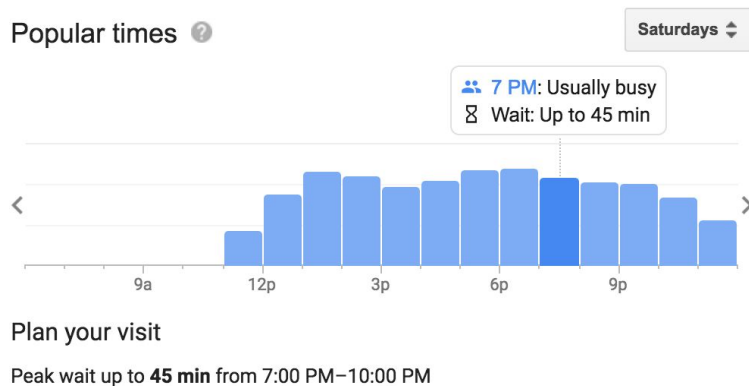
1. Las Vegas
2. Phoenix, AZ
3. Charlotte, NC
4. Cleveland, OH
5. Pittsburgh, PA
6. Champaign, IL
7. Toronto, ON
8. Montreal, QC
9. Edinburgh, UK
10. Chester, UK
11. Stuttgart, DE



Google Places API

Features and Labels

- User's restaurant ratings
- Cuisine preferences
- Restaurant's average rating
- Restaurant review count
- Location
- Price range
- Ambience
- Hours
- Popular times
- Dietary restrictions
- ...



Algorithms to try

- Collaborative filtering
 - Baseline - average ratings
 - Memory-based
 - Clustering
 - Matrix factorization
 - Bayesian Personalized Ranking
 - ...
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Web app blueprint

- Ask user for a list of their top restaurants
 - Use list to infer preferred cuisine, price range, location, ambience, etc, or explicitly ask user to specify.
 - Use ML algorithm to output recommendations based on what Yelp reviewers with similar tastes have rated highly.
 - Recommendation to take into account when the user intends to dine
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