Project Presentation: BuffAI

Software Development:
Arianna Baer, Grigory Shatalin, James Simmons, Marcus DeLuca, Spencer Hoehl

What is BuffAI?

Our project is a modified course planner for CU Boulder students. It incorporates 3 API's to create a more efficient and helpful resource.

As a group, we integrated an AI model trained with CU Boulder's class database, Google Maps, and the RateMyProfessor website to offer a comprehensive advising tool. This system not only helps students plan their courses but also provides information into professors and course ratings.

Specific features include:

1. An ‘AI advisor’/chat bot trained with class database
2. Google maps features that shows campus and estimates paths/distance between classes
3. Rate my professor pages where you can do a quick search
4. Home page that lists your classes
5. login/logout
6. Register
7. A place to input hobbies and interests and the AI model will request classes

Challenges Faced

Docker

We struggled with using Ollama in our docker file. We changed models and figured it out early.

Using 3 different API's

It was difficult incorporating all APi's. We had to experiment with different ports and models. Eventually we used a scraper for rmp

Linking the register page to the database

We struggled with the queries for the register page but we overcame it by fixing the student table in the database setting restrictions on the password

Getting the Home page to function

The home page was difficult because we needed a lot of things done first before we could work on it. We overcame this by working together on call to figure it out

Running on local LLM

💸 No API Costs🕵️ Full Data Privacy

Hardware-Dependent, cost dependant

OpenAI...

Faster, better model

Costly per token

How we implemented Ollama and how it retrieves from the database

Self hosted ollama runs on docker

express.js server handles user inputs and /stream

PostgreSQL, sent back with structured HTML with axios.

The tools used:

Github: VCS repository

External APIs: google maps, Ollama, RateMyProfessor

Testing Tool: Mocha, Chai

UI tools, HTML, HandleBars, CSS

Database: PostgreSQL

Deployment: Render

Application Server: NodeJS

How we rated them:

Github:

★★★★★

Google Maps API:

★★★★★

Ollama:

★★★★☆

Rate My Professor:

☆☆☆☆☆

Mocha:

★★☆☆☆

Chai:

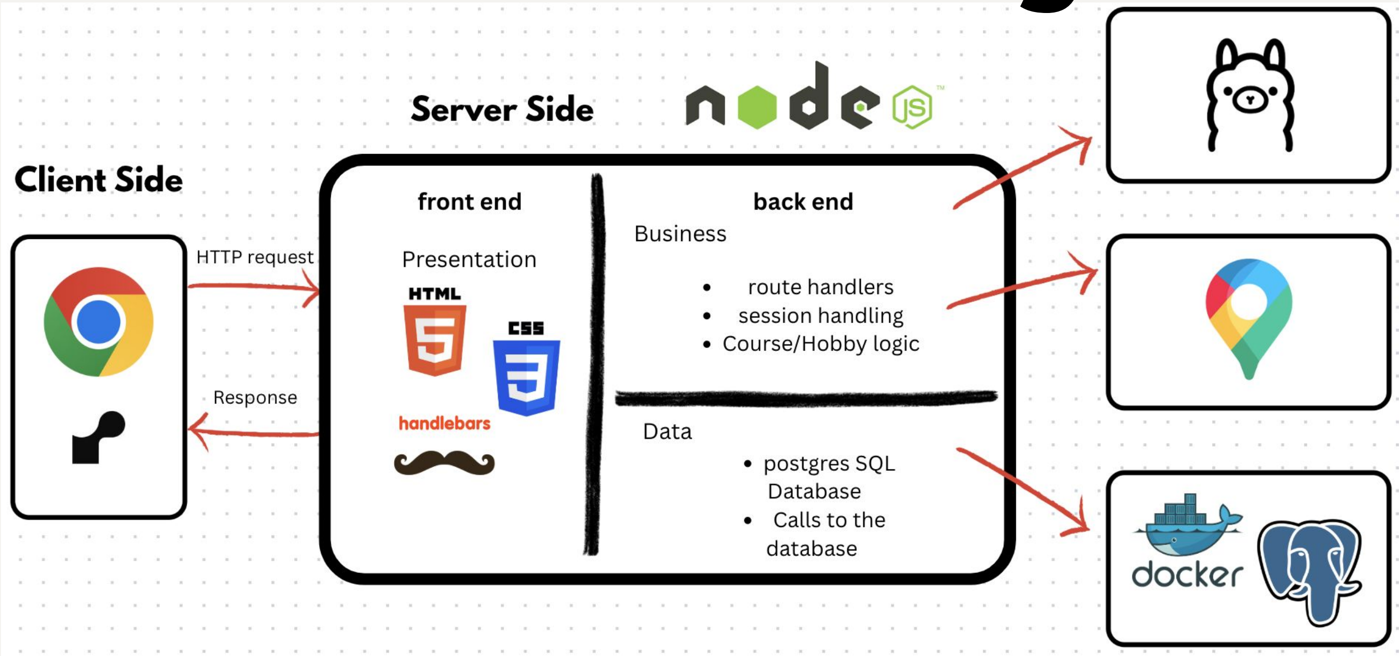
★★☆☆☆

Future Enhancements

Four future enhancements:

1. Implementing a Calendar feature on the home page
2. Make the RateMyProfessor page include more information like: other classes that professor teaches, a profile picture, and how they are known to grade
3. Implement more data from classes so the AI is better trained
4. Include a profile feature where you can access and edit your profile

Architecture Diagram

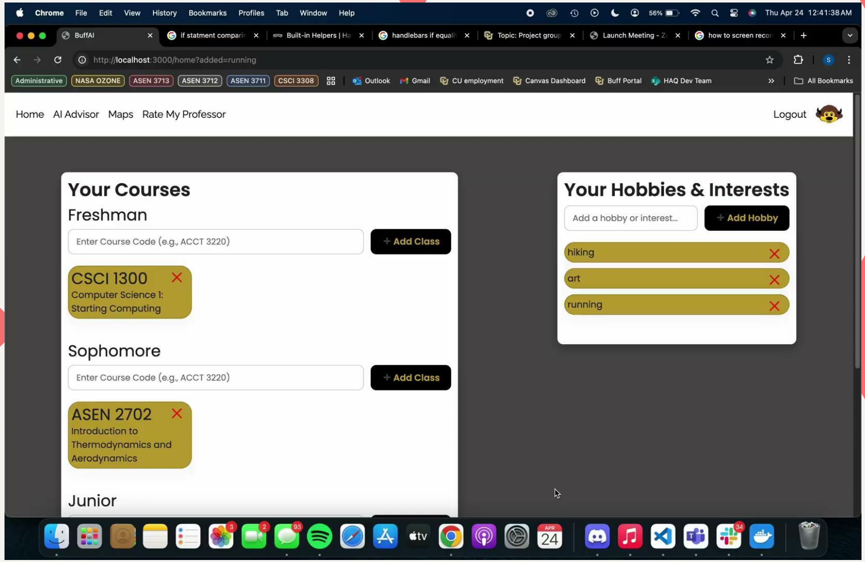


- route handlers
- session handling
- Course/Hobby logic

Data

- postgres SQL Database
- Calls to the database

Demo



Your Courses

Freshman

Enter Course Code (e.g., ACCT 3220)

CSCI 1300 ✕
Computer Science 1: Starting Computing

Sophomore

Enter Course Code (e.g., ACCT 3220)

ASEN 2702 ✕
Introduction to Thermodynamics and Aerodynamics

Junior

Your Hobbies & Interests

Add a hobby or interest...

- hiking ✕
- art ✕
- running ✕

Questions?