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# Restaurant Recommendation System

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# Want to try something new, but not sure where to go?

- Too many options on Yelp
- No tailored recommendations

## Breakfast & Brunch East Village, Manhattan, NY

[Manhattan](#) > [East Village](#) > [Restaurants](#)

\$

**\$**

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Open Now

Order Delivery

Order Takeout

Make a Reservation

All Filters

**Sort By**

**Best Match**

[Highest Rated](#)

[Most Reviewed](#)

**Neighborhoods**

☒ East Village

☐ Highland Park

☐ Bushwick

☐ Sunset Park

[More Neighborhoods](#)

**Distance**

[Bird's-eye View](#)

[Driving \(5 mi.\)](#)

[Biking \(2 mi.\)](#)

**Walking (1 mi.)**

[Within 4 blocks](#)

**Price**

☐ \$

☒ **\$**

☐ \$\$\$

☐ \$\$\$\$

**Features**

☐ Order Delivery

☐ Order Takeout

☐ Make a Reservation

☐ Open Now 10:38 AM

[More Features](#)

**Category**

☐ Breakfast & Brunch

☒ **Restaurants**

☐ Bars

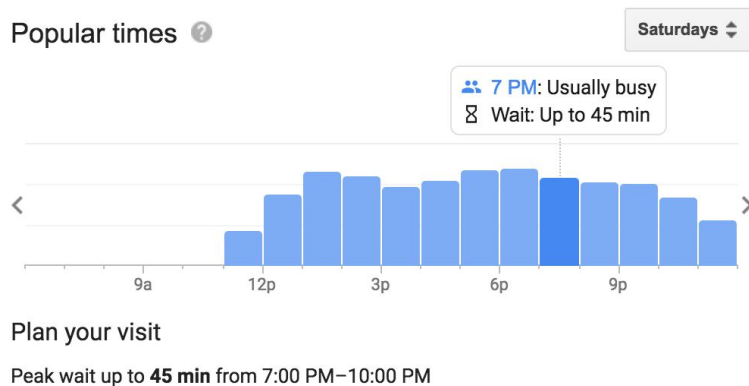
☐ Food

[More Categories](#)

Showing 1-10 of 257

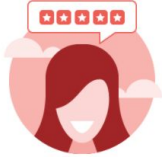
# Features and Labels

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



# 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

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# 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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