System Requirements Specification

Homeroom Professor
Web Application

homeroomprofessor-autodeploy.herokuapp.com

Development Team

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Table of Contents

Overall Project Description **2**

Description of Features **3**

Login and Registration Features 3

Login Page 3

Registration Pages 4

Student Features 6

Student Dashboard Page 6

Professor Lookup Page 8

Professor Features 10

Professor Dashboard Page 10

Professor Appointment Requests 11

Professor Account Information Page 13

Description of Navigation **14**

User Stories and Story Map **23**

System Context Model **25**

Wireframes **26**

System Requirements **29**

Environmental Variables and API Keys 29

Login Credentials 29

ReadMe File 30

Config File 30

Project Handoff Guidelines 31

Overall Project Description

The purpose of Homeroom Professor was to provide a volunteer service for faculty and professors in college to be able to tutor elementary, middle, and high school students in a variety of different subjects. This service was created in direct response to the COVID-19 pandemic, where many students were forced to work online and away from easy access to conventional tutors and teachers.

This service can be supplemental to student learning, assist parents and teachers, provide direct interaction between students and college professors, and allow higher education individuals to give back and serve as role models. This unique interaction between professors and K-12 students could also lay the foundation for future connections in college, as well as give more insight into college for the average student. Professors could also be a resource of encouragement to students, so that they may succeed in their subjects in school and potentially pursue a college education, should they desire.

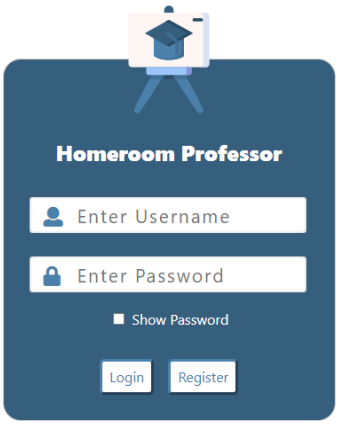
The website has been built with a variety of different features including but not limited to, unique student and professor dashboards, requesting and scheduling appointments, a professor lookup table, an integrated calendar, professor profile pages, and zoom meeting support. Additional features could be incorporated in future versions, and the dashboard layout on the site provides an easy interface to build off of.

Description of Features

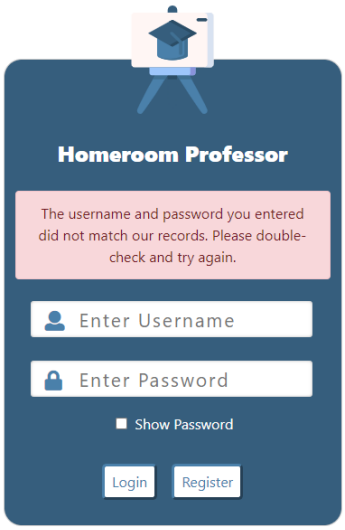
Login and Registration Features

Login Page

- When logging in, the password that the user enters will be compared to the hashed password in the database using bcrypt. JSON Web Token (JWT) is being used for user authentication, allowing for different users to use the application and have an individualized and personalized experience.

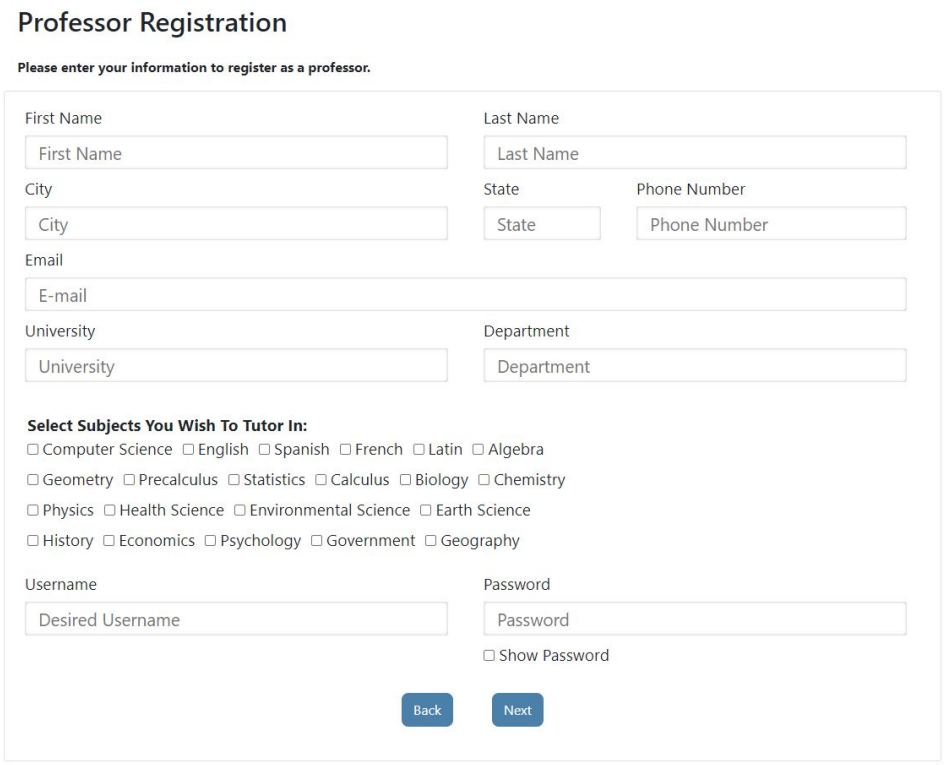


- If a user attempts to log in with invalid credentials, an error message is displayed asking them to try again.

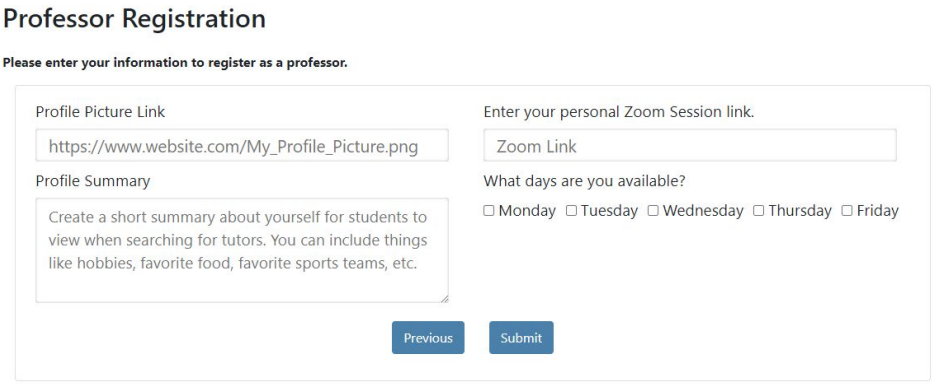


Registration Pages

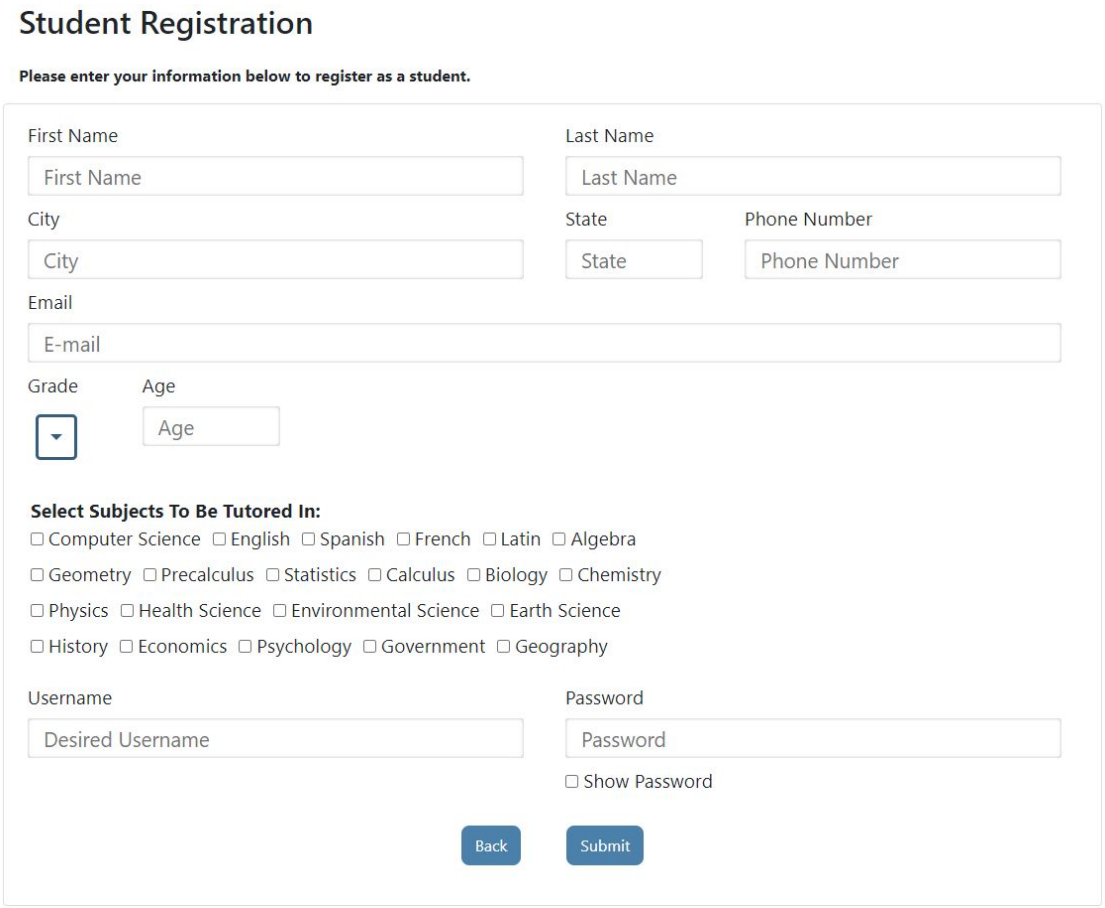
- When a student selects Register from the login page, they can choose to register as either a student or professor.
- The Professor Registration page lets the professor fill in their personal information, subjects they wish to tutor in, and a desired username and password.



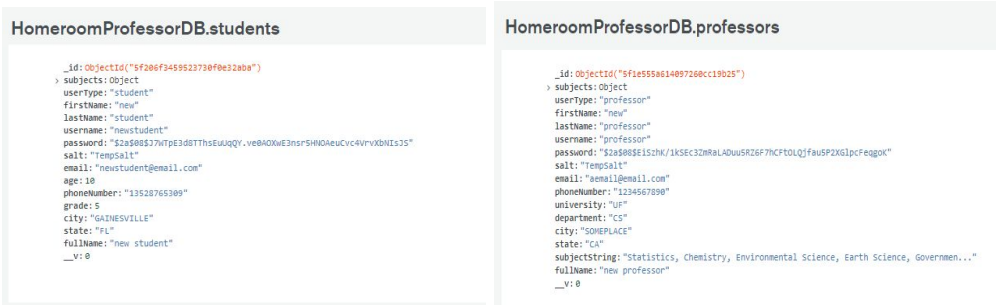
- When the professor selects the Next button, they will then be asked to fill in a short questionnaire asking for a link to their profile picture, a link to their Zoom meeting room, a profile summary, and what days they are available for tutoring.



- The Student Registration page lets the student fill in their personal information, subjects they wish to be tutored in, and a desired username and password.



- The student and professor accounts will be stored in two separate databases on MongoDB once a registration form is submitted with all fields matching schema requirements. The passwords are hashed using bcrypt before being stored in the database to secure the user's account.

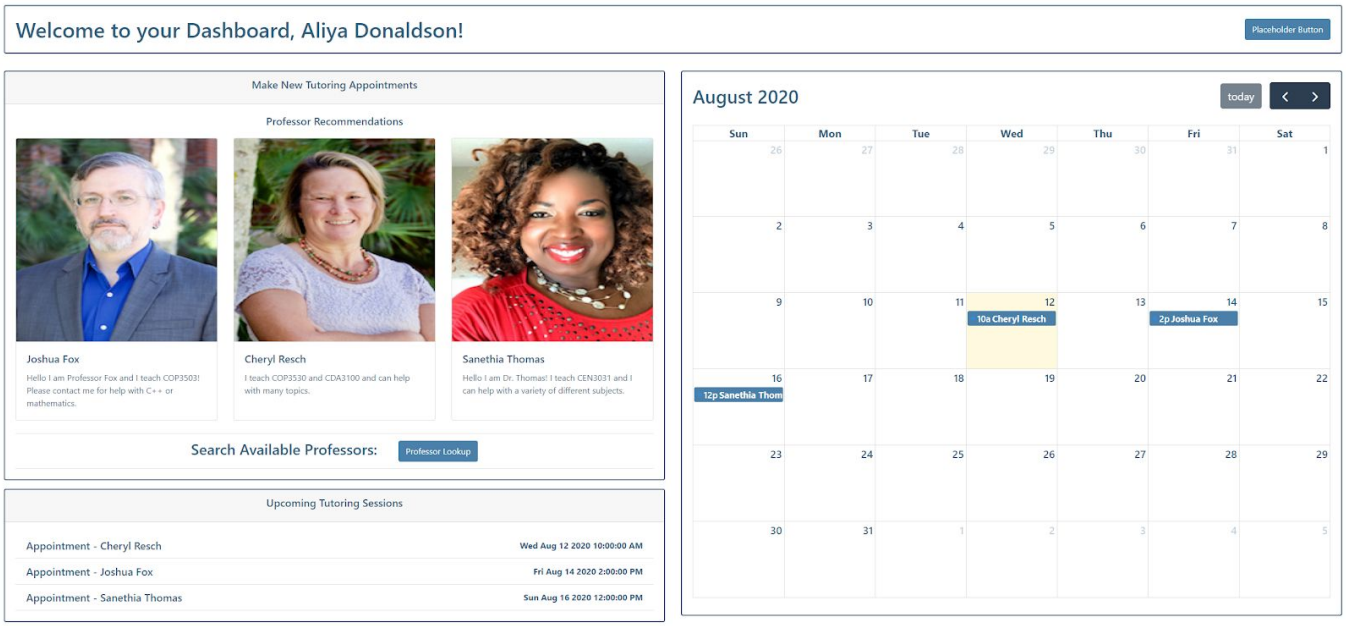


Student Features

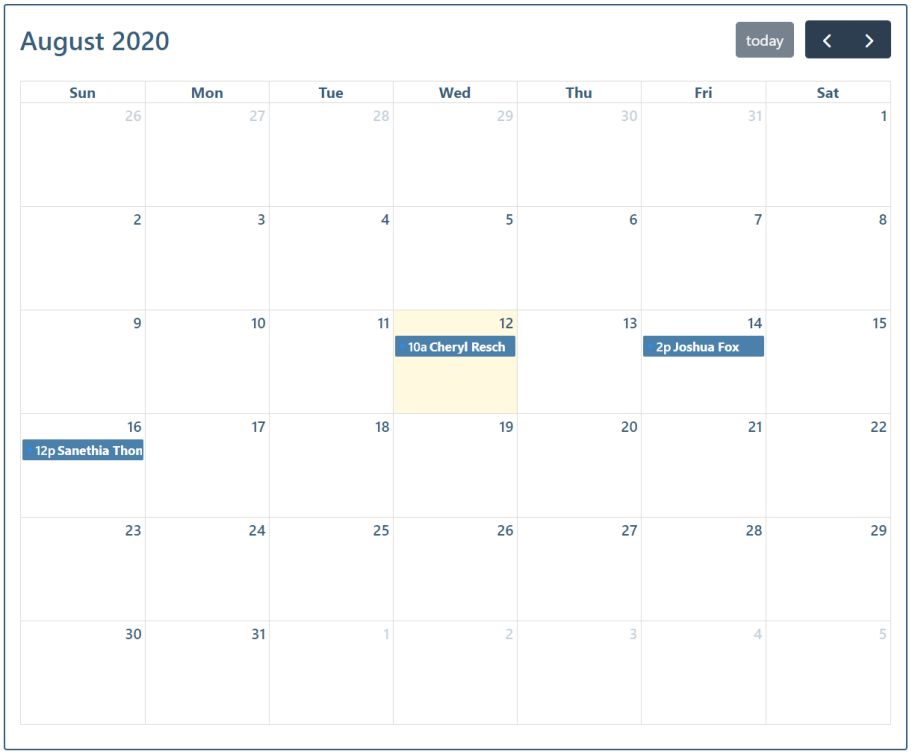
Student Dashboard Page

- The navbar is present at the top and provides easy access to commonly used actions such as logging out or returning back to the dashboard.

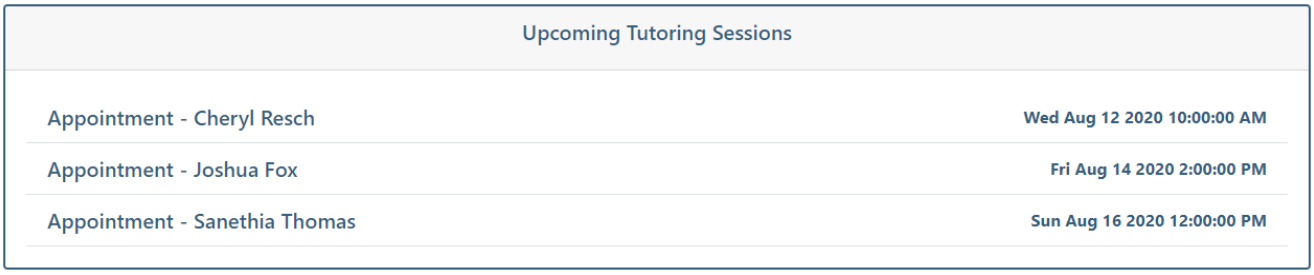
- The dashboard page provides a centralized location for all relevant information for the student. This includes upcoming meetings / events, searching for a professor, and viewing their personal calendar. The student will also be presented with a greeting of their name.



- The student's personal calendar displays the current month, day, and scheduled tutoring sessions. The student can also view upcoming or past months for more information.

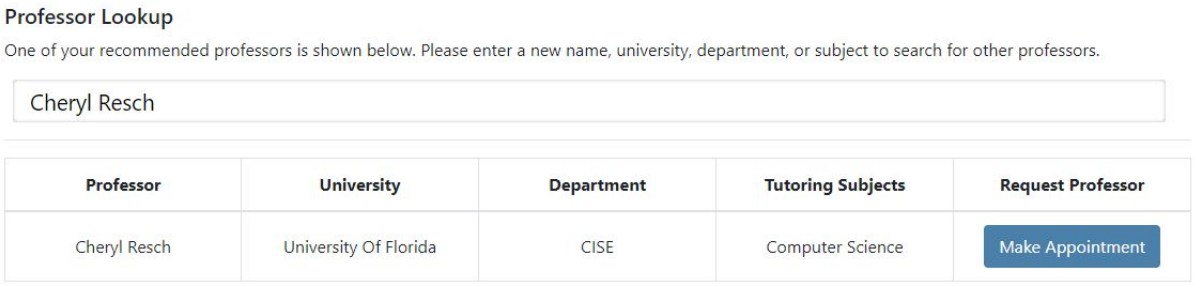


- If the student selects one of their upcoming sessions in the calendar, they will be directed to the professor's Zoom meeting via an outside link.
- After an appointment is confirmed by the professor, it will be displayed in the upcoming tutoring sessions section with the name of the professor and the time and date of the appointment.

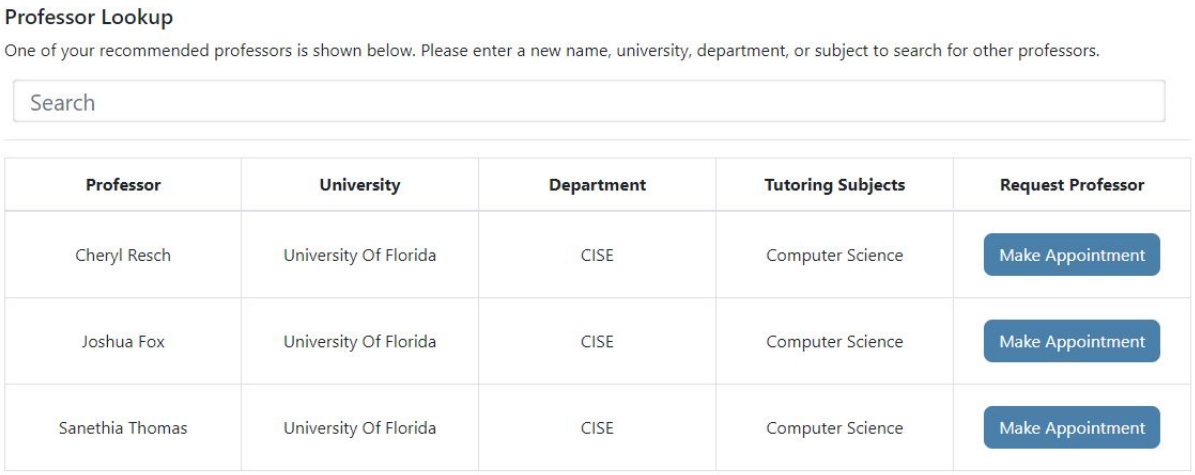


Professor Lookup Page

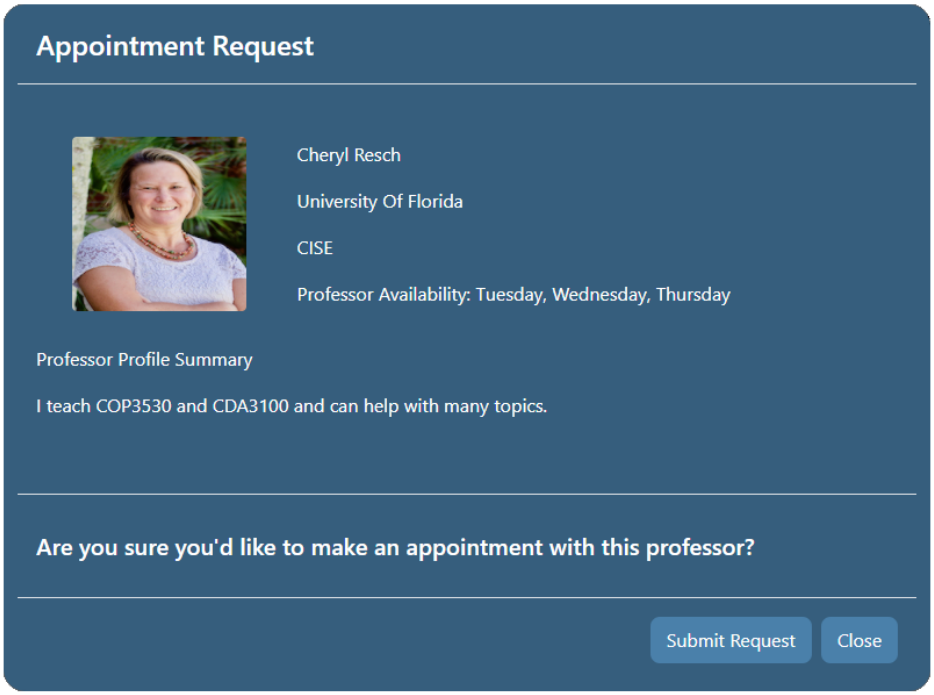
- The Professor Lookup page displays a recommended professor to the student when they first open the page. This recommendation is meant to assist younger students in easily finding a professor who can help them.



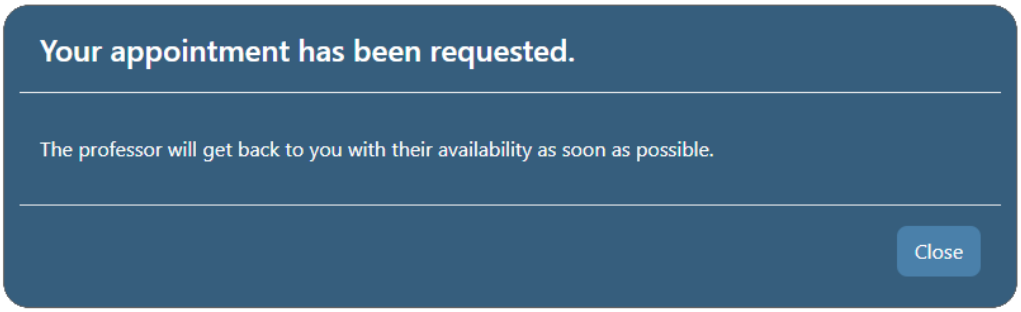
- Instructions at the top of the page inform the student they can delete the professor's name to search for other professors if desired. If the student deletes the current professor's name the full professor database will be displayed. The student can then search by name, university, department, or tutoring subjects.



- When a student selects the Make Appointment button, a pop up will be displayed showing the selected professor's profile information and the option to submit a request for a new tutoring appointment.



- If the student chooses to submit the request, the pop up will tell the student that the appointment has been requested and the professor will get back to them as soon as possible.

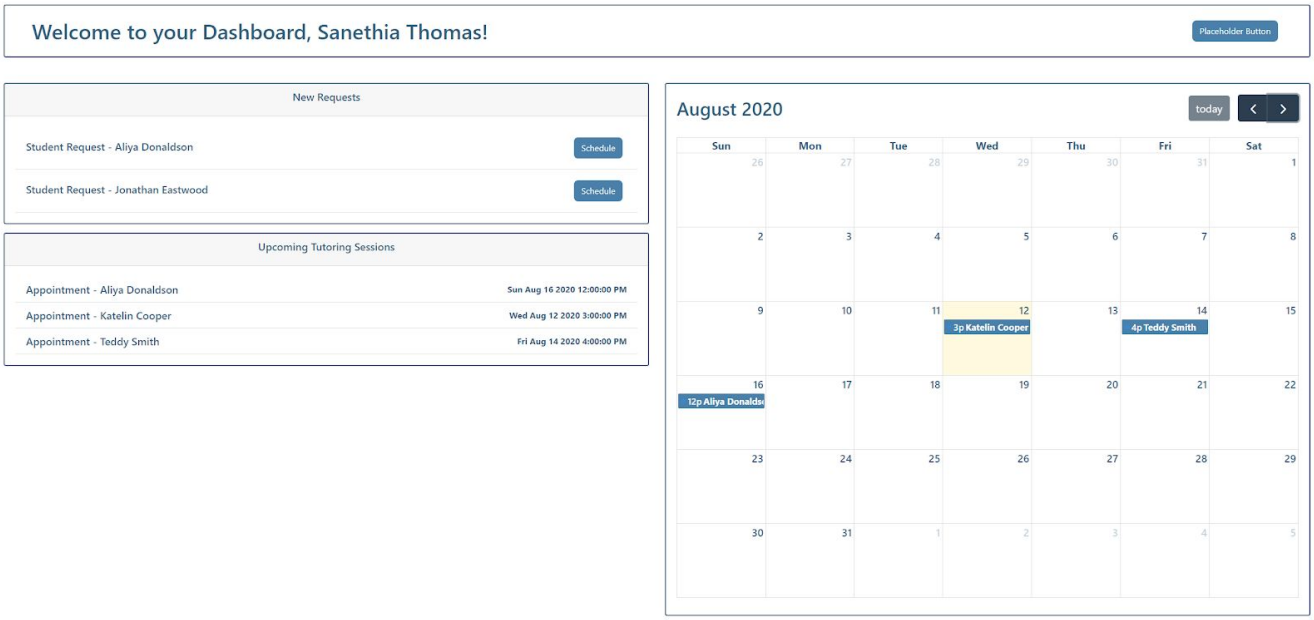


Professor Features

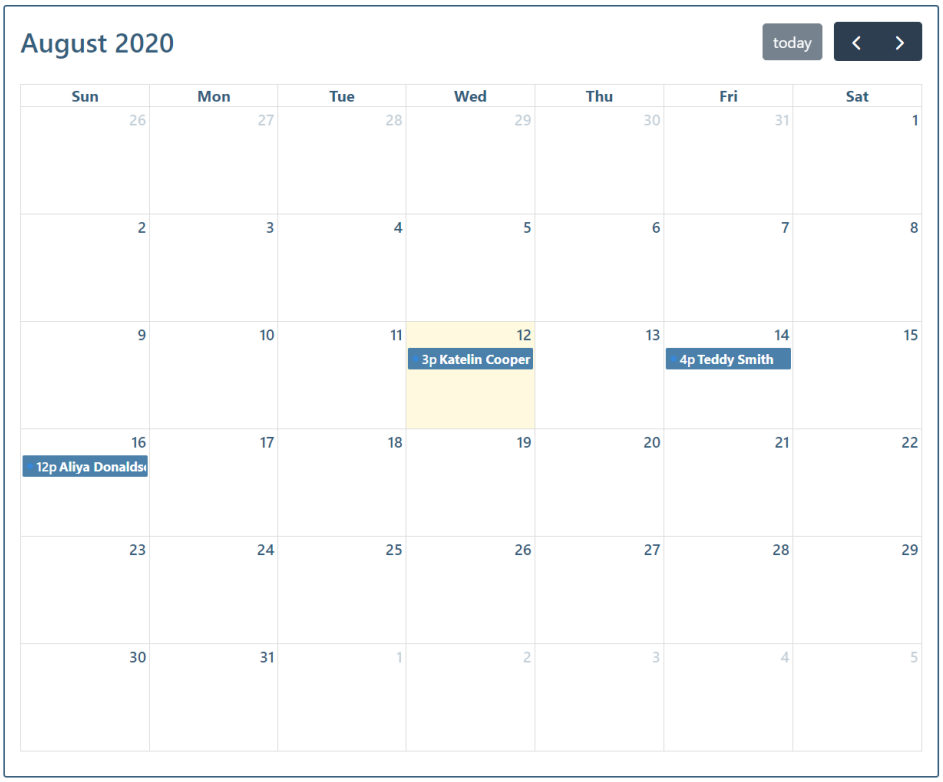
Professor Dashboard Page

- The navbar is present at the top, and provides easy access to commonly used actions, such as viewing account information, returning back to the dashboard, or logging out.

- The dashboard page provides a centralized location for all relevant information for the professor. This includes student requests for meetings, currently scheduled meetings, and viewing their personal calendar. The professor will also be presented with a greeting of their name.



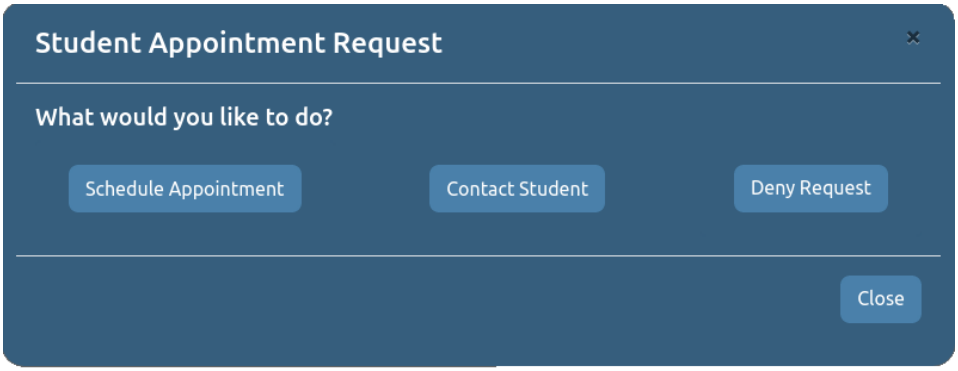
- The professor's personal calendar displays the current month, day, and scheduled tutoring sessions. The professor can also view upcoming or past months for more information.



Professor Appointment Requests

- On the professor dashboard, the professor can view all current appointment requests from students. They are given the option to schedule appointments with a schedule button on the right side of the window.

- When the professor selects the schedule button, a new window is displayed on the dashboard. The professor is provided with options to schedule the appointment, contact the student, or deny the request.

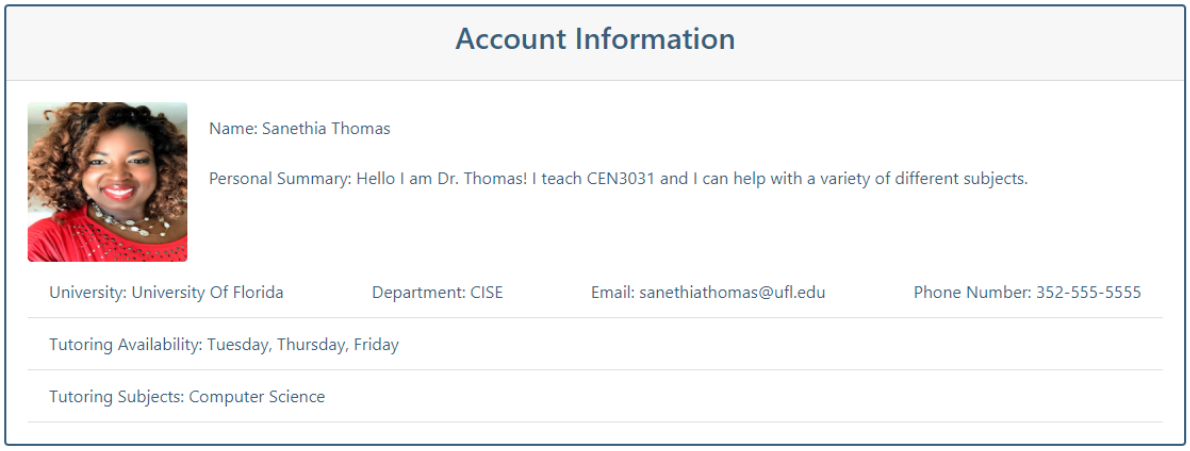


- If the professor selects the Schedule Appointment button, they will be shown a calendar with available time slots to choose from. When the professor selects a time slot, the time will be displayed at the bottom and they will be given the option to confirm the appointment.

- After the appointment is made, upcoming tutoring sessions will be displayed with the student's name and the time and date of the appointment.

Professor Account Information Page

- On the professor account information page, the professor can view their current account information and profile picture.



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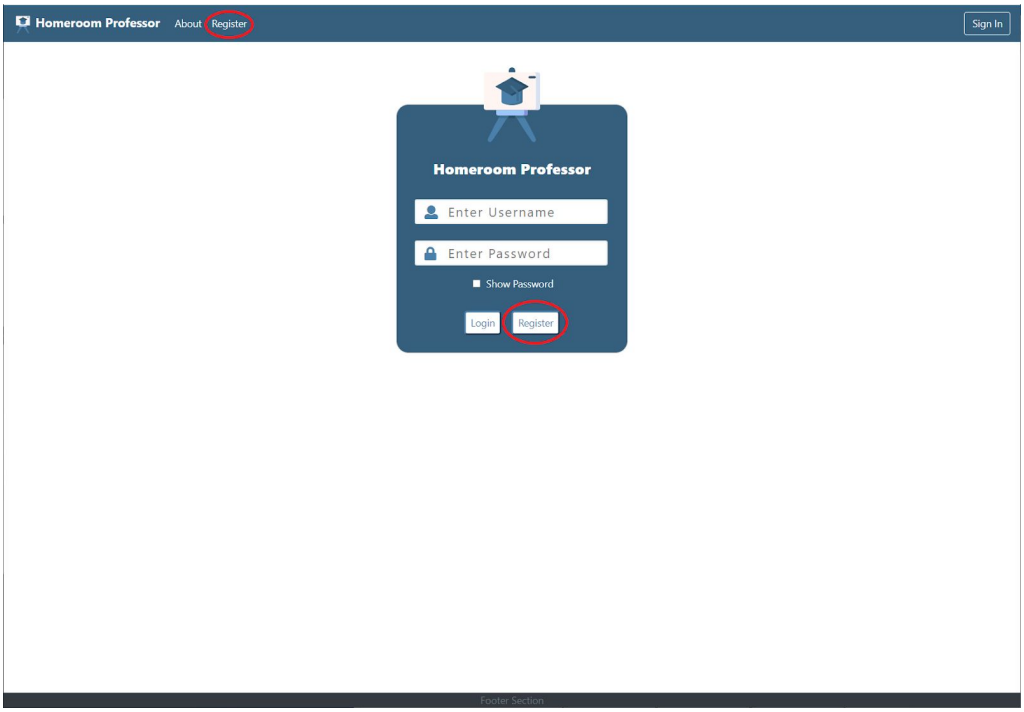
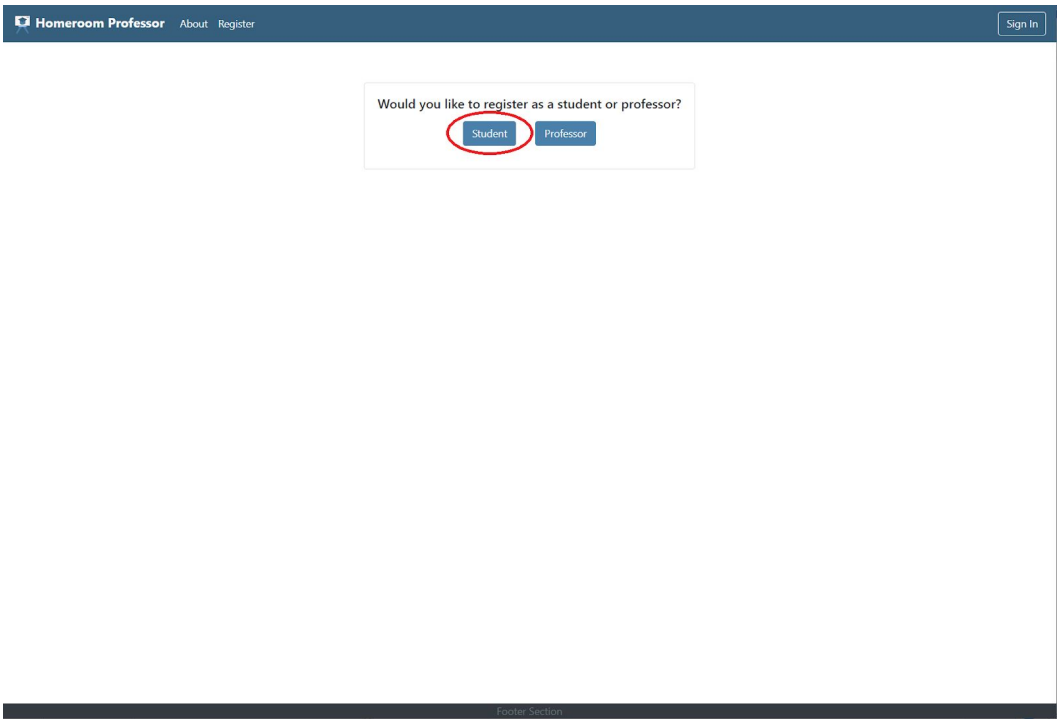
Description of Navigation

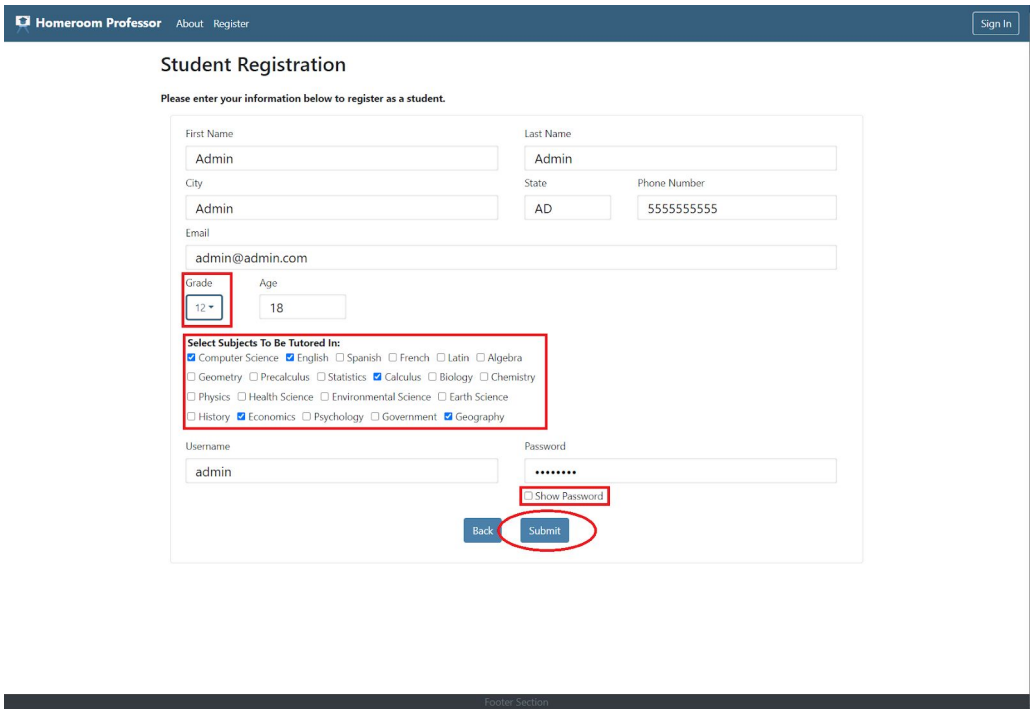
On entry to the web application, you will arrive at a Login page, click on the ‘Register’ button for new professor or student account registration.



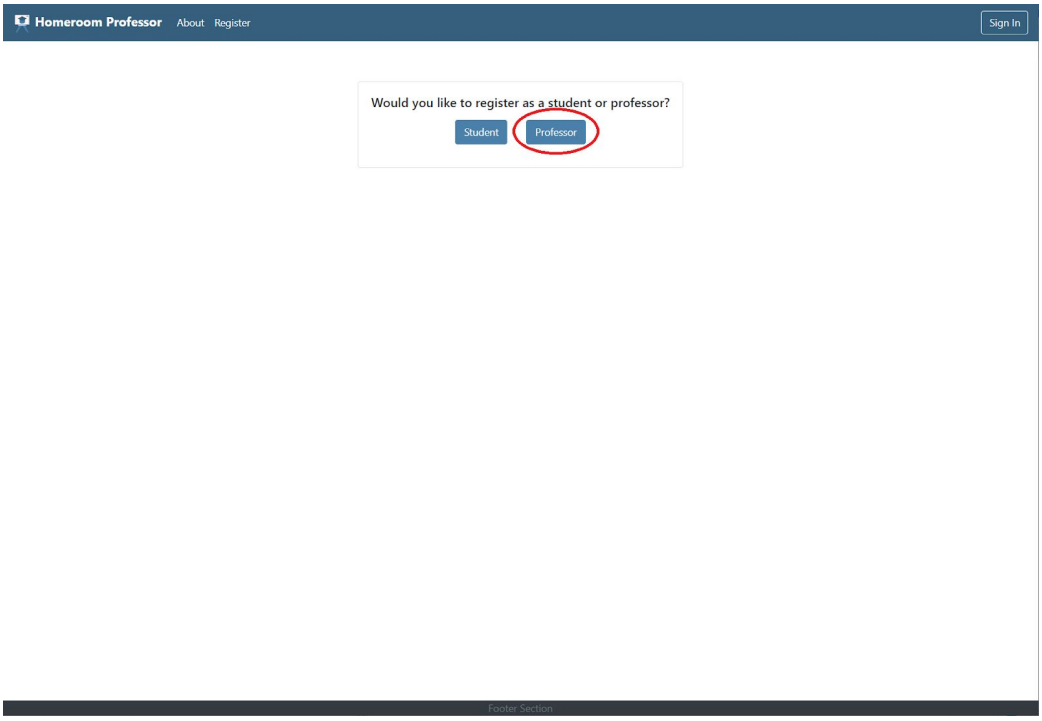
Click on the ‘Student’ button for creating a new student account.



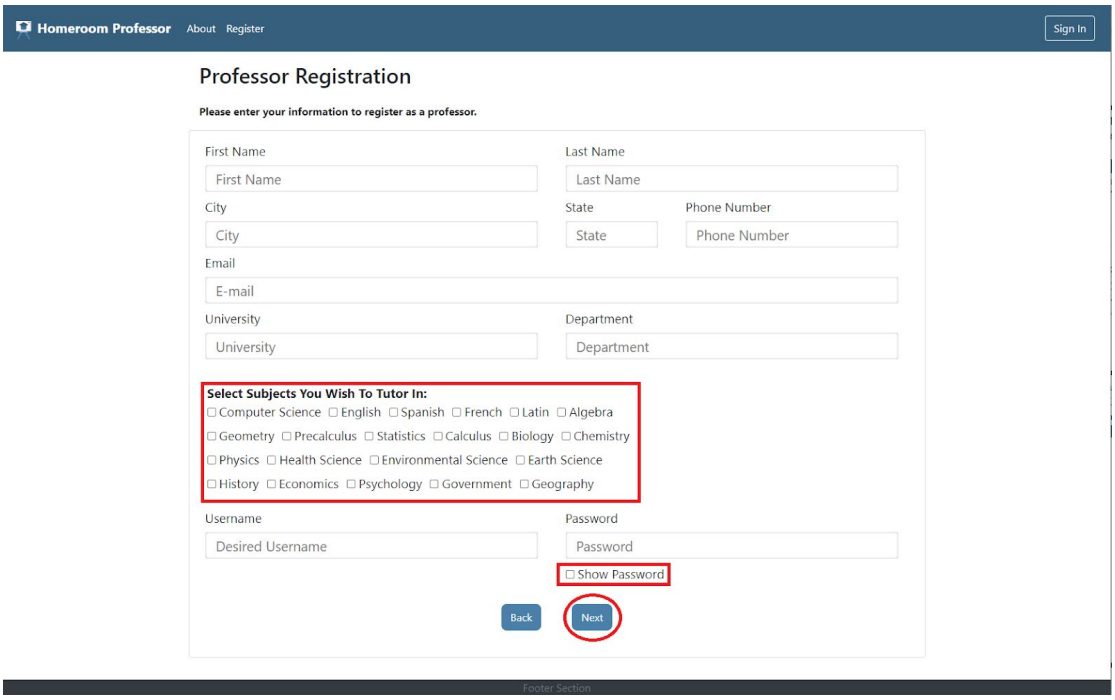
For the Student Registration form, all fields need to be filled out. Highlighted in red are three items that are not text fields. Click the ‘Grade’ dropdown button to select the grade the user is in. Check the checkboxes under ‘Select Subjects To Be Tutored In:’ for the subjects the user needs help in. Use checkbox ‘Show Password’ to temporarily show the password’s text. Once all fields are filled, click ‘Submit’ to create the account.



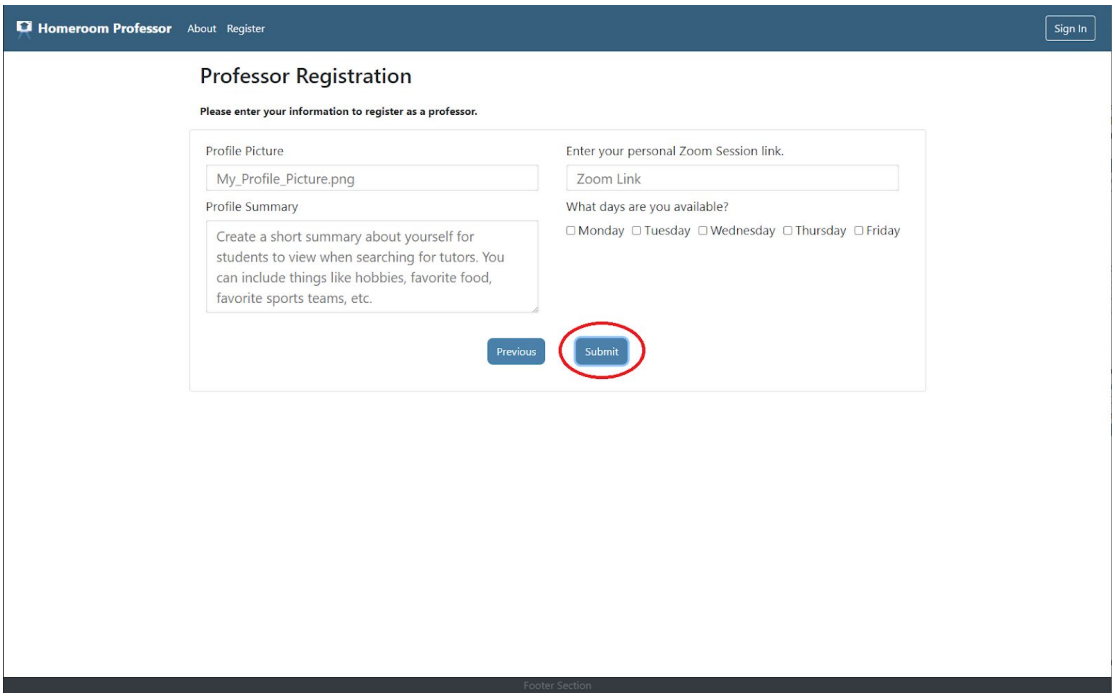
Click on the ‘Professor’ button for creating a new professor account.



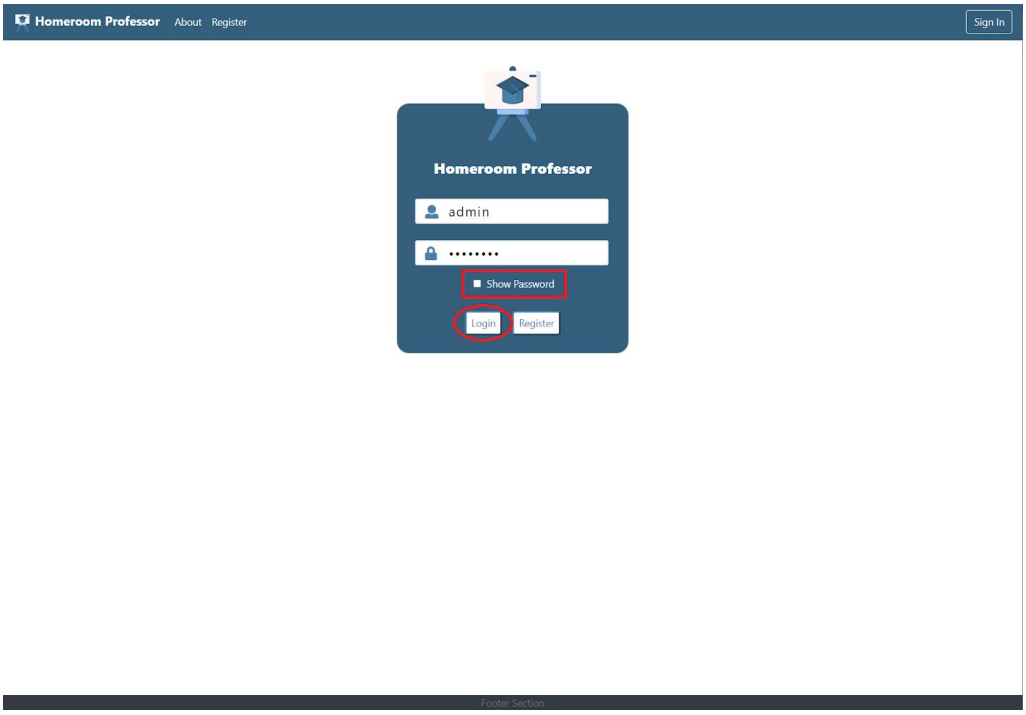
The professor registration form requires all fields to be filled out. Check the checkboxes under ‘Select Subjects To Be Tutored In:’ for the subjects the user needs help in. Use checkbox ‘Show Password’ to temporarily show the password’s text. Once all fields are filled, click ‘Next’ to continue.



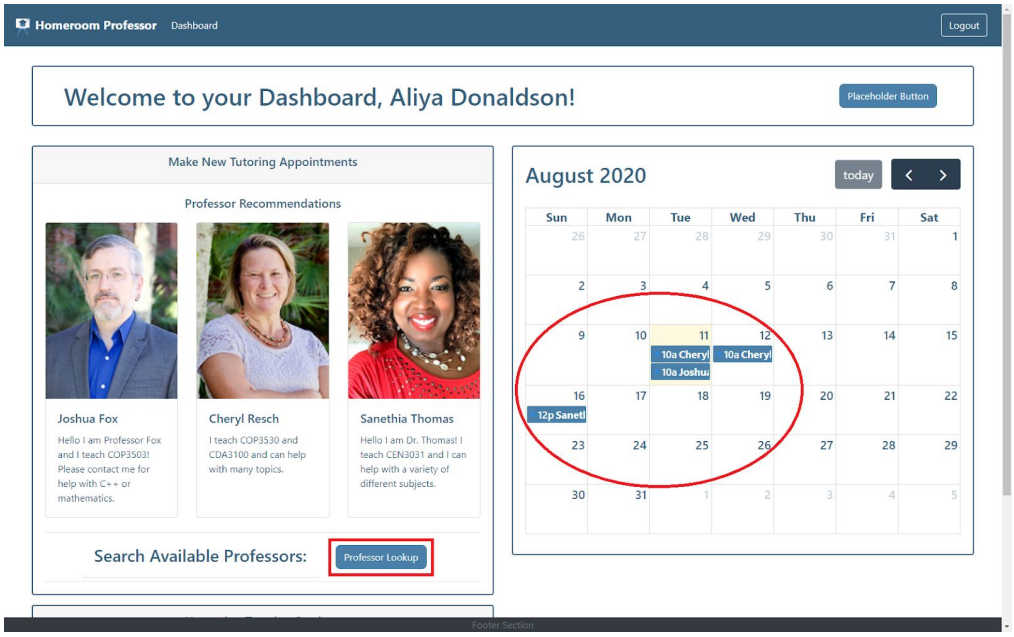
The second page allows for additional information of a profile picture, personal zoom link session, personal summary and availability to be included. Click ‘Submit’ to create the account.



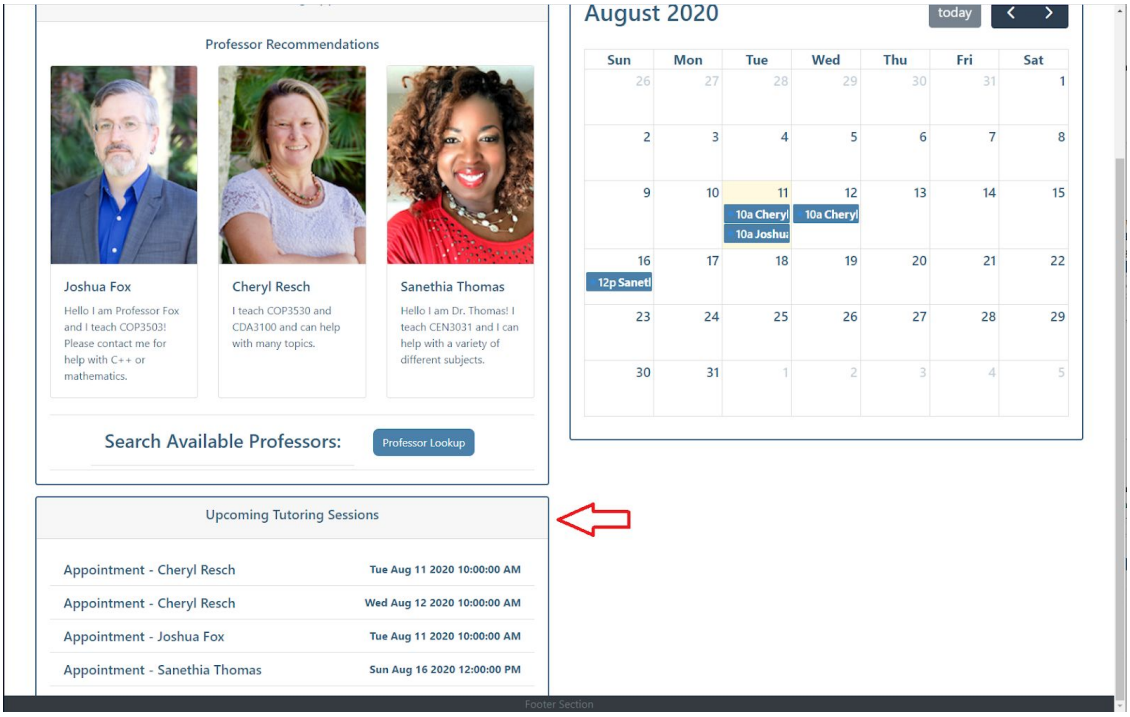
Once an account is created, the user will be redirected back to the Login page to enter the new account information and click ‘Login’ to log into the account dashboard. Check the ‘Show Password’ box to temporarily show the password’s text.



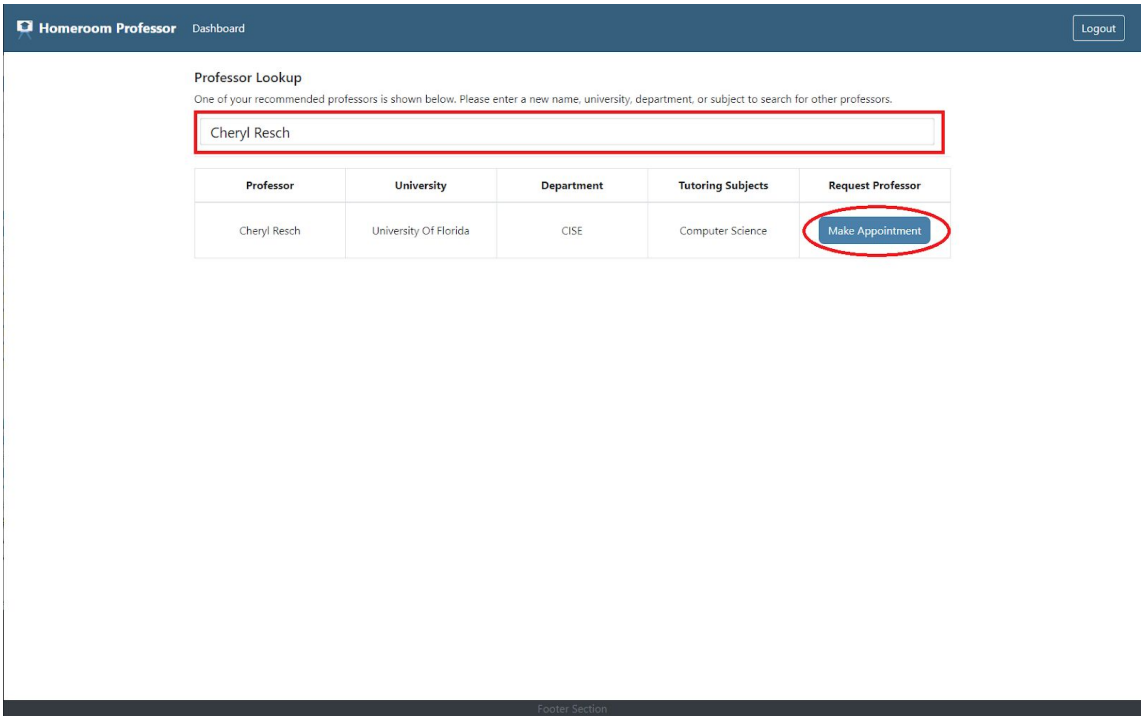
Student accounts will be redirected to the Student Dashboard. Here the student can view/interact with events on their calendar on the right side. The left side will display recommendations of professors based on the students selected subjects. Click ‘Professor Lookup’ to search for professors to set up new tutoring sessions.



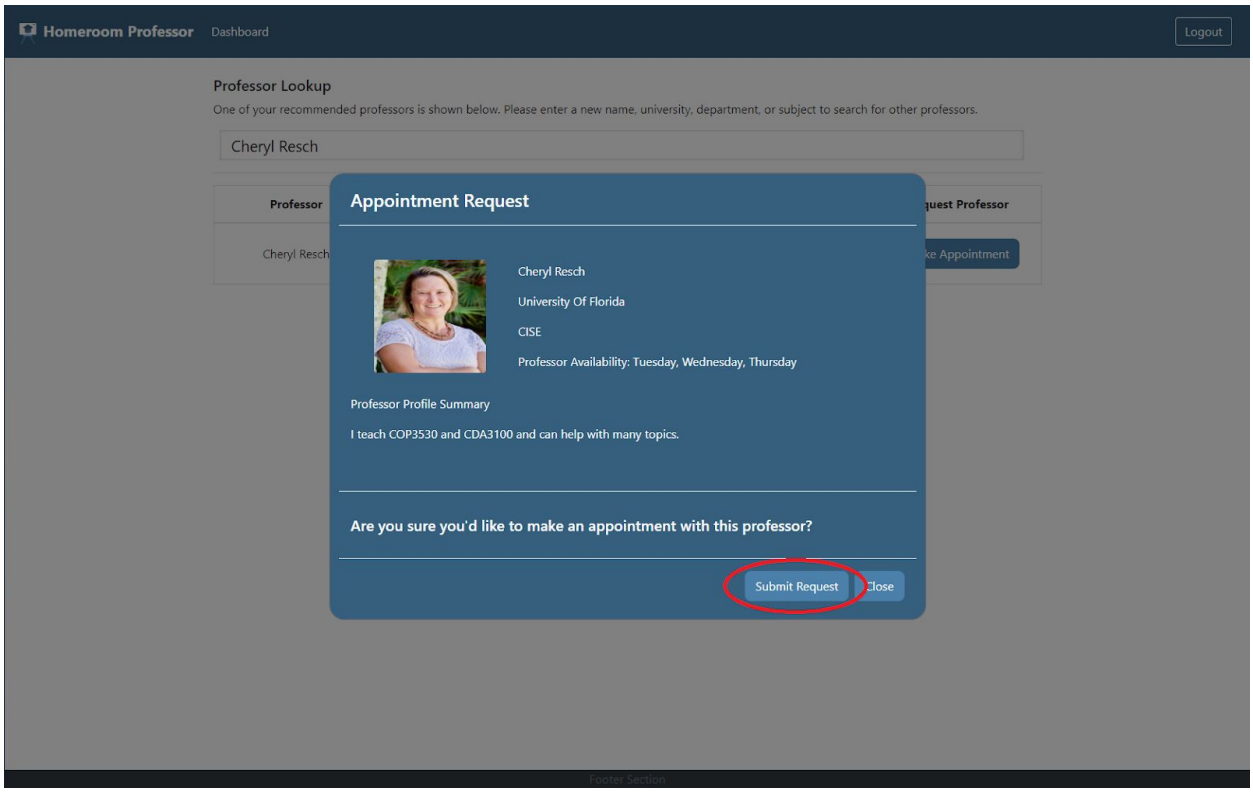
Scrolling down on the dashboard will show the upcoming sessions for the student to be reminded of, indicated by the red arrow.

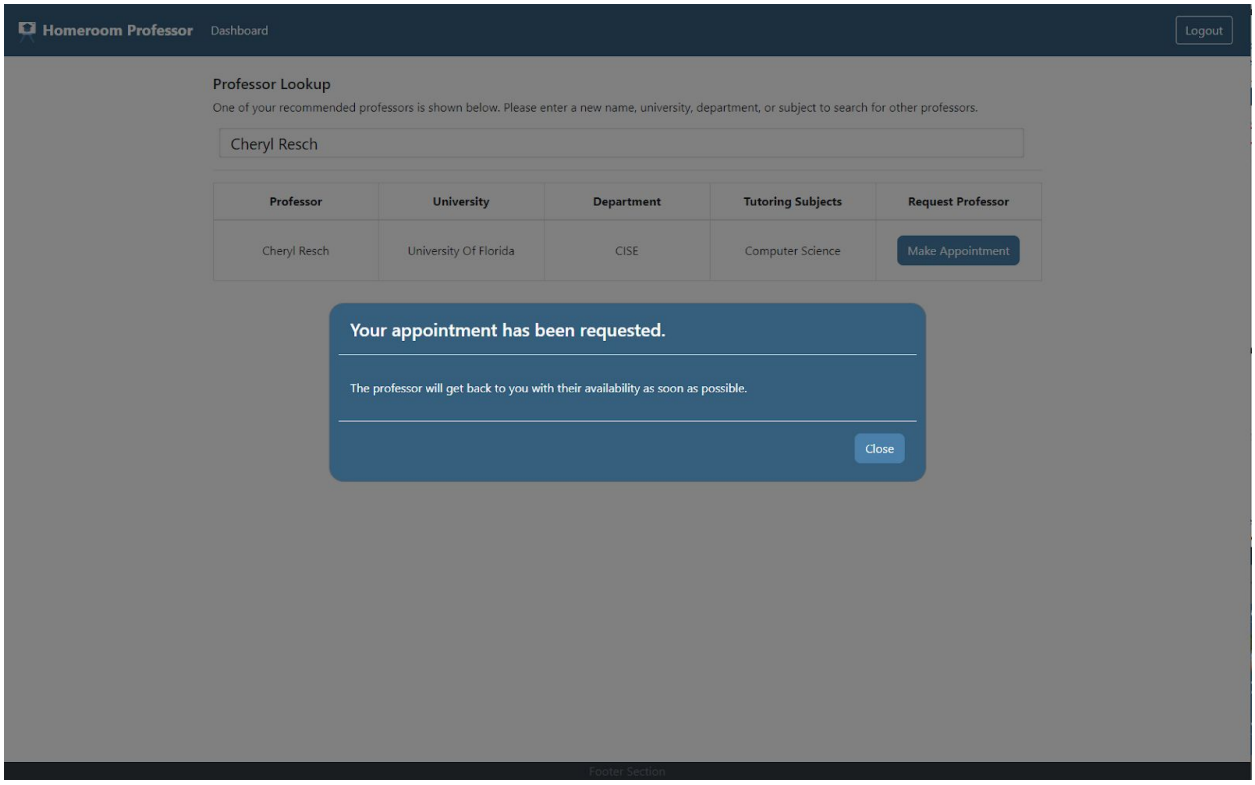


In Professor Lookup, the search bar will automatically filter one of users recommended professors or the user can filter the database themselves. Click ‘Make Appointment’ to open a small window for requesting the professor for a possible tutoring session. Click ‘Dashboard’ to return to the Student Dashboard.

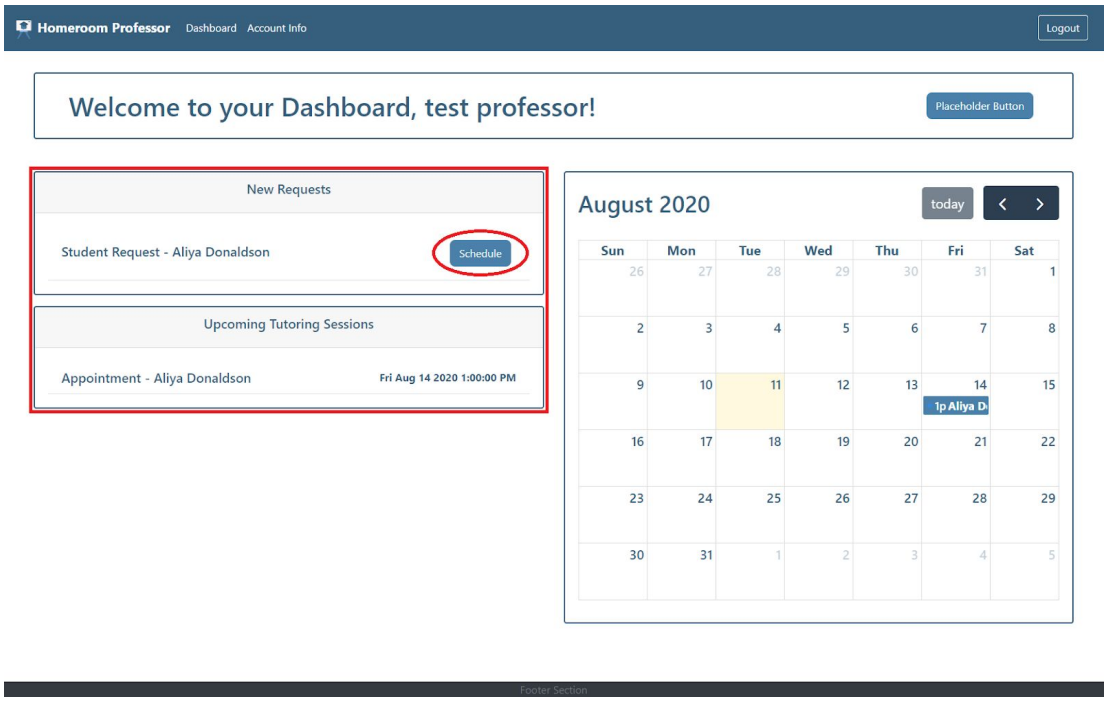


Click ‘Submit Request’ to request an appointment or ‘Close’ to cancel this request. If submitted, a confirmation window will appear to inform the user that the request went through.

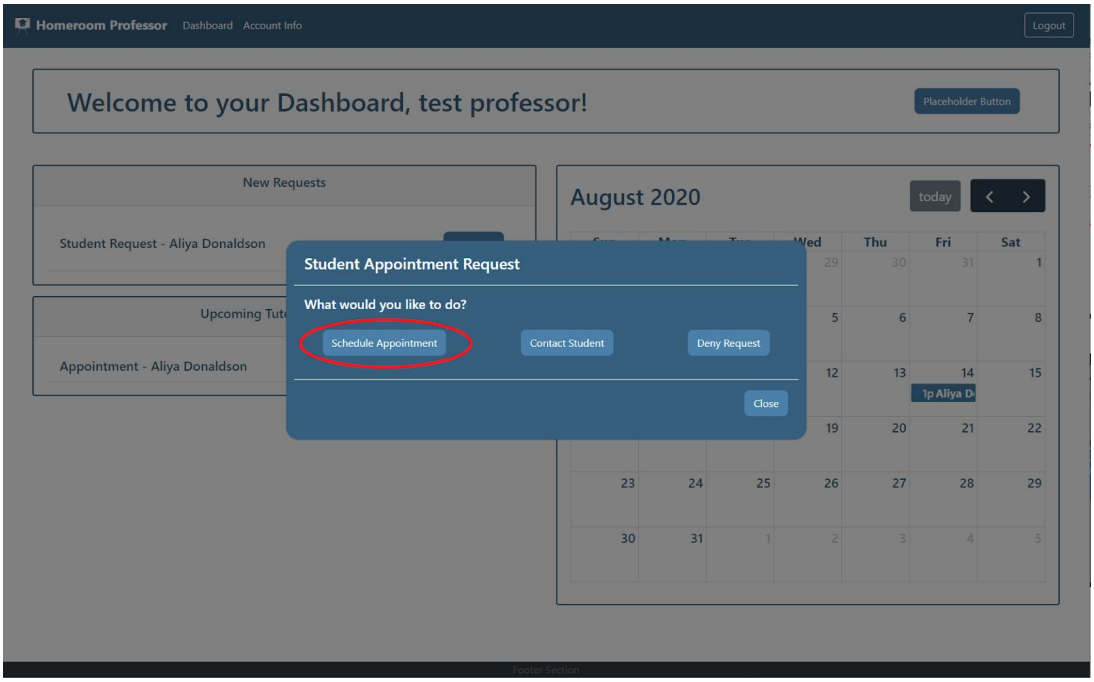




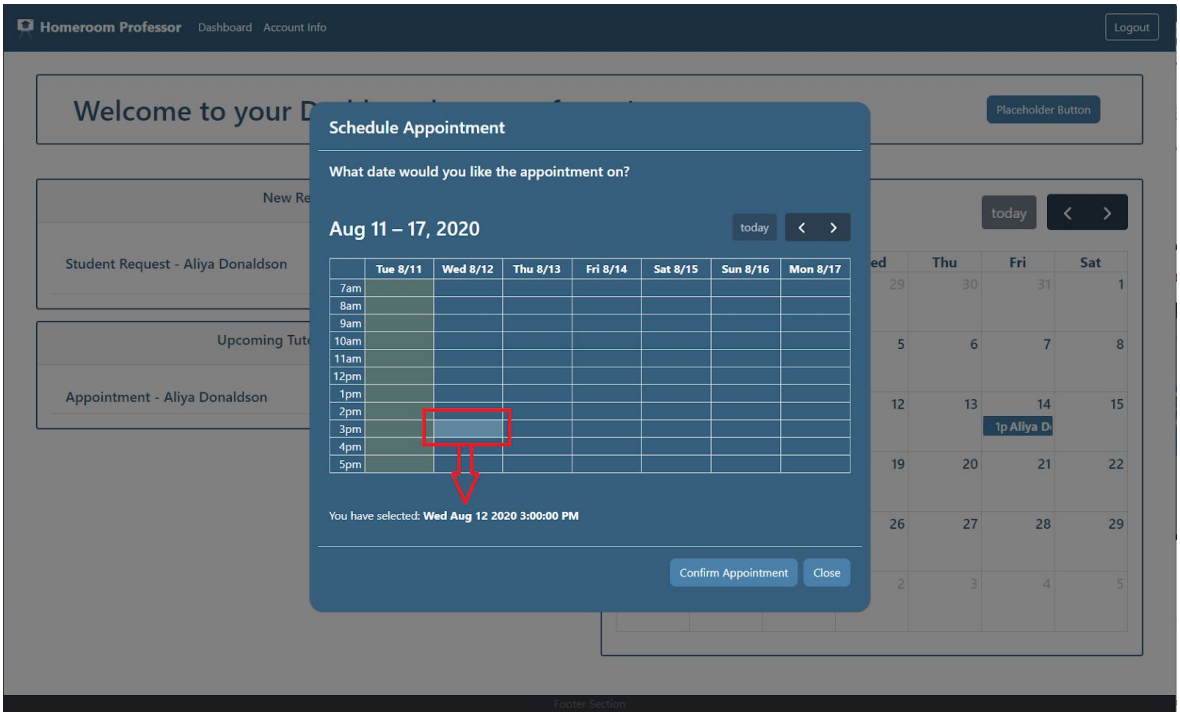
Professor accounts will be redirected to the Professor Dashboard. Here the professor can view events on their calendar on the right side of the dashboard. On the left side of the dashboard, the professor can view New Requests and Upcoming Tutoring Sessions. Click ‘Schedule’ under New Requests to schedule an appointment with the student.



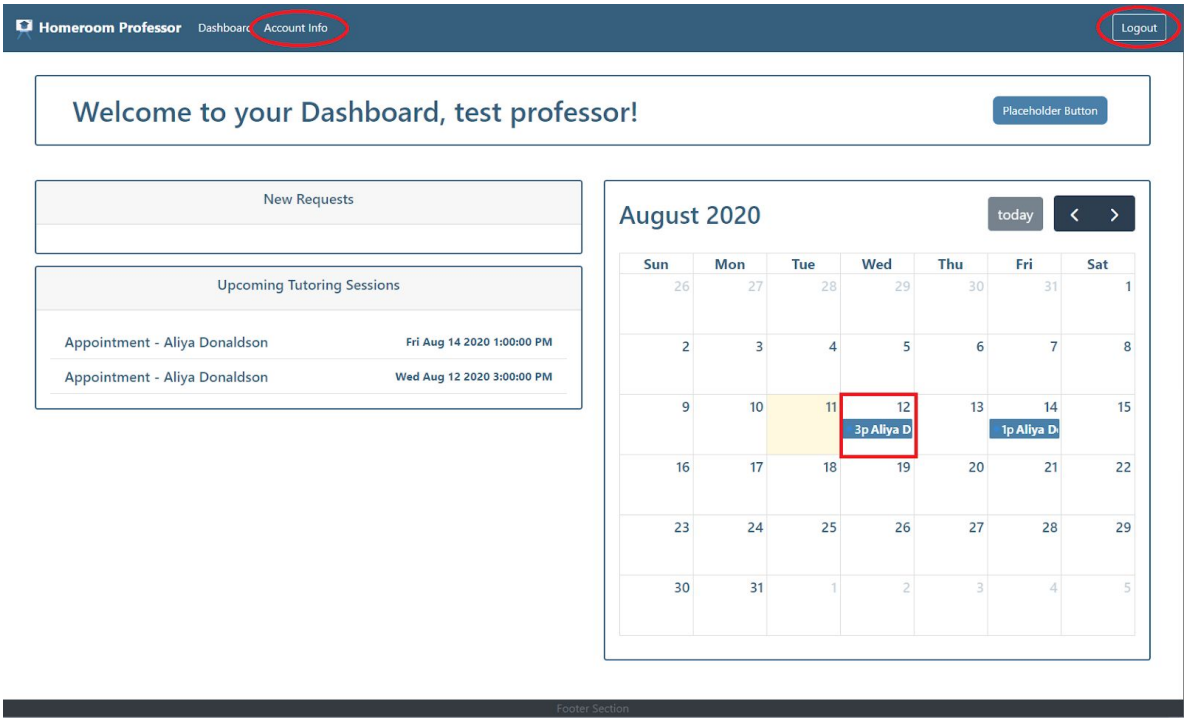
A pop-up will appear where the professor can choose to ‘Schedule Appointment’, ‘Contact Student’, or ‘Deny Request’. Selecting ‘Schedule Appointment’ will forward to a calendar to select a time slot on.



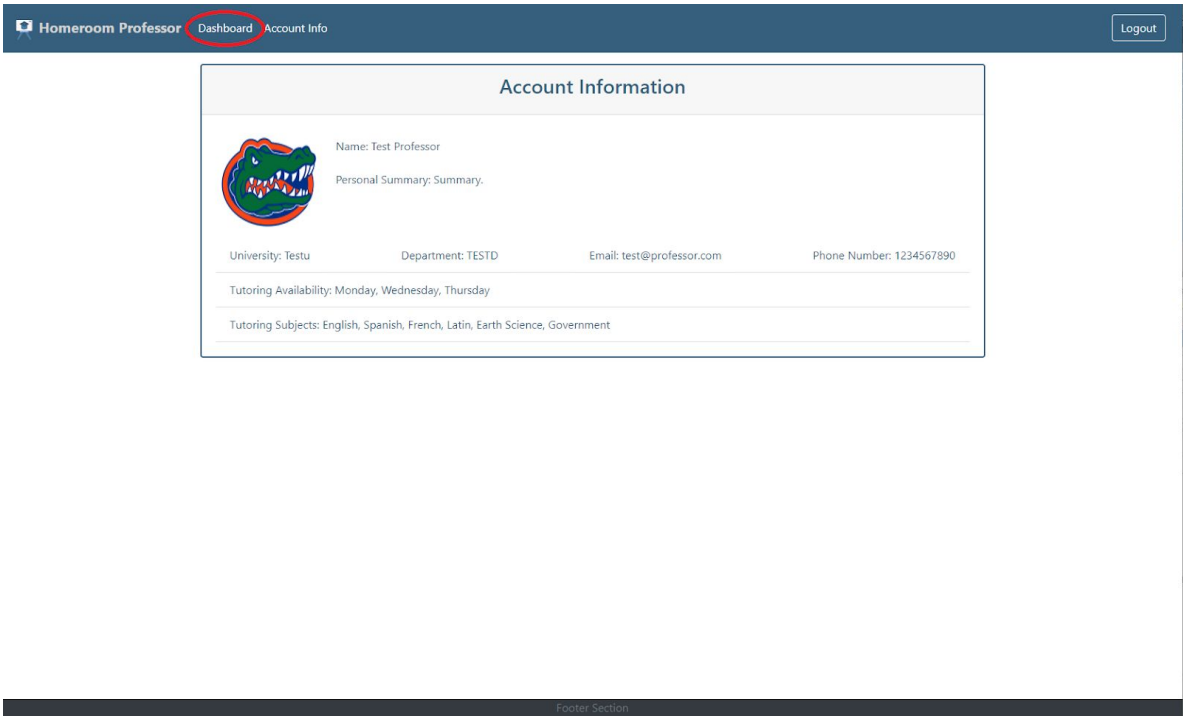
Selecting a date will highlight that location and render in your selections data and time. Click ‘Confirm Appointment’ to approve the request for the selected time slot.



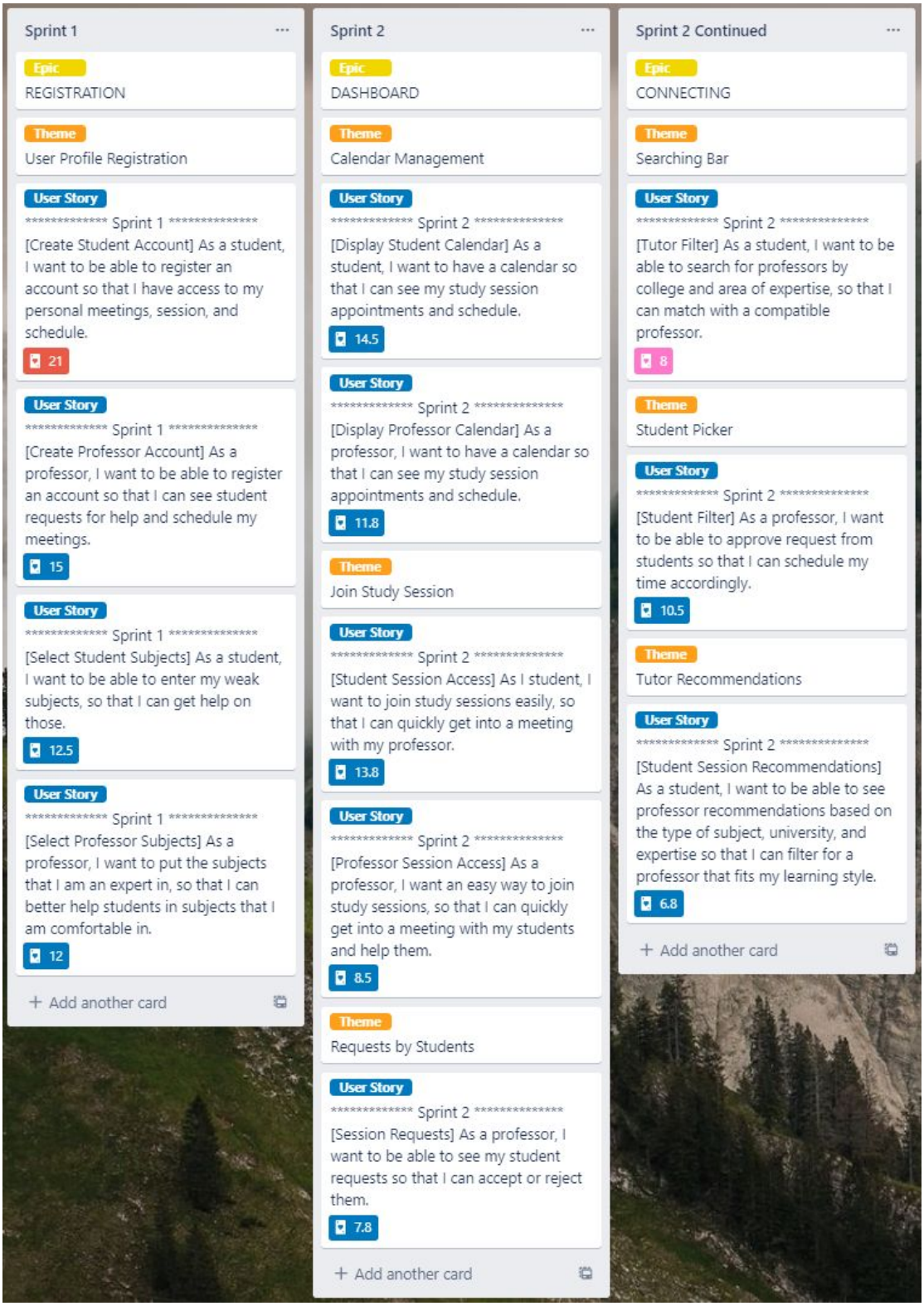
Once the appointment is confirmed, it will render into the calendar as an interactive zoom link to connect the tutoring session. Click ‘Account Info’ in the Navigation Bar to view account information. Click ‘Logout’ to return to the ‘Login’ page.

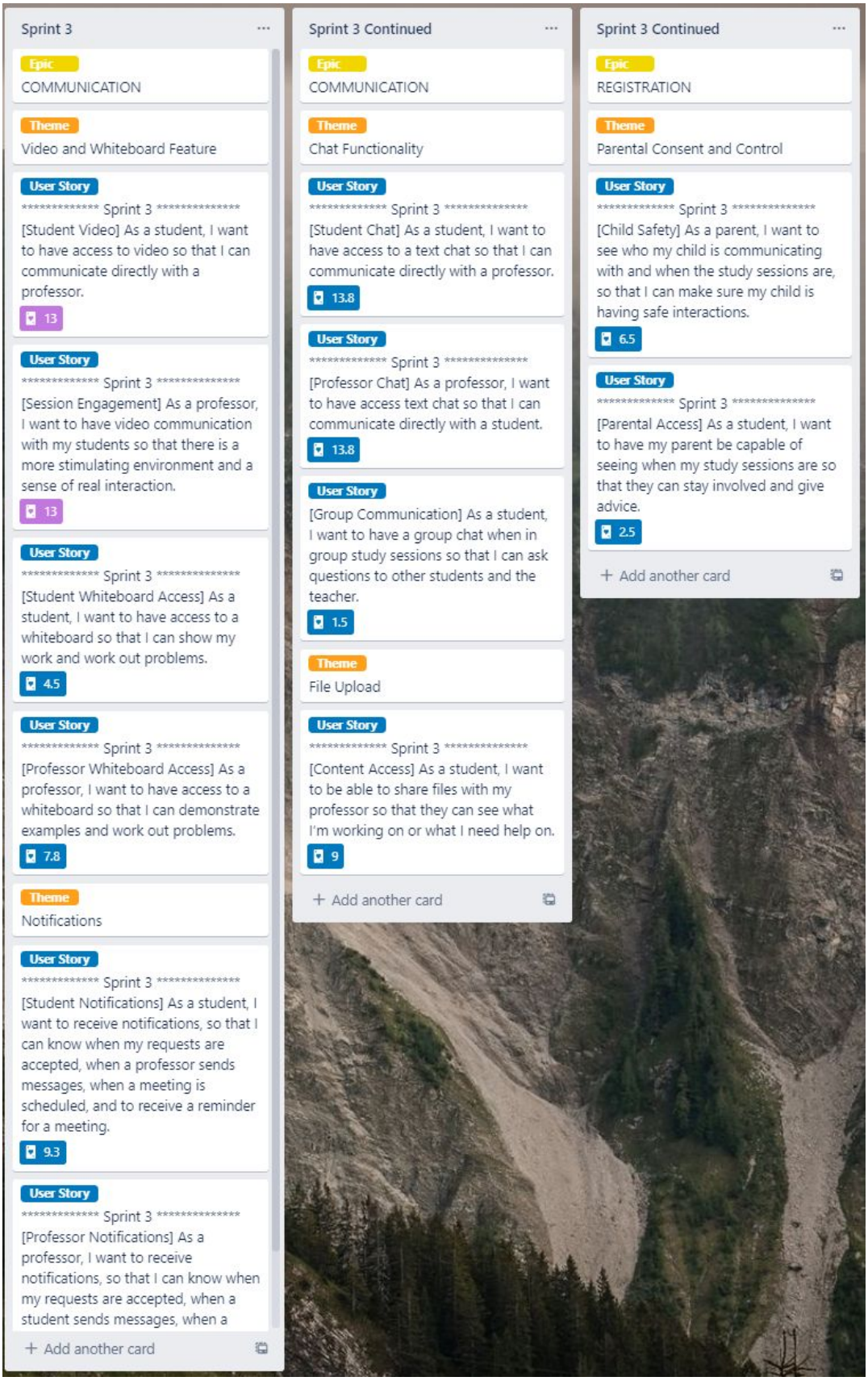


On the professors Account Info page, the professor can view their own account information. Click on ‘Dashboard’ to return to the Professor Dashboard.

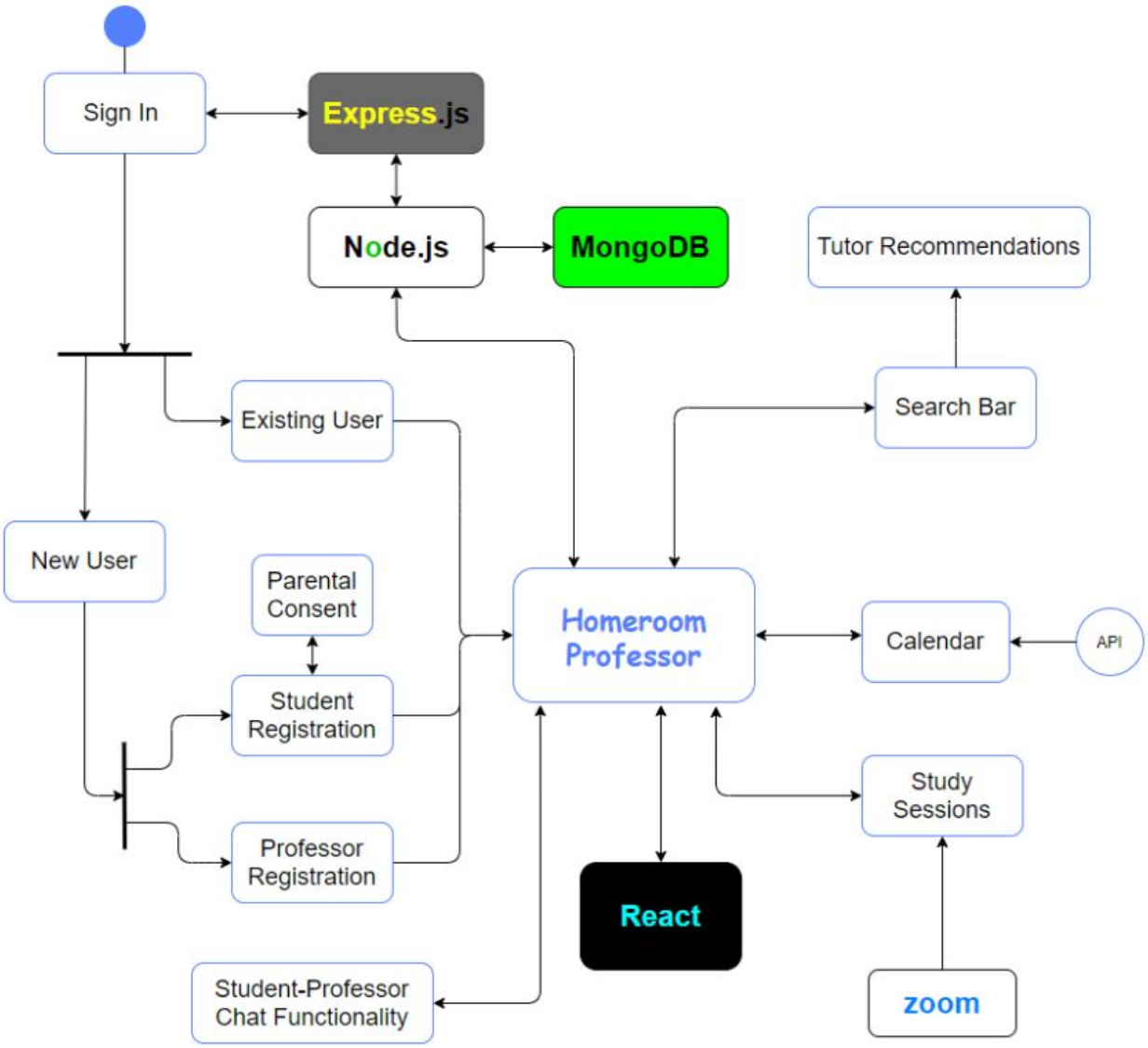


User Stories and Story Map

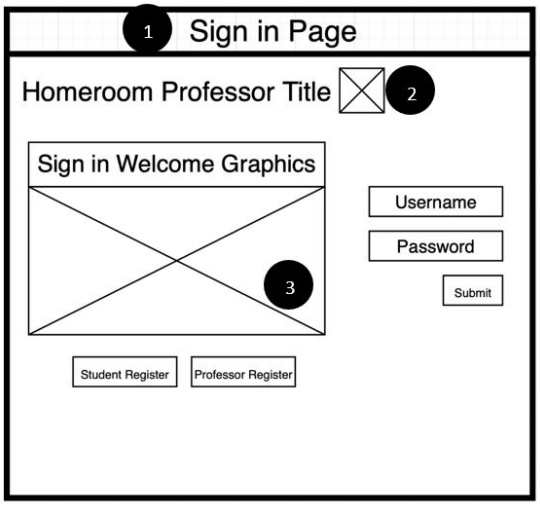



Sprint 3
Epic
COMMUNICATION
Theme
Video and Whiteboard Feature
User Story
********** Sprint 3 **********
[Student Video] As a student, I want to have access to video so that I can communicate directly with a professor.
13
User Story
********** Sprint 3 **********
[Session Engagement] As a professor, I want to have video communication with my students so that there is a more stimulating environment and a sense of real interaction.
13
User Story
********** Sprint 3 **********
[Student Whiteboard Access] As a student, I want to have access to a whiteboard so that I can show my work and work out problems.
4.5
User Story
********** Sprint 3 **********
[Professor Whiteboard Access] As a professor, I want to have access to a whiteboard so that I can demonstrate examples and work out problems.
7.8
Theme
Notifications
User Story
********** Sprint 3 **********
[Student Notifications] As a student, I want to receive notifications, so that I can know when my requests are accepted, when a professor sends messages, when a meeting is scheduled, and to receive a reminder for a meeting.
9.3
User Story
********** Sprint 3 **********
[Professor Notifications] As a professor, I want to receive notifications, so that I can know when my requests are accepted, when a student sends messages, when a
+ Add another card
Sprint 3 Continued
Epic
COMMUNICATION
Theme
Chat Functionality
User Story
********** Sprint 3 **********
[Student Chat] As a student, I want to have access to a text chat so that I can communicate directly with a professor.
13.8
User Story
********** Sprint 3 **********
[Professor Chat] As a professor, I want to have access text chat so that I can communicate directly with a student.
13.8
User Story
[Group Communication] As a student, I want to have a group chat when in group study sessions so that I can ask questions to other students and the teacher.
1.5
Theme
File Upload
User Story
********** Sprint 3 **********
[Content Access] As a student, I want to be able to share files with my professor so that they can see what I'm working on or what I need help on.
9
+ Add another card
Sprint 3 Continued
Epic
REGISTRATION
Theme
Parental Consent and Control
User Story
********** Sprint 3 **********
[Child Safety] As a parent, I want to see who my child is communicating with and when the study sessions are, so that I can make sure my child is having safe interactions.
6.5
User Story
********** Sprint 3 **********
[Parental Access] As a student, I want to have my parent be capable of seeing when my study sessions are so that they can stay involved and give advice.
2.5
+ Add another card

System Context Model



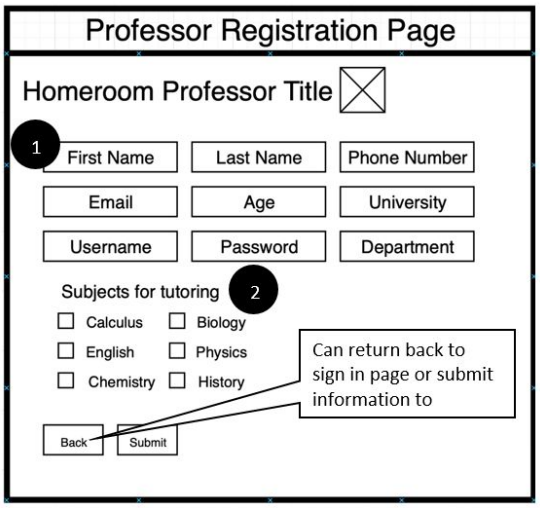
Wireframes



1) Main welcome page for new users to sign in or register their count if not previously created

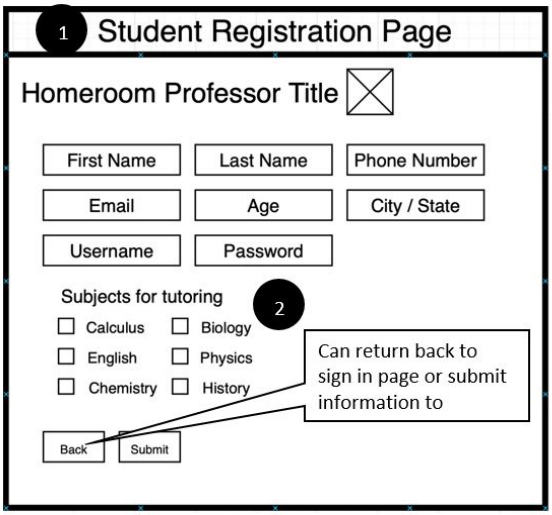
2) Homeroom Professor Title will include a logo / graphic for the website as well as act as a link to returning back home

3) Sign in welcome graphics might include additional logos and / or information on the product and its features



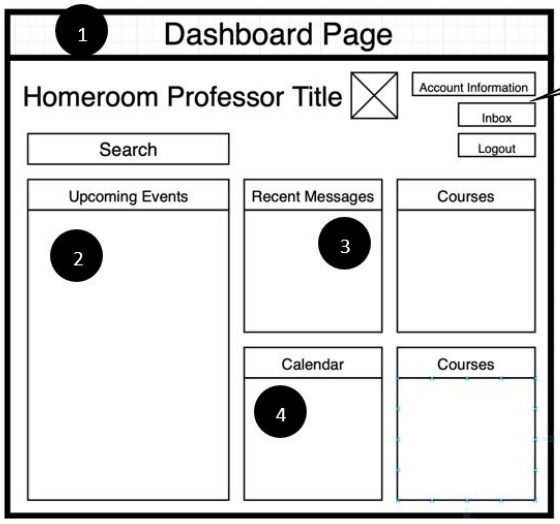
1) Professor registration allows professors to enter their personal information as well as attributes like University and Department for searching purposes

2) Will also allow professor to choose subjects they wish to tutor in (list not exhaustive)



1) Student registration allows students to enter their personal information as well as attributes like age and location to help search for relevant professors and meeting requirements.

2) Will also allow student to choose subjects they wish to be tutored in (list not exhaustive)



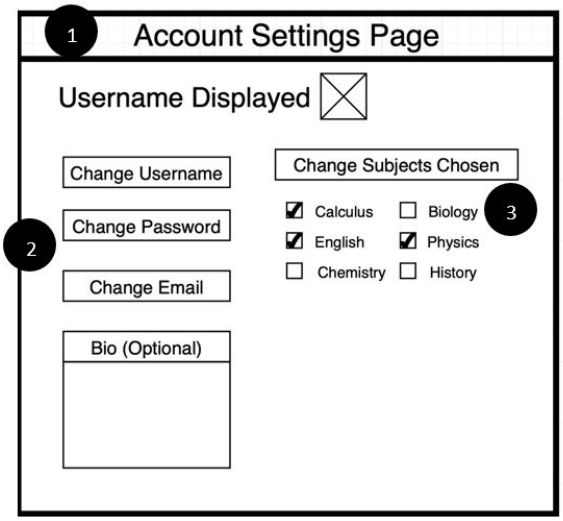
Quick links to view account information, inbox, and logging out

1) The Dashboard will be the central location for both the student and professor.

2) Upcoming events will show meetings that the professor and student have registered for.

3) Recent messages will display the last contact made between a professor and a student or vice versa

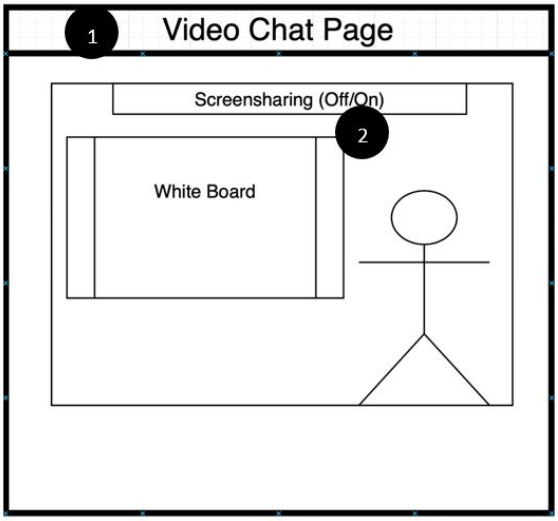
4) Calendar will show more distance scheduled events in the future or past ones



1) The account settings page will display information pertaining to a user's account, starting with the username displayed at the top.

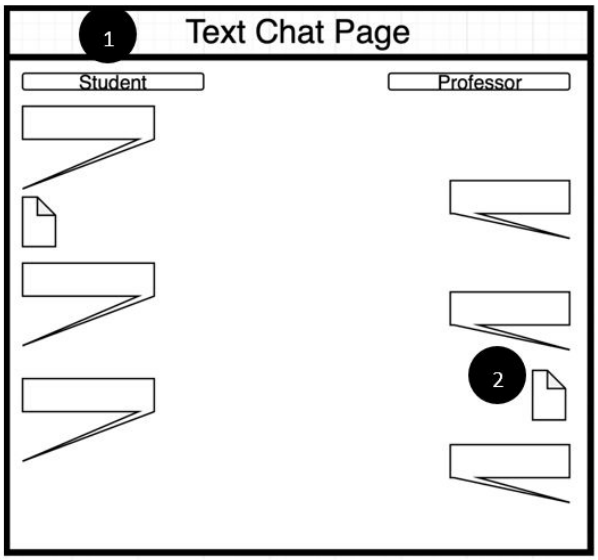
2) Each field will allow a user to change different attributes of their information, such as password, email, and username

3) There will also be a section for listing which courses a user had previously chosen at registration, as well as the capability of removing or adding more courses to the list.



1) The video chat page will allow video stream interaction between a professor and a student.

2) There may also be support for additional features if time allows, such as including screensharing and a digital whiteboard



1) The text chat page will allow text input interaction to be shared between a professor and a student.

2) Potential features to be included are also file sharing, so that a student may scan a PDF of their assignment to send to a professor for review.

System Requirements

Environmental Variables and API Keys

- Database URI Config Variable (Located on line 3 of config.js file inside the config folder inside the server directory)
    - Key: DB_URI
    - Value:mongodb+srv://Me:123@projectdatabase.gywc6.mongodb.net/HomeroomProfessorDB?retryWrites=true&w=majority
- JWT Secret (Located on line 5 of config.js file inside the config folder inside the server directory)
    - Key: secret
    - Value: secretKey

Login Credentials

- Test Student Login Credentials
    - Username: student1
    - Password: password
- Test Professor Login Credentials
    - Username: sanethiathomas
    - Password: password

ReadMe File

HomeroomProfessor

Project Description

The purpose of Homeroom Professor was to provide a volunteer service for faculty and professors in college to be able to tutor elementary, middle, and high school students in a variety of different subjects. This service was created in direct response to the COVID-19 pandemic, where many students were forced to work online and away from easy access to conventional tutors and teachers.

This service can be supplemental to student learning, assist parents and teachers, provide direct interaction between students and college professors, and allow higher education individuals to give back and serve as role models. This unique interaction between professors and K-12 students could also lay the foundation for future connections in college, as well as give more insight into college for the average student. Professors could also be a resource of encouragement to students, so that they may succeed in their subjects in school and potentially pursue a college education, should they desire.

The website has been built with a variety of different features including but not limited to, unique student and professor dashboards, requesting and scheduling appointments, a professor lookup table, an integrated calendar, professor profile pages, and zoom meeting support. Additional features could be incorporated in future versions, and the dashboard layout on the site provides an easy interface to build off of.

Tech Stack

This full stack web application was developed using the MERN (MongoDB, Express, React, and Nodejs) Stack.

Scripts

Installing

--**npm install** in the directory with the client and server FOLDERS. This directory also has a package.json and will be where your node modules for the server (backend) go.

--**npm install** inside the client directory will install nodemodules and stuff for the client (frontend)

Running

--**npm run server** in the directory with client and server folder will run the server via nodemon, refreshing server for any changes.

--**npm start** in the directory with client and server folder will run the server via node. You will have to restart the server after any changes in the server/backend.

--**npm start** in the client folder will start and launch the front end

--**npm run client** from the directory with client and server folder will start the frontend(client)

--**npm run dev** from the directory with the client and server folder will start both frontend and server (backend)

Deployment

--The application was deployed using Heroku. The link is: homeroomprofessor-autodeploy.herokuapp.com

Config File

config.js

server > config > config.js > ...

```
1  module.exports = {
2      db: {
3          uri: 'mongodb+srv://Me:123@projectdatabase.gywc6.mongodb.net/
           HomeroomProfessorDB?retryWrites=true&w=majority'
4      },
5      secret: "secretKey"
6  };
```

Project Handoff Guidelines

If the client wishes to use this application, the following are the steps to set up the application.

1. Download the repository at https://github.com/ammarsyed/HomeroomProfessor.git by either downloading it as a zip file or clone it using the github documentation at https://help.github.com/en/github/creating-cloning-and-archiving-repositories/duplicating-a-repository
2. Create and deploy a MongoDB Atlas server with their account. Instructions on how to this are at https://www.mongodb.com/try
3. Update the DB_URI in the config file with the database URI of the client's database. Please refer to the config file section above.
4. Refer to the readme file for various scripts on running the application.
5. When the application is being deployed on a platform such as Heroku, please refer to the environmental variables section above and replace the uri above with the client's uri.