



LetsEat: Alpha Prototype

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The background features two large, overlapping geometric shapes. The top-left shape is a light blue triangle pointing downwards. The bottom-right shape is a larger purple shape with rounded corners, containing a white circle. The text is positioned to the left of these shapes.

01.

Summary

The Issue

“I don’t care where we go, I just don’t want Italian”

“We can’t figure out where to eat, it is too hard to decide”

“It is so long and difficult for everyone to agree on a restaurant”

The Solution

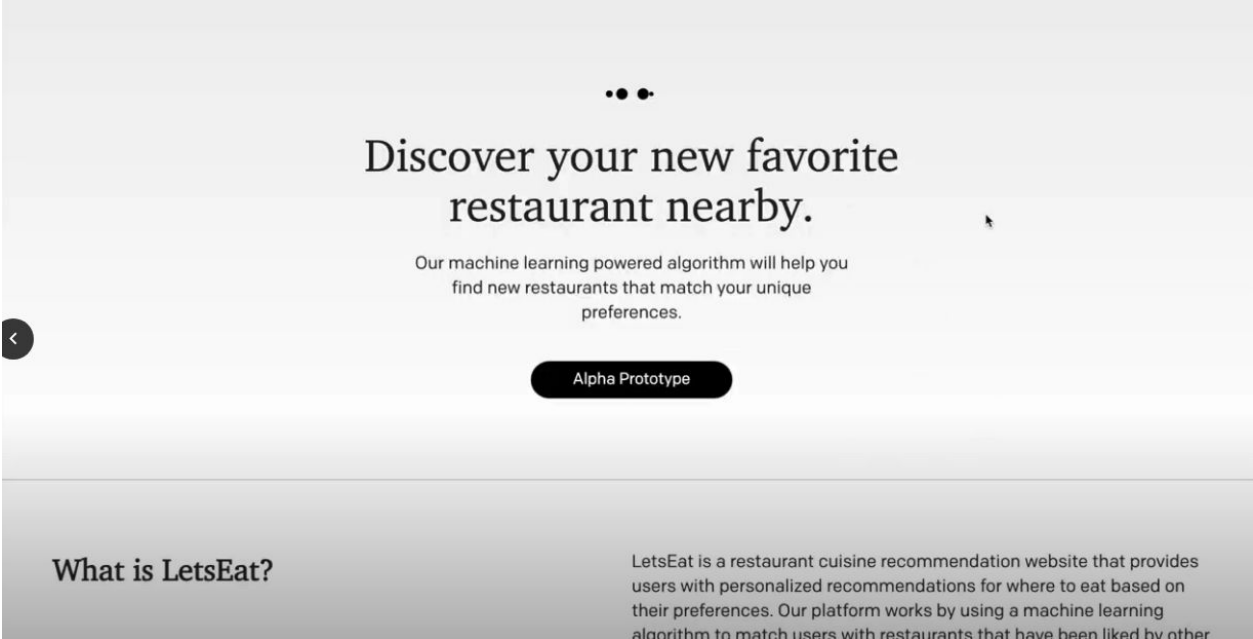
We make the decision for you!

LetsEat is a restaurant recommendation application that utilizes machine learning to quickly generate a **single personalized recommendation** based on the user's input.

The background features abstract geometric shapes. A bright blue shape is at the top, and a larger purple shape is on the right side. A white circle is positioned on the purple shape.

02.

**Alpha
Prototype**



The screenshot shows a web application interface with a light gray background. At the top center, there are three small black dots. Below them is the main heading: "Discover your new favorite restaurant nearby." Underneath the heading is a sub-heading: "Our machine learning powered algorithm will help you find new restaurants that match your unique preferences." In the center, there is a black rounded rectangular button with the text "Alpha Prototype" in white. On the left side, there is a small black circle containing a white left-pointing arrow. At the bottom of the screenshot, there is a section titled "What is LetsEat?" followed by a paragraph of text: "LetsEat is a restaurant cuisine recommendation website that provides users with personalized recommendations for where to eat based on their preferences. Our platform works by using a machine learning algorithm to match users with restaurants that have been liked by other".

Discover your new favorite restaurant nearby.

Our machine learning powered algorithm will help you find new restaurants that match your unique preferences.

Alpha Prototype

What is LetsEat?

LetsEat is a restaurant cuisine recommendation website that provides users with personalized recommendations for where to eat based on their preferences. Our platform works by using a machine learning algorithm to match users with restaurants that have been liked by other

Integrated, Working Application

- Able to create a profile
- Fill out the questionnaires
- Receive restaurant recommendation
- Model is integrated with application
- Low confidence suggestion is given



Discover your new favorite restaurant nearby.

Our machine learning powered algorithm will help you find new restaurants that match your unique preferences.

Alpha Prototype



What is LetsEat?

LetsEat is a restaurant cuisine recommendation website that provides users with personalized recommendations for where to eat based on their preferences. Our platform works by using a machine learning algorithm to match users with restaurants that have been liked by other users with similar preferences.

Creating Account



Welcome to LetsEat!

Log In

Log In

Don't have an account? [Sign Up](#)

Log In



Welcome Back.

Answer the questionnaire to generate your recommendations.

Search



Profile Questions



Welcome Back.

Answer the questionnaire to generate your recommendations.

Search



Search Questions

1 2

3 4+

What type of meal?

Breakfast Lunch

Dinner Dessert

What is the price range?

\$ \$\$

\$\$\$ \$\$\$\$

Zipcode

20037

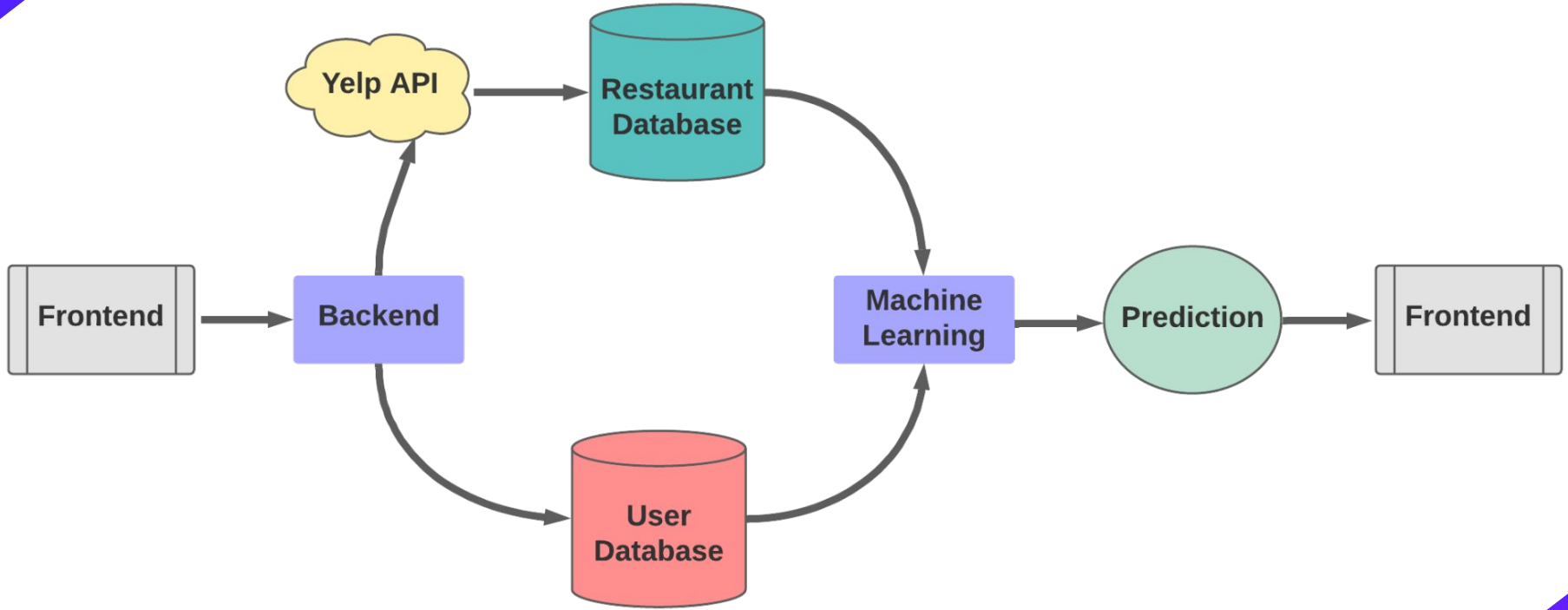
✓

Restaurant Recommendation

The background features abstract geometric shapes. A blue shape is at the top, and a larger purple shape is on the right side. A white circle is positioned on the purple shape.

03.

**System
Architecture**



3.1

Frontend: Web App

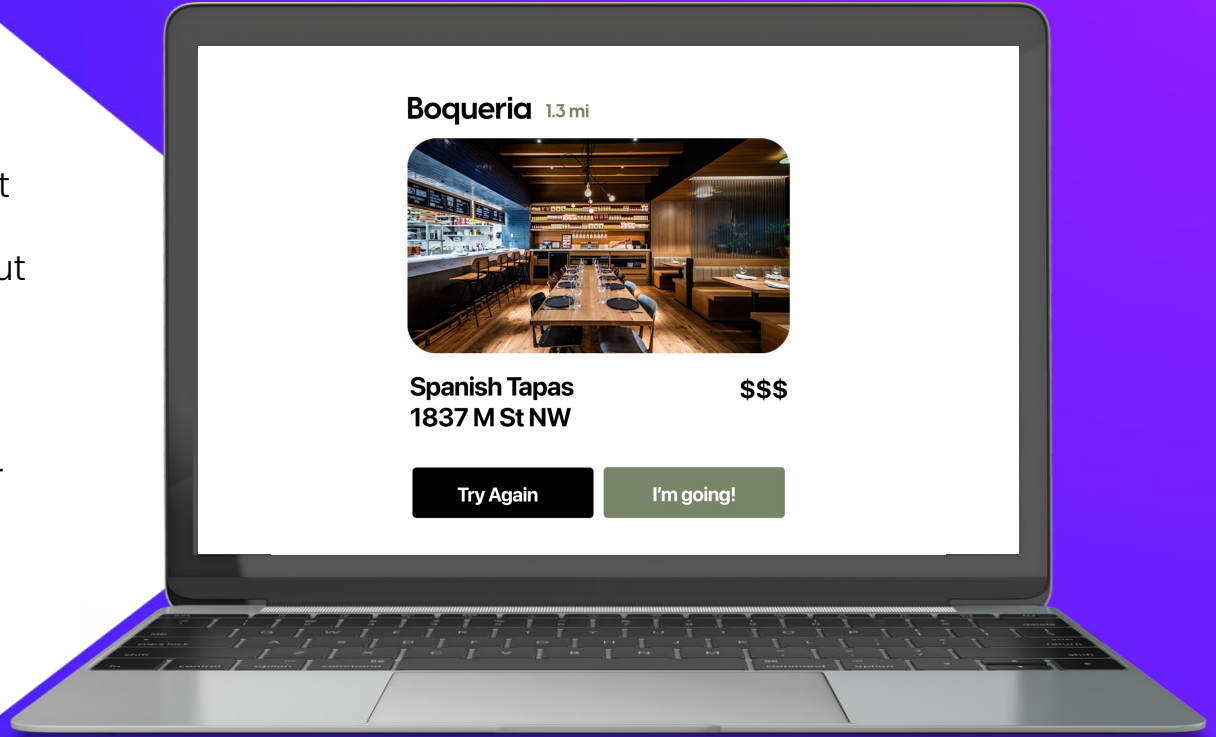
Technologies

REACT, Bootstrap

FRONT END

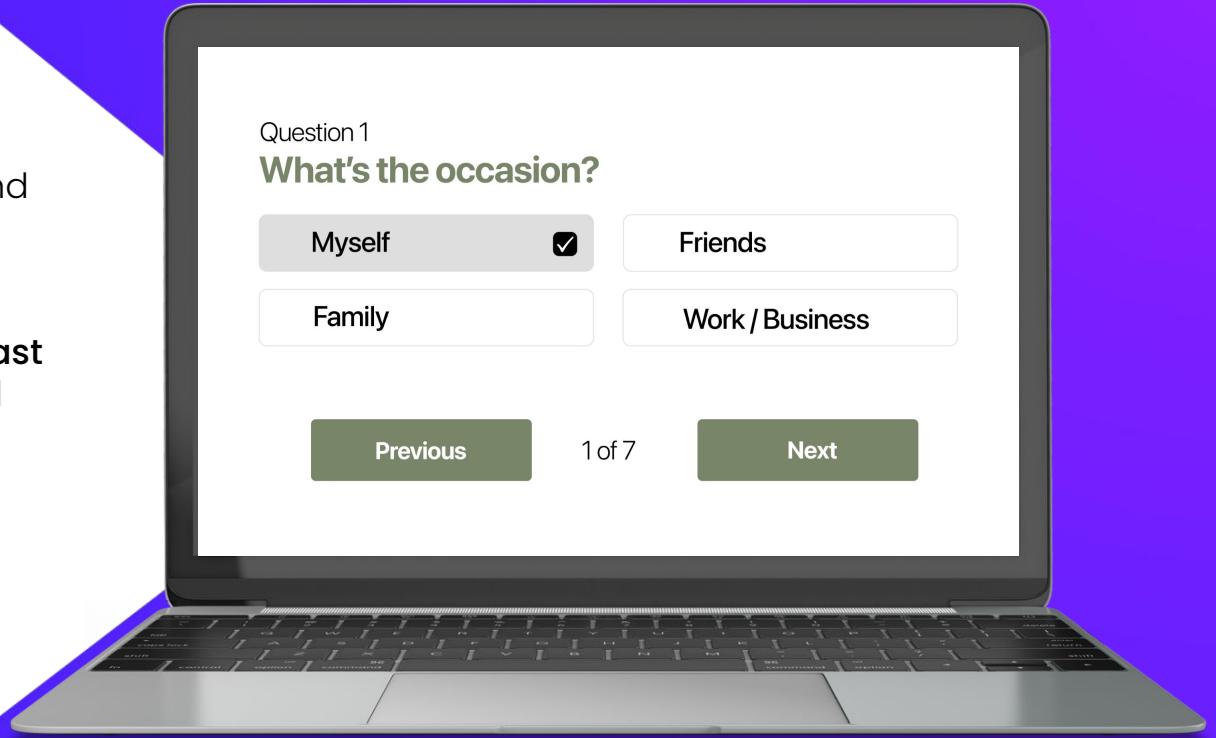
The **LetsEat** platform is built on the **REACT** library with **BootStrap** for styling. We put importance on having a modern and minimal user interface.

The user experience on our website is designed to be **seamless** so that the user can **quickly and easily** receive a restaurant recommendation.



FRONT END

The REACT frontend will send and receive data with the backend, such as the questionnaire and user answer choices, through **Fast API** which will be discussed further in the backend portion.

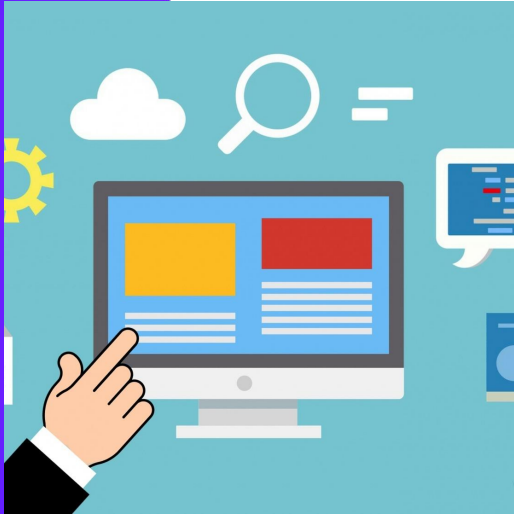


3.2

Backend: Web Server

Technologies

FastAPI, MySQL, OAuth



What is the Web Server?

Will host all the Backend Logic

Connects the front end application to all the functional aspects of the website, such as logging in, updating profile preferences, and picking a restaurant.

Storage of User Information

Users will login through the server and have their profile information saved.

How is the Web Server built?



FastAPI

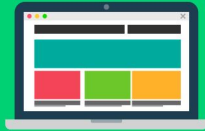
- Hosts API endpoints
- Connected to REACT app
- Receives and sends info



MySQL

- Stores user information
- Logins, cuisine preferences, dietary restrictions

Future releases?



FRONTEND



BACKEND

Handling Edge Cases

Making sure that form validation is working and that data being sent to the server is properly formatted and won't cause unexpected exceptions when sent to the DB/ML model.



OAuth

- Allows users to create accounts easily
- Can connect directly to Google, Facebook

3.3

Backend: Data Collection

Technologies

Yelp API, Selenium WebDriver, Vader
Sentiment Analysis, MySQL

Collecting Data



Yelp API

Get list of restaurants that meet general specifications of user (like location, allergies)

Get details of a specific restaurant



Selenium
WebDriver

Web scrape Yelp Restaurant Website to get atmospheric attributes

Web scrape User Reviews to determine experience from content/keywords

Vader
Sentiment
Analysis &
MySQL

Vader: Use Sentiment Analysis to determine value based on review

MySQL: Store all scraped data

- ✕ Accepts Apple Pay
- 🔊 Loud
- 👥 Good for Groups
- 👍 Good for Dinner
- 🍷 Waiter Service
- 🌙 Best nights on Friday, Saturday, Sunday
- 📺 TV
- ✕ No Outdoor Seating
- 🍸 Classy
- 👔 Casual Dress
- 👶 Good For Kids
- 🅓 Garage Parking, Street Parking, Private Lot Parking
- 🆓 Free Wi-Fi
- 🍹 Full Bar
- 👩 Women-owned
- ✕ Offers Catering



Scraped Restaurant Data

Good for Dinner, Good for Groups, Good for Kids, Casual Dress



Henry Z.
Clifton, NJ
👤 0 ➕ 12

★★★★★ 8/7/2022

Friends invited me out for Italian dinner, very classic old spot. The entire restaurant was filled; service was still quick with that. Entrees are completely shareable and it's a good time to be with friends or a **date night**

👍 Useful 1

😄 Funny

👎 Cool 1

Scraped User Data

Henry had a positive experience at the restaurant for date night

3.4

Backend: Machine Learning

Technologies

Python, Scikit Learn, PyTorch, Numpy,
XGBoost

Machine Learning

- Model takes in **answers of users** and **features of restaurants**



How it Works

- Matches the users and restaurants
- Delivers **recommendation** based on **model training**

- Find restaurants for a user based on what similar users liked



Collaborative Filtering

- **Similarity-based**



Future Releases

- Having the model retrain itself after time frame/uses
- Making sure model weights other properties correctly
- Tuning content filtering

Thanks !

Questions?