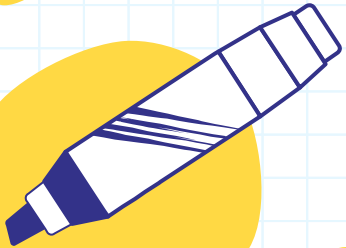
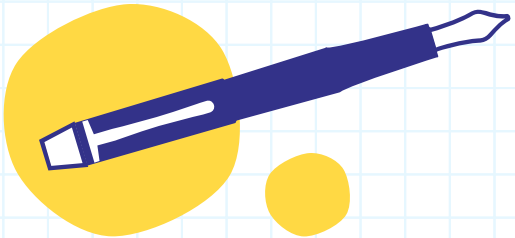


Study Buddy

Zizhen Yu: 8644495281
Zhenyu Zhao: 8235736799
Amy Zhang: 2970647992
Kelly Yu: 6517802667
Shirley Yu: 9309671690
David Yang: 5859841732
Borun Xu: 2041469540
Jeremy Yiu: 6967789107

Where you will find your learning soul mate

Table of contents

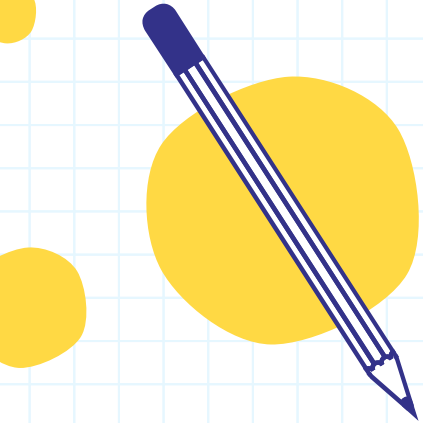


Why Study Buddy?

Having trouble finding a partner or group to study with?

What is Study Buddy?

- Web application that connects students for collaborative study.
- An intelligent system recommends study partners based on academic profiles.
- Users can join chat rooms and study groups based on classes and/or topics
- Registered vs. Guest users



How Does Study Buddy Work?

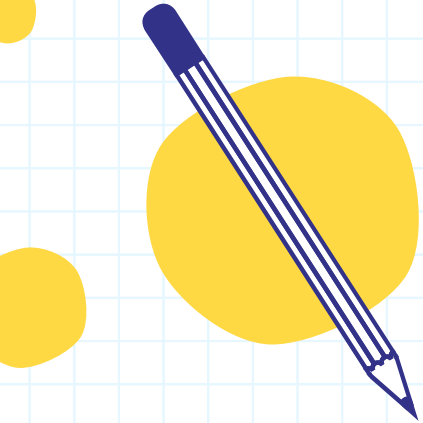
Guest vs Authenticated User Functionality

Guests

- View home page
- Signup/login
- Join chatrooms

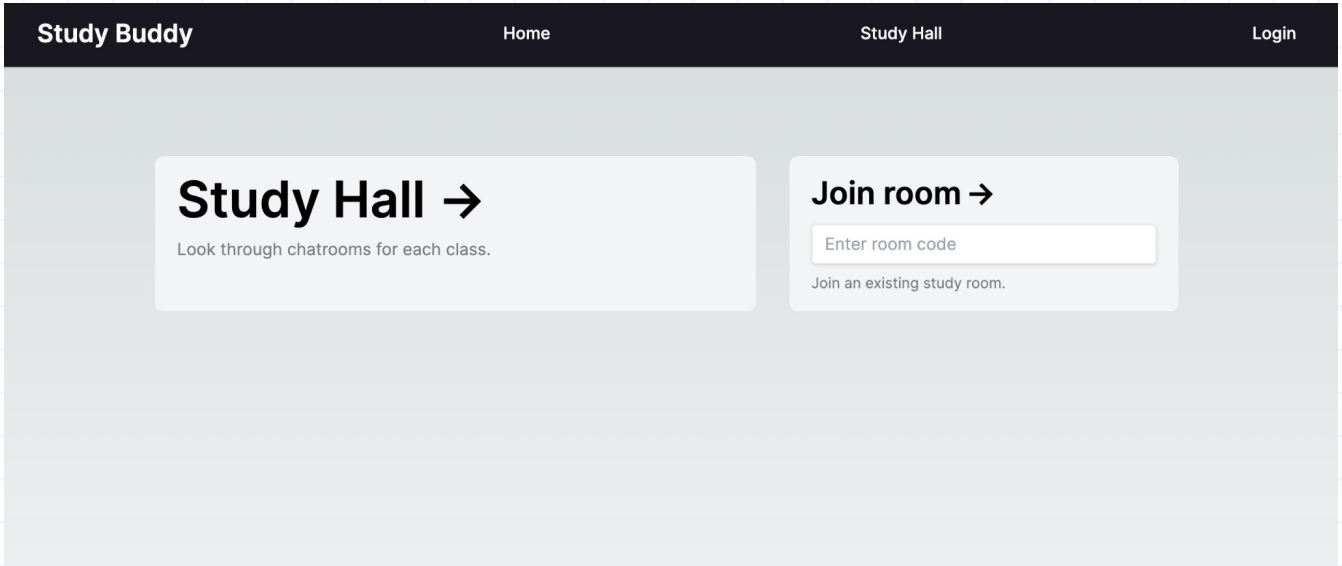
Authenticated Users

- All of the above
- Create chatrooms
- Store/modify preferences/user data
- View recommended study partners
- Send/receive friend requests

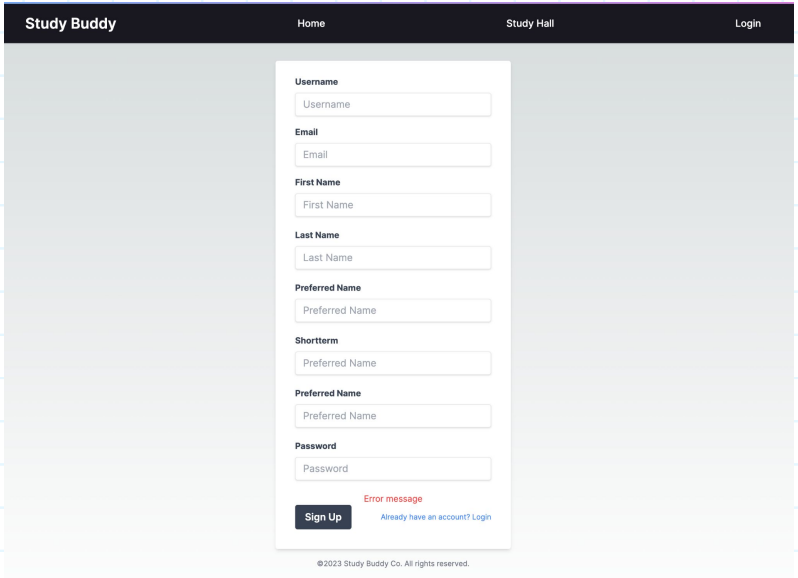


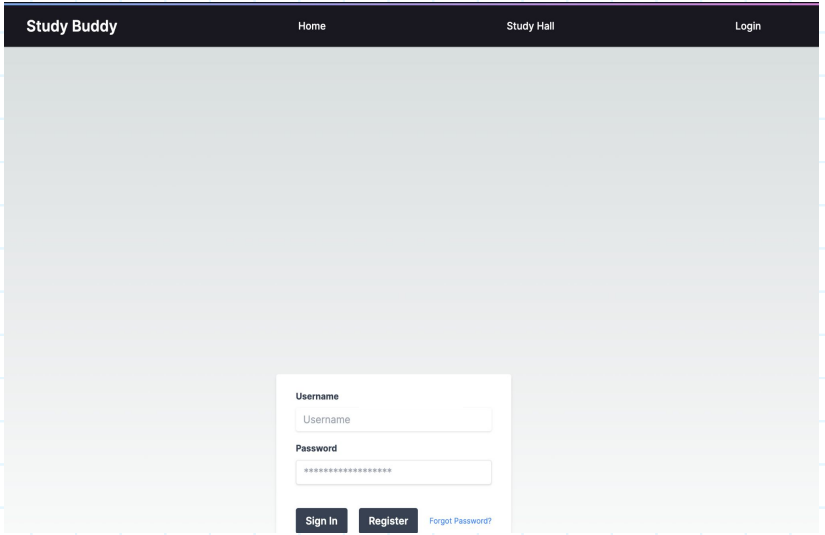
User Interface/ Experience

Home Page (Guest View)

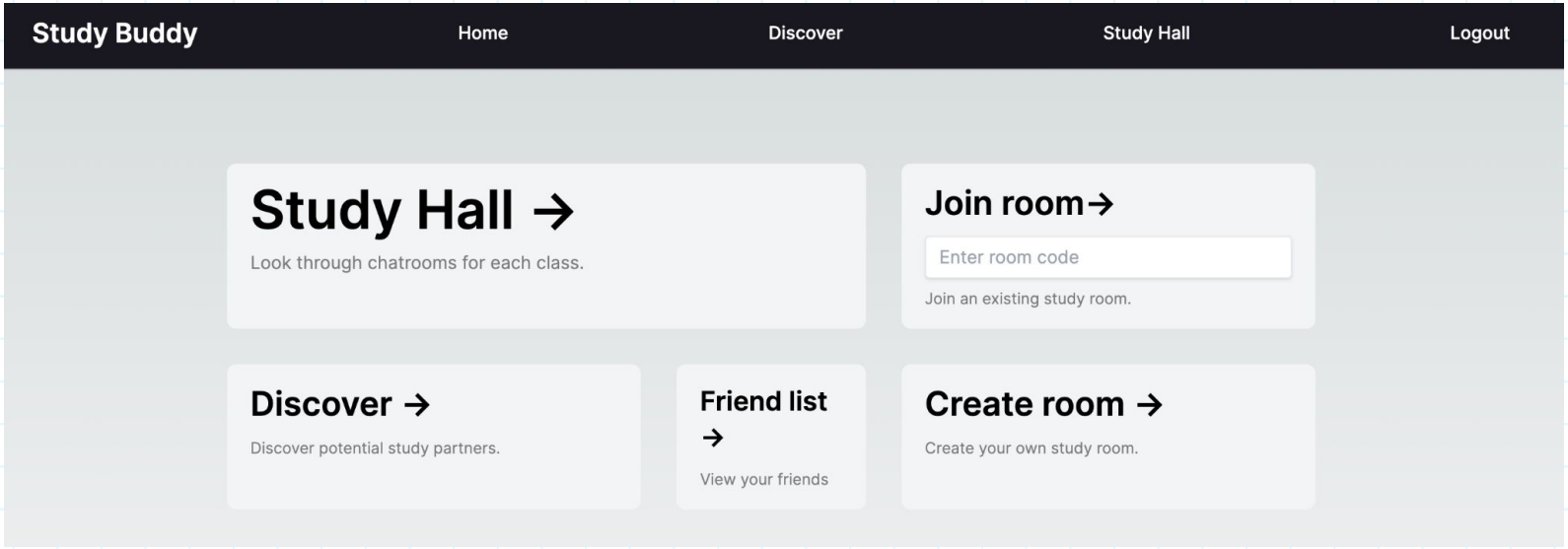


Signup/Login

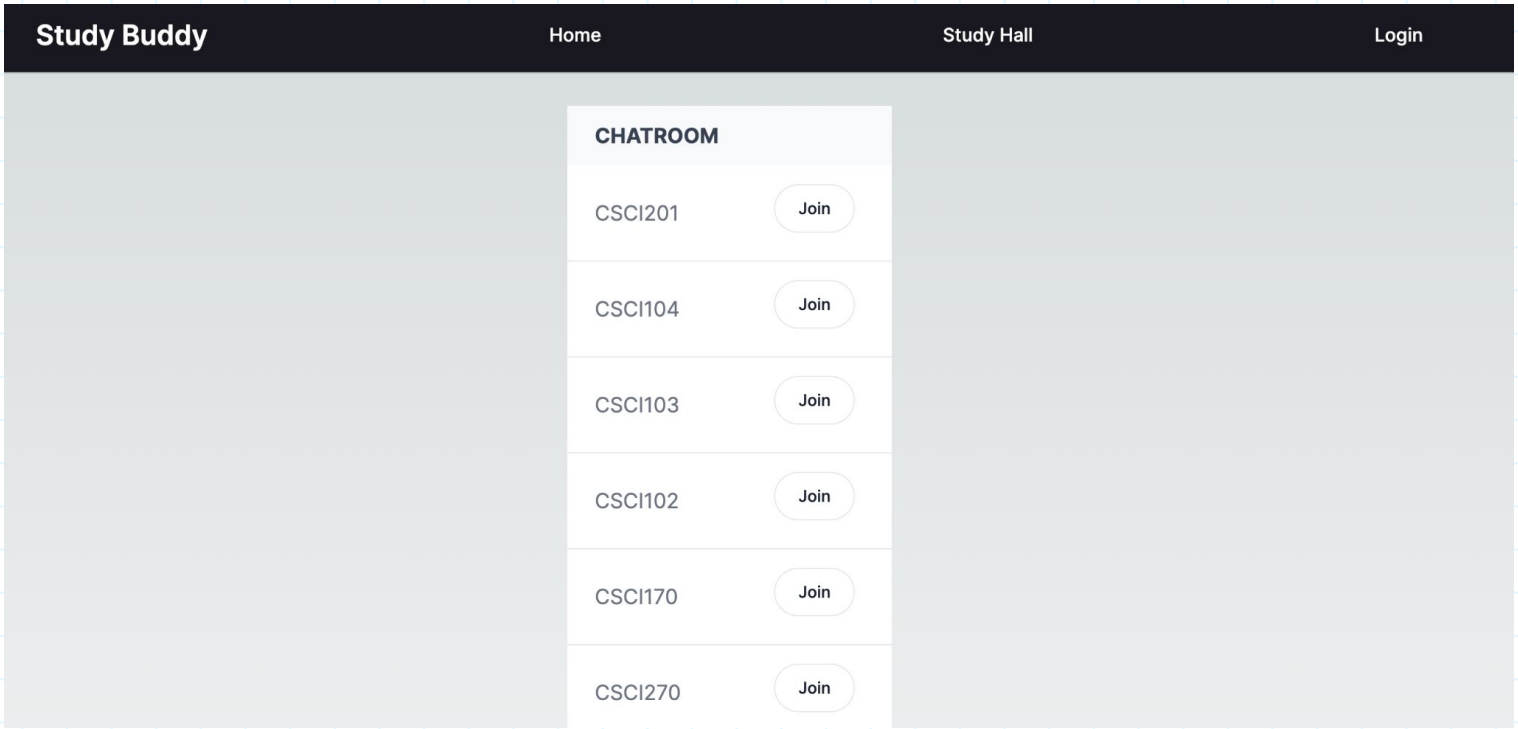




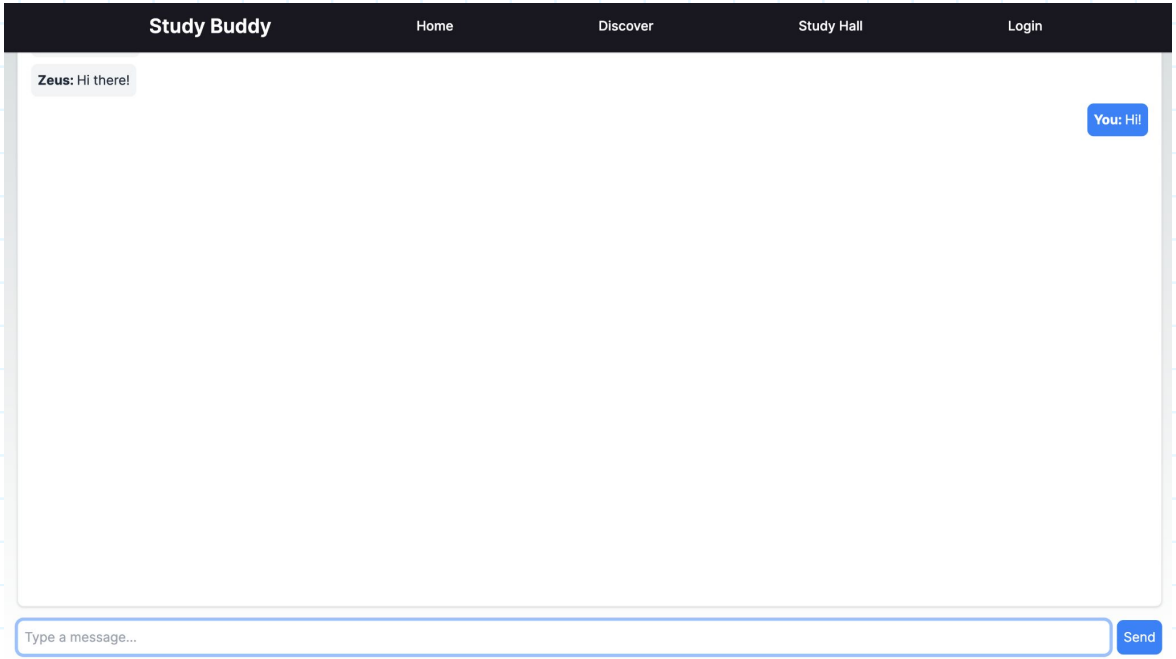
Home Page

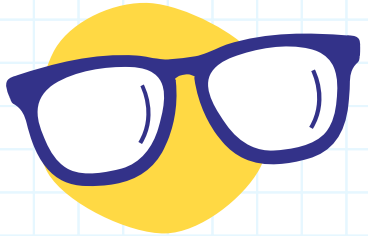

Study Buddy
Home
Discover
Study Hall
Logout
Study Hall →
Look through chatrooms for each class.
Join room→
Enter room code
Join an existing study room.
Discover →
Discover potential study partners.
Friend list →
View your friends
Create room →
Create your own study room.

Study Hall

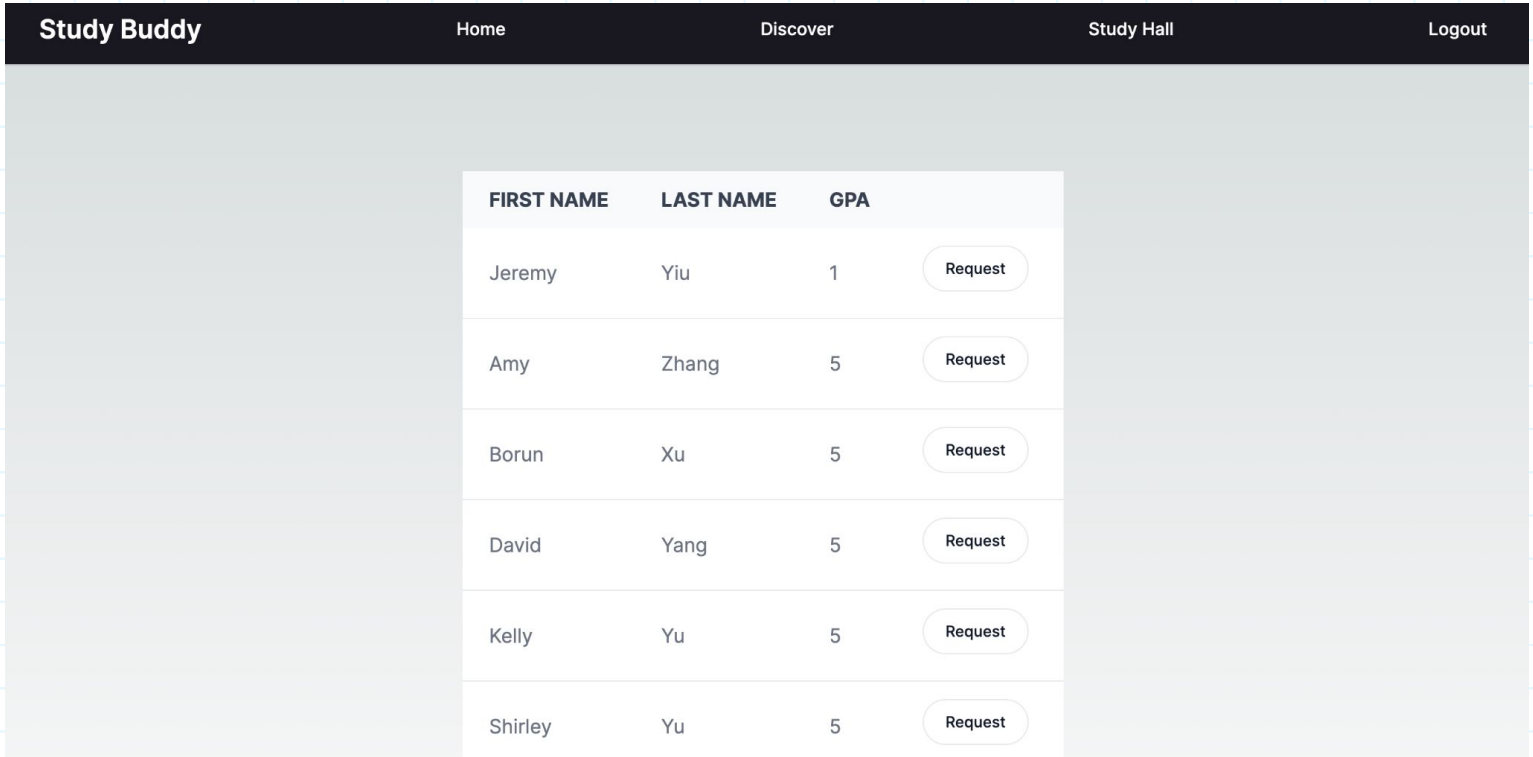

Study Buddy
Home
Study Hall
Login
CHATROOM
CSCI201
Join
CSCI104
Join
CSCI103
Join
CSCI102
Join
CSCI170
Join
CSCI270
Join

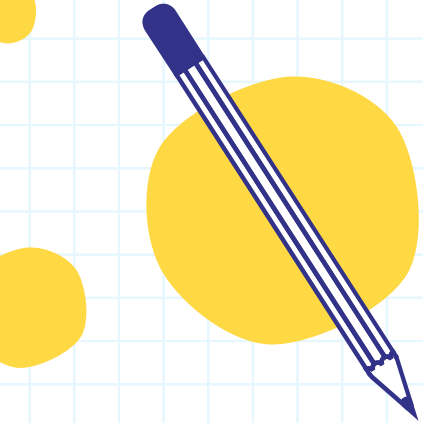
Chatrooms


Study Buddy
Home
Discover
Study Hall
Login
Zeus: Hi there!
You: Hi!
Type a message...
Send



Discover

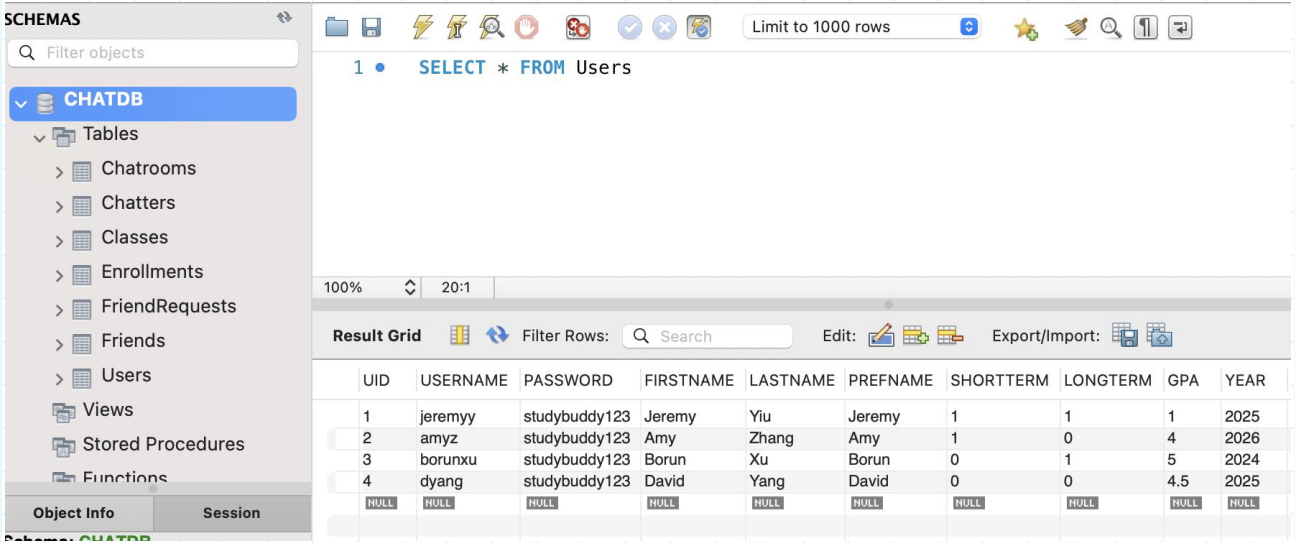

Study Buddy
Home
Discover
Study Hall
Logout
FIRST NAME
LAST NAME
GPA
Jeremy
Yiu
1
Request
Amy
Zhang
5
Request
Borun
Xu
5
Request
David
Yang
5
Request
Kelly
Yu
5
Request
Shirley
Yu
5
Request



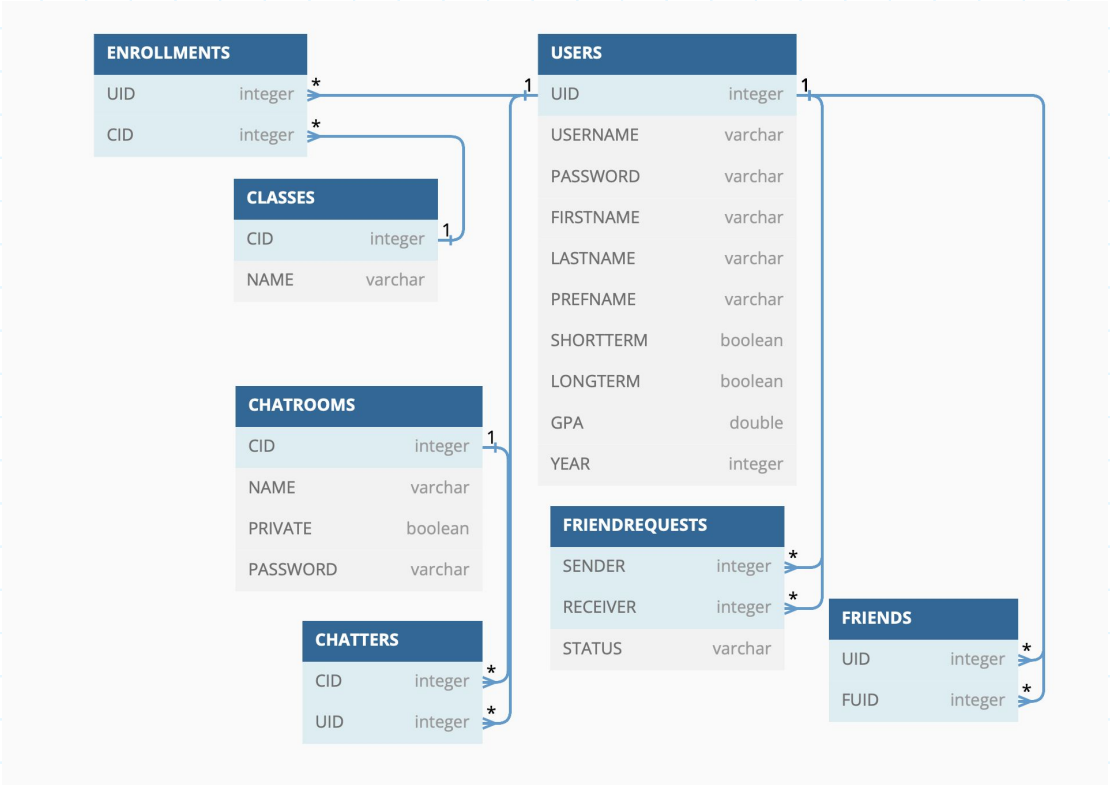
Backend

Databases

- 7 tables: Users, Chatrooms, Classes, Enrollments, Chatters, FriendRequests, Friends



SQL Schema Diagram



Multithreading and Networking

- Multiple simultaneous users can use the application, access the database, and chat with each other

UserServlet

Adds, modifies, and retrieves a specific user from Users table

FetchDiscover Servlet

Retrieves a list of users that match the current user's courses and preferences from Users

WebSockets

Enabling multiple users (multiple browser tabs) chatting, an alternative of multithreading

FriendQuery Servlet

Given a user, queries Friends table to return a list of the user's friends

PublicChatroomQuery Servlet

Retrieve the list of active public chatrooms available from the database and return their details to the web page.

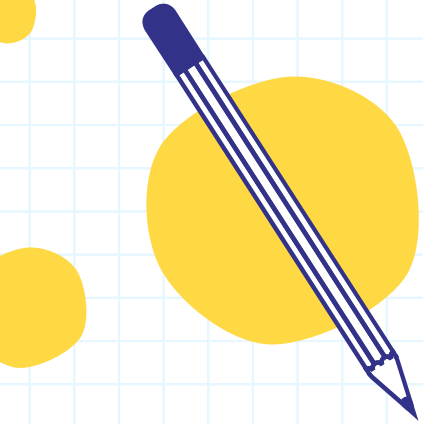
Multithreading and Authentication

User Authentication

- Receive username and password information
- Verify the information with the database
- Returns a authentication token if the authentication succeed

Chatroom Threads

- Receive user-entered chat room information
- Store into database
- Generate a thread for each chat room



Our Development Process

Teamwork

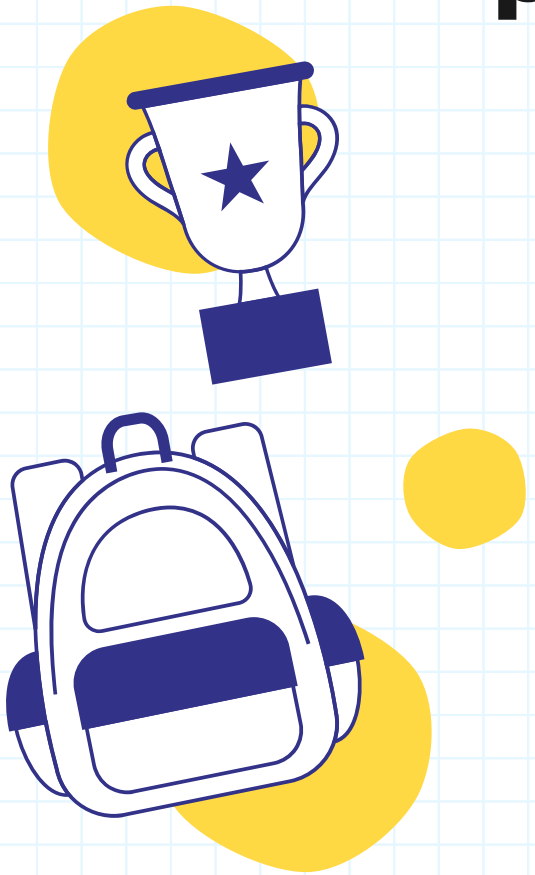
What worked

- Scheduled weekly meetings
- Coding asynchronously with Github
- Coordinated extra meetings to discuss the project

What didn't work

- Insufficient meetings to put things together
- Frequency of check-ins was not sufficient
- Slow/ineffective communication before deadlines
- Assuming members would complete by deadline

Project Design



What worked

- Splitting up the project into front-end and back-end tasks
- Assigning tasks based on each individual's strengths and experience

What didn't work

- Insufficient discussion and planning for how to integrate the individual components together
- Could've set better deadlines that took Thanksgiving break and workload into account

Data Structures Used

- Json
- ArrayList
- Stack
- Closures
- Map/Dictionary

Topics Outside the Curriculum

- React Framework
- Postman API
- Authentication Token
- Cookies
- Springboot Framework
- Stable Matching Algorithm
- GitHub Repository

Software and Outside Tools

- Apache Tomcat 9.0
- Eclipse
- MySQL Workbench
- GSON Library
- JDBC Driver
- Postman
- Back-end: Java (classes, servlets)
- Front-end: HTML, CSS, Javascript, React, Next.js, Tailwind

Outside Courses used in project

- CSCI104 - Data Structures and Object Oriented Design
- CSCI103 - Introduction to Programming
- ITP126 - Applied Python (database queries)
- ITP104 - Introduction to Web Development
- ITP125 - From Hackers to CEOs (cyber security)

Thank You!