



By JuniHers - Group 2

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Executive Summary

- **ShawSpace** is a platform where users part of the D.E.Shaw mentorship programme can login/signup including both mentors and mentees and they shall be matched according to their interests of work area or otherwise.
- The user needs to fill out their profile once they login and choose their areas of interest.
- Mentees can be matched with mentors based on common interests and skills. Group chat feature allows them to communicate easily as and when they like.
- They can even host reminders for meeting and project deadlines.
- There is also a feature for video conferencing, where the mentees and mentors can interact with each other live.

Requirements

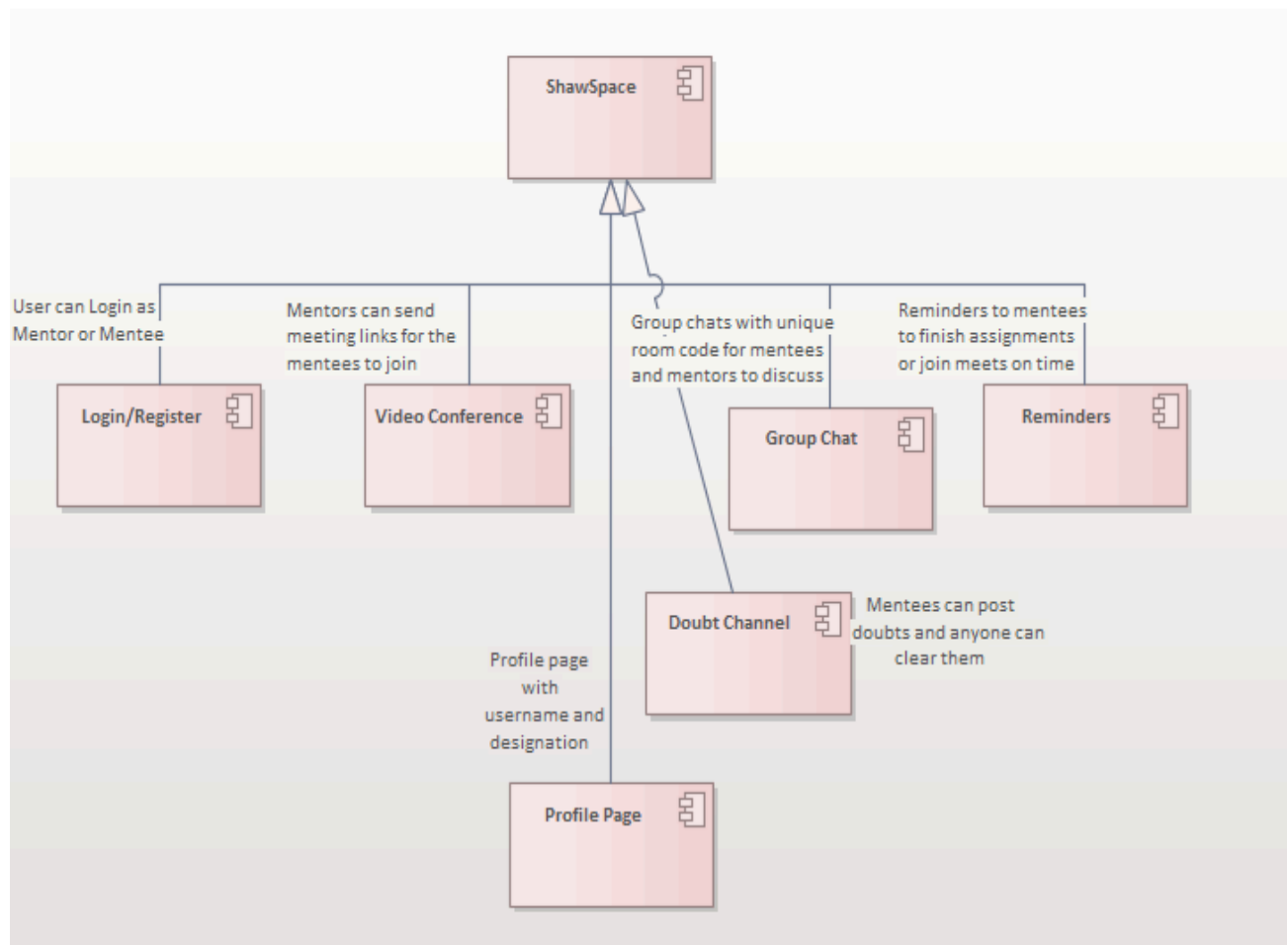
- Login/Register
- Display profile page, with name, designation-mentor/mentee and interests
- Group chat room: A chat room where a user can either create a separate chat room or join an existing chat room and invite others to join the room via a room code.
- Web conferencing: Two or more people can also get on a video call and discuss various topics.
- Reminders: Mentors can send reminder emails to mentees about important submission dates or mentees can send emails to their mentors regarding something important they want to discuss.
- Doubts Channel: Anyone can initiate a doubt and push it up on the board. Any of the mentors or mentees can answer it.

Tech Stack

- Backend - Python (Flask)
- Database - SQLite (SQLAlchemy)
- Frontend - HTML, CSS, JS

Design and Architecture

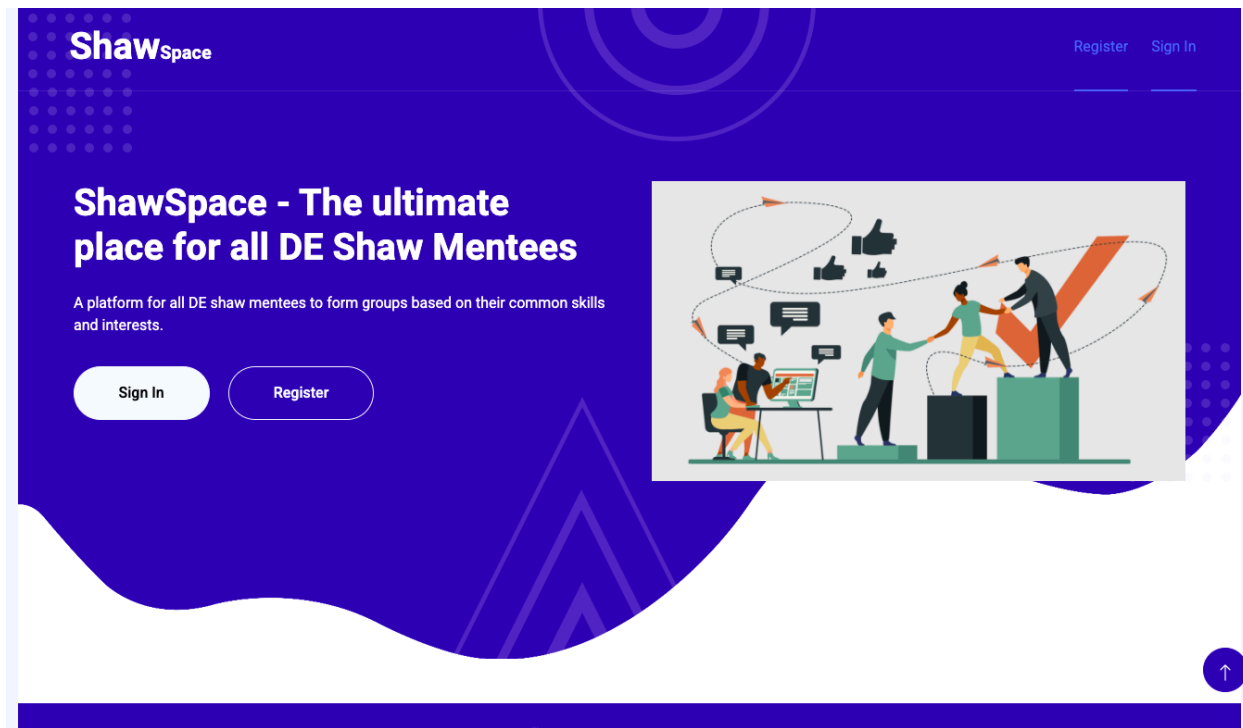
- We have used SQLite as our database.
- The user needs to register on our web application to be able to access most of the functionalities like sending reminder emails, group chatting, video conferencing, and accessing the doubts channel.



Snippets

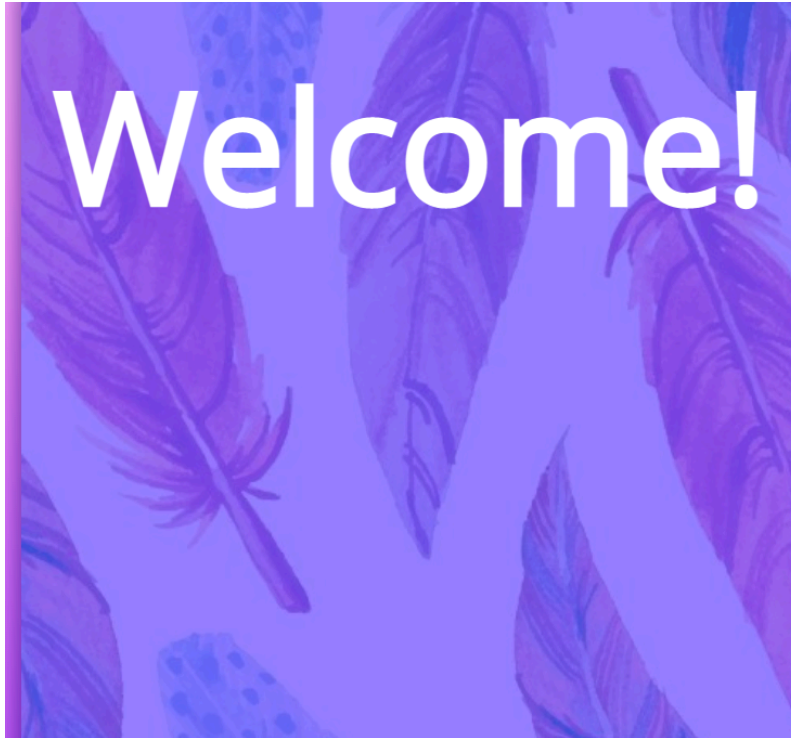
Landing page

This page contains the login and Register Options.



Register Page

- Users can register as a mentor or a mentee and select his/her interests.
- When a mentee registers, in the backend we match him/her with a mentor based on interests, we check from the list of available mentors who have less than 5 mentees and then match the registered mentee to the mentor with whom he/she has maximum matched interests.
- If a mentee registers but there is no 'free' mentor available in our database, i.e, no mentor with less than 5 mentees, we do not let the mentee register and ask him/her to try again later.
- Also, if the user does not enter a valid email, we throw an error and if he/she enters a username that is already taken, we ask the user to enter a different username since there is a constraint on the username that it needs to be unique.



Register

Username:

Email:

Password:

Confirm Password:

Are you a mentor?

☐ Yes

☐ Machine Learning

☐ Competitive Programming

☐ Web Development

☐ App Development

☐ Cybersecurity

☐ Finance

☐

Submit

Login Page

The page where mentors and mentees can log in with their email and password.

Sign In

Sign In

EMAIL

Username

PASSWORD

Password

Sign In

☐ Remember Me [Forgot Password](#)

Welcome to login

Don't have an account?

Sign Up

If the user enters an invalid email, it throws an error as shown below.

Sign In

Sign In

EMAIL

Username

Invalid email address.

PASSWORD

Password

Sign In

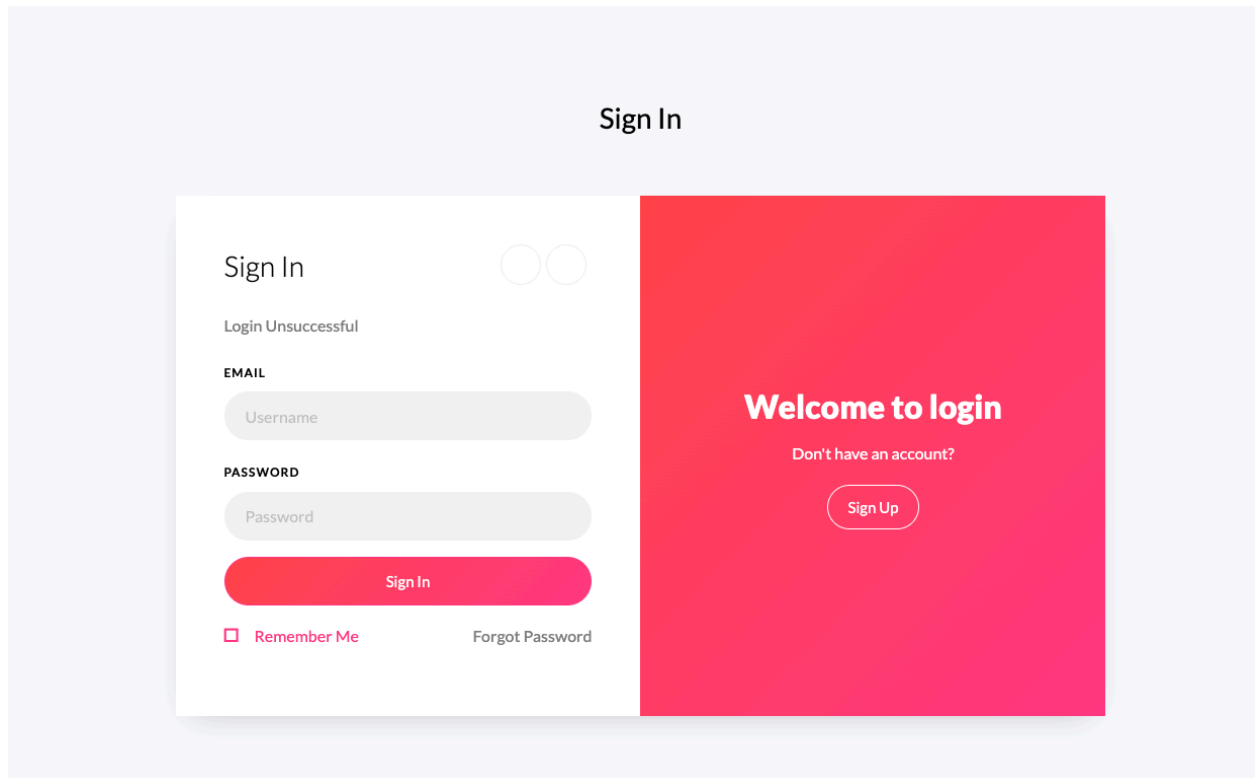
☐ Remember Me [Forgot Password](#)

Welcome to login

Don't have an account?

Sign Up

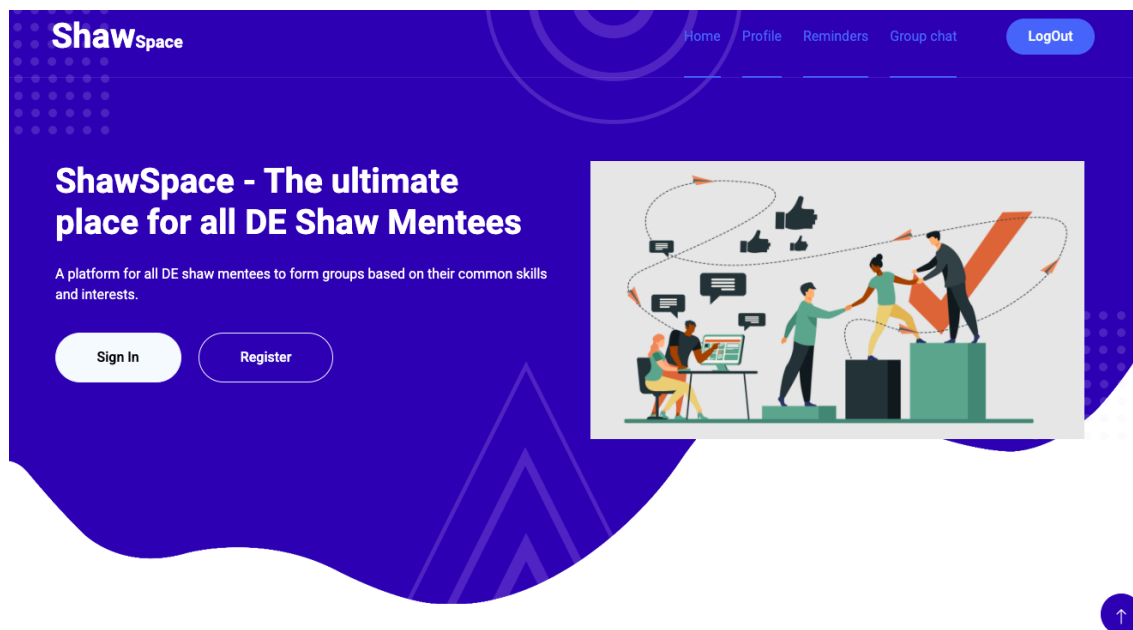
If the user enters the incorrect password, it flashes '*Login Unsuccessful*' as shown below.



The image shows a 'Sign In' form with a red background and a white form area. The form has a title 'Sign In' and a subtitle 'Login Unsuccessful'. It includes input fields for 'EMAIL' (Username) and 'PASSWORD' (Password). Below the password field is a 'Sign In' button. There is also a 'Remember Me' checkbox and a 'Forgot Password' link. To the right of the form is a red box with the text 'Welcome to login' and a 'Sign Up' button.

Login homepage

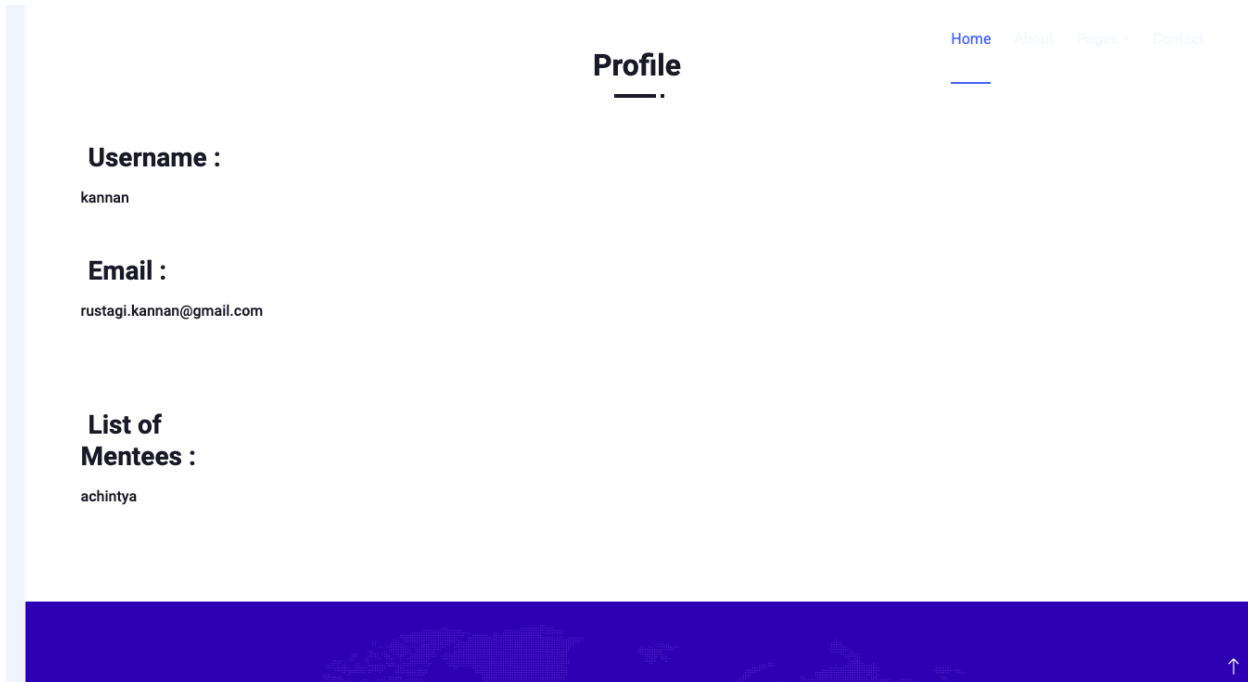
Once users log in, they see the following home page



Note: To save development time, we did not remove the sign-in/register option on this screen.

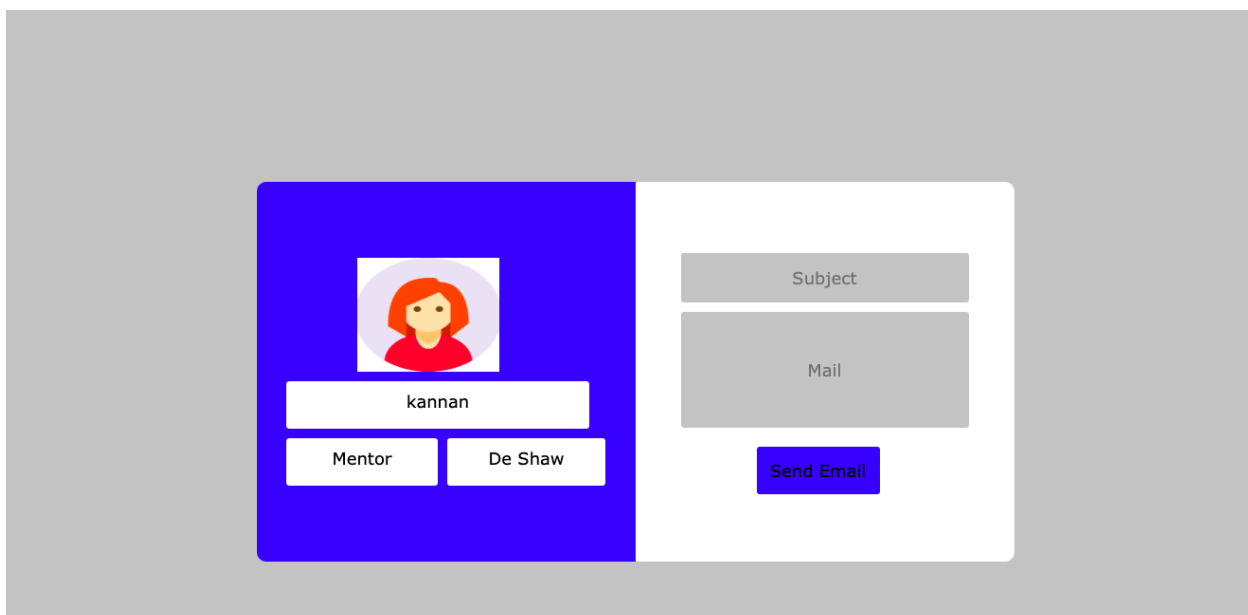
Mentor Profile page

We display the username, email, and list of mentees under that mentee.



Reminder emails by the mentor

Mentors can fill in the subject and content, then send the mail to all their mentees.



Mentee profile page

When a mentee logs in and click on the profile tab on the Navbar, they see the following screen.

HomeAboutPages ~Contact

Profile


Username :
achintya

Email :
[REDACTED]

Mentor :
kannan

Reminder email by mentee

Mentees can fill in the subject and content, then send the mail to all their mentees.



achintya

MenteeDe Shaw

Subject

Mail

Send Email

Group Chat Feature

Users can create a chat room and then send the room code to their mentor(if the user is a mentee) OR to their mentees(if the user is a mentor) and then chat amongst themselves.

Enter The Chat Room

Name:

Doubts Channel

Mentees can post their doubts and other mentees or mentors can address them.

ShawAnswers

HomeTagsAskLoginRegister

What is flask?

i want to know what is flask?

[admin](#) [1 Answers](#) [2 Comments](#)

Sept. 28, 2020, 5:22 p.m.

What is django?

Please explain django

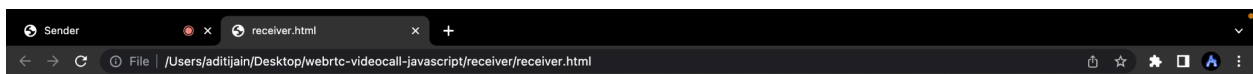
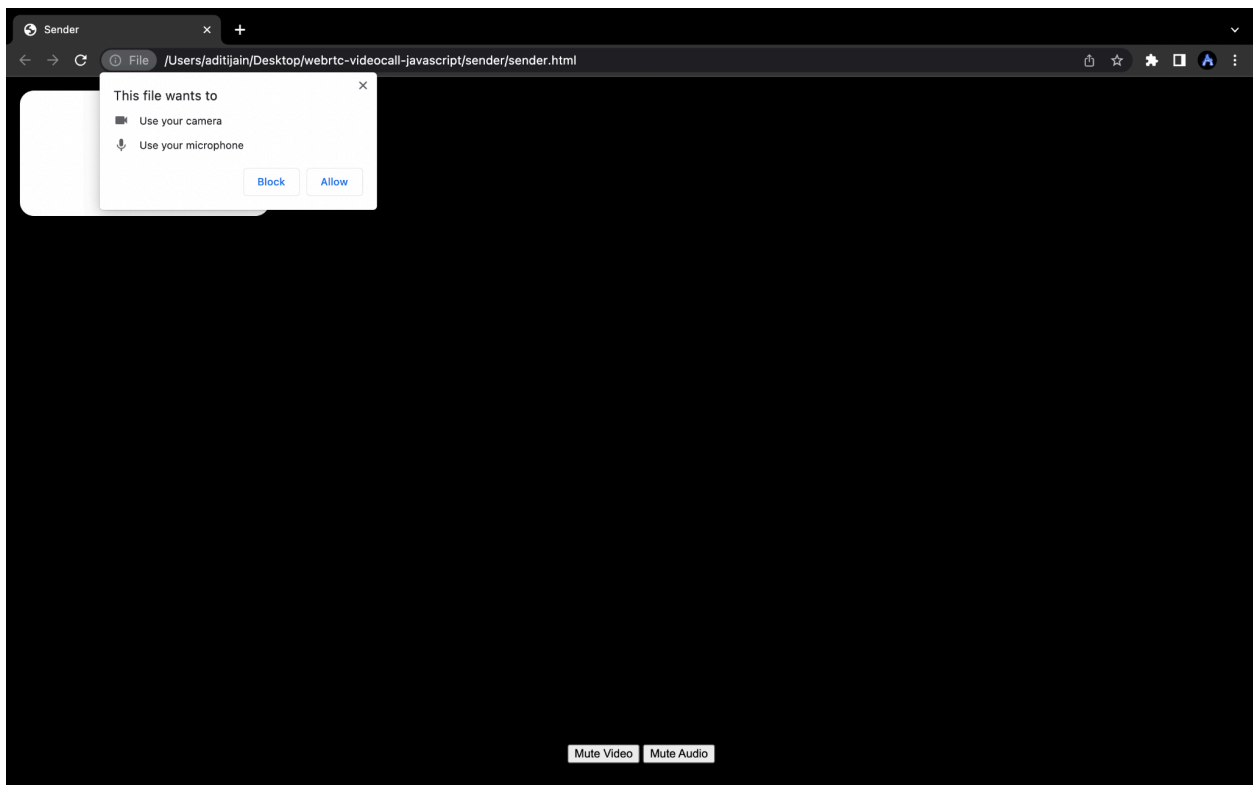
[admin](#) [1 Answers](#) [0 Comments](#)

Sept. 28, 2020, 5:12 p.m.

Video Conferencing



Video conferencing

Video conferencing

Challenges Faced

- It took us about 1-2 weeks to familiarize ourselves with the Tech stack used. Some of us were fairly new to it. So we had to watch videos online to familiarize ourselves.
- Also, it was challenging to coordinate with other teammates and make sure that the GitHub push-pull was synchronized(solving merge conflicts :))
- We faced quite some issues while implementing the Group Chat feature. We used the flask socketio API for the same to include the real-time functionality while chatting. Initially, we got CSRF token errors but after referring to some GitHub repositories and other videos we were able to correct it.
- While implementing the reminder mail part, we discovered that after creating a Gmail account for our system, we need to generate a separate password to enable sending emails from the account in an app and then add them to our Flask web app configurations.
- Integrating the Video conferencing using WebRTC API was also challenging.
- Working on ShawSpace was an amazing learning experience despite the challenges we faced.
- The video conferencing feature uses WebRTC API. WebRTC is the technology that provides peer-to-peer communication between web browsers and mobile applications. It is known as Web Real-Time Communication, which allows the transmission of audio, video, and data. It is a simple yet complex technology.
- In the case of WebRTC, the main challenge is the backend: we had to make a server and separate receiver and sender files to establish communication between sender and receiver. We had to ensure that the solution worked in different networks.
- We had to learn and implement STUN from scratch. It is mandatory when we need to connect two browsers that do not have external IP addresses.

Future Scope

1. Currently, if a mentee registers but there is no 'free' mentor available in our database, i.e., no mentor with less than 5 mentees, we do not let the mentee register and ask him/her to try again later. We can later add the functionality wherein the mentee can register in such a case and will be assigned a mentor later if more mentors register.
2. Currently, mentors can send reminder emails to only his/her mentees and similarly, a mentee can send reminder emails to his/her mentor. We can extend this by taking input from the user as to which user he/she wants to send emails where the only limit is that the user to whom that person is sending emails should be already registered on our website.
3. Currently, the group chat feature essentially works as a separate entity wherein any user who is logged in can create a chat room and then send the room code to other users so that they can chat together. This means that a mentor can create a room and send it to his mentees using the email feature so that all of them can chat together or a mentor can send it to his mentor and they both can chat. We can extend this feature to include multiple groups among mentees and mentors of different groups.
4. We have implemented minimal UI as of right now and focused more on the backend implementation. Shortly, there's a lot of scope for improvement in the UI of Shawspace.
5. For emails, we currently only support plain text. This can be enhanced by supporting Support RTF(Rich text format)

References

- Github [link](#)

- <https://youtu.be/K8YELRmUb5o>
- <https://github.com/ruixili/Chat-Room-Flask>
- <https://youtu.be/K8YELRmUb5o>