KESHAV MEMORIAL ENGINEERING COLLEGE
PROMOTED BY KMIT

Project School Certificate

Title : Virtual classroom for medical students(creating a website for real time collaboration of medical students)

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Session Duration : 13/10/2022 - 12/01/2023

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Signature of Faculty Signature of student

OBJECTIVE

The main objectives of this project are as follows:

- Develop a web-based system for medical students to do real time collaboration by doing video call and sharing documents
- Integrate webRTC and peerJS into the system

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I. Introduction

Real-time collaboration is becoming increasingly important in today's fast-paced business environment. It allows teams to work together seamlessly and efficiently, regardless of their location. With the ability to share documents, communicate and make decisions in real-time, it helps to speed up the decision-making process and increase productivity. Additionally, real-time collaboration tools also provide a means for remote teams to stay connected, fostering a sense of community and helping to mitigate feelings of isolation. In an era where remote work and online communication are becoming the norm,

the need for real-time collaboration tools is greater than ever, and it has become an essential tool for businesses of all sizes and industries.

II. Project Overview

Real-time collaboration project is a software development effort aimed at creating a tool or platform that allows multiple users to work together in a shared environment in real-time. The project aims to improve productivity and efficiency by enabling team members to share and edit documents, communicate, and collaborate on projects seamlessly and in real-time.

The project will involve the development of a user-friendly interface that allows users to easily join and create collaboration sessions. Users will be able to access and edit shared documents, and communicate with other team members through text, voice, or video chat. Additionally, the platform will include features such as task management, file sharing, and version control to support effective collaboration.

The project will be developed using cutting-edge technologies, such as web-based frameworks and cloud-based infrastructure, to ensure high scalability, security, and reliability. The development team will also focus on ensuring that the platform is compatible with various devices and operating systems to maximize accessibility.

Overall, the goal of the real-time collaboration project is to create a powerful tool that enables team members to work together seamlessly and in real-time, regardless of their location or device. The platform will be designed to increase productivity and efficiency, while also supporting effective communication and collaboration among team members.

III. Technologies Used

The following technologies will be used for the face recognition electronic affidavit project

- **MongoDB:** MongoDB will be used as the database for the system.
- **Express.js**: Express.js will be used for the backend development of the system.
- **Embedded JavaScript**: EJS will be used for the frontend development of the system.
- **Node.js**: Node.js will be used for the backend development of the system.

MERN STACK

MERN stack refers to a collection of JavaScript-based technologies used to develop web applications. The acronym stands for MongoDB, Express.js, React, and Node.js. Each of these technologies plays a specific role in the development of web applications:

MongoDB is a NoSQL database system that is used to store and retrieve data for the application.

Express.js is a web application framework for Node.js that provides a robust set of features for web and mobile applications.

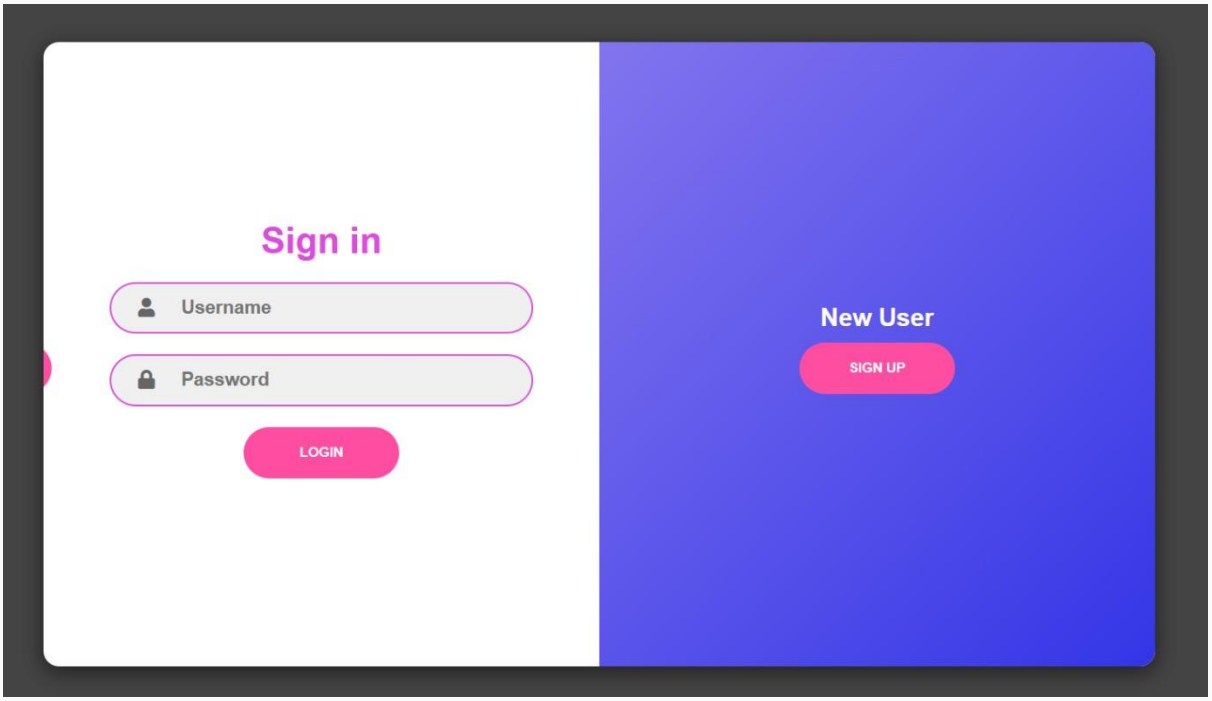
React is a JavaScript library for building user interfaces. It is used to create reusable UI components and manage the state of the application.

Node.js is a JavaScript runtime that allows developers to run JavaScript on the server side.

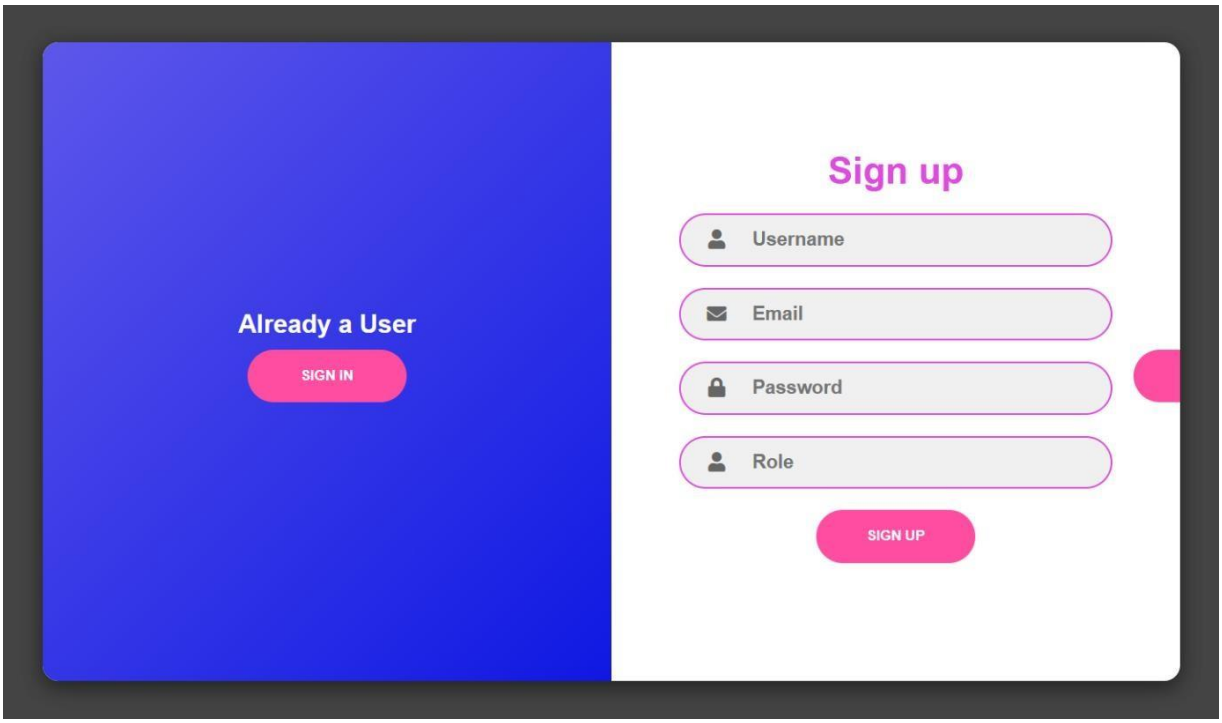
Together, these technologies provide a full-stack JavaScript solution for building web applications. By using a single language (JavaScript) throughout the entire stack, development can be more efficient and consistent.

It's important to note that each one of these technologies can be replaced or swapped with alternatives, but MERN specifically refers to this combination as mentioned above.

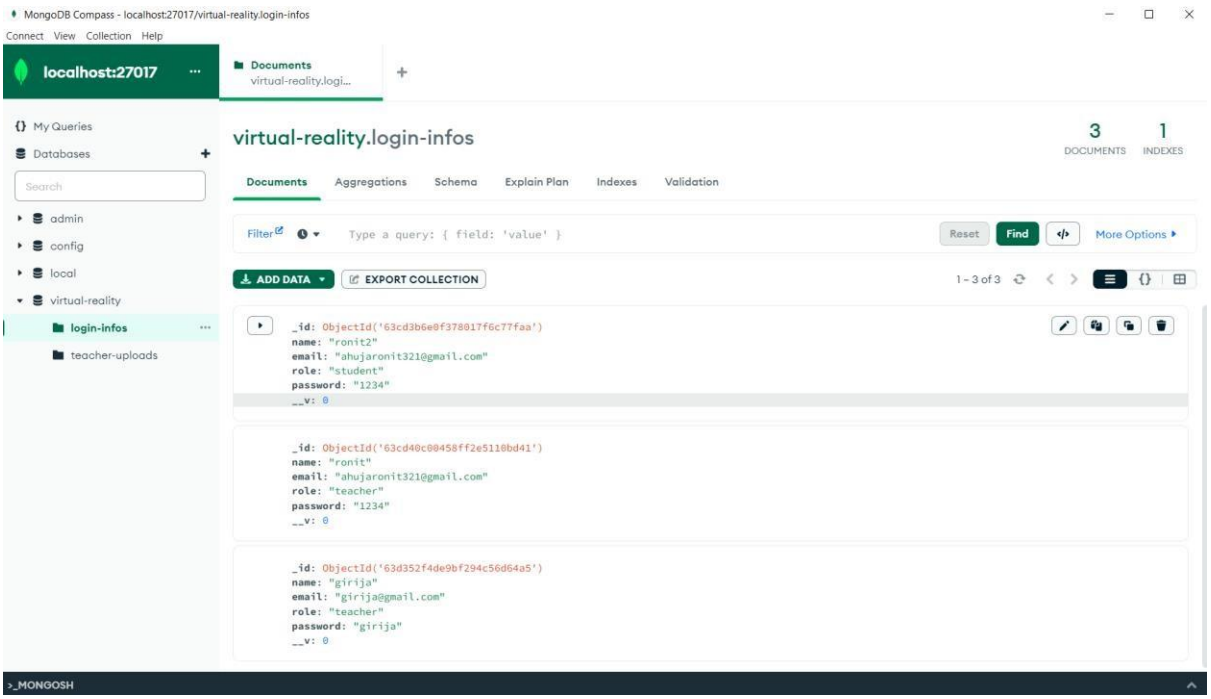
Login page: login page is designed using EJS ,CSS and JS to validate username and password entered by user.



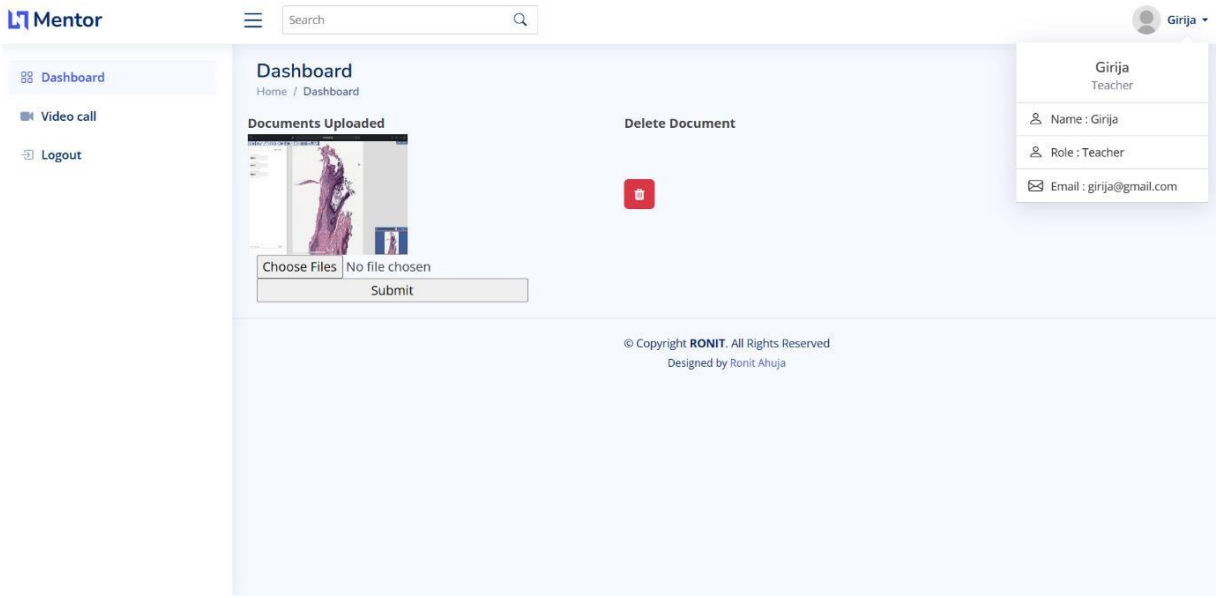
Signup Page:-signup page is to register new user by username password(using EJS). and storing user data in database.



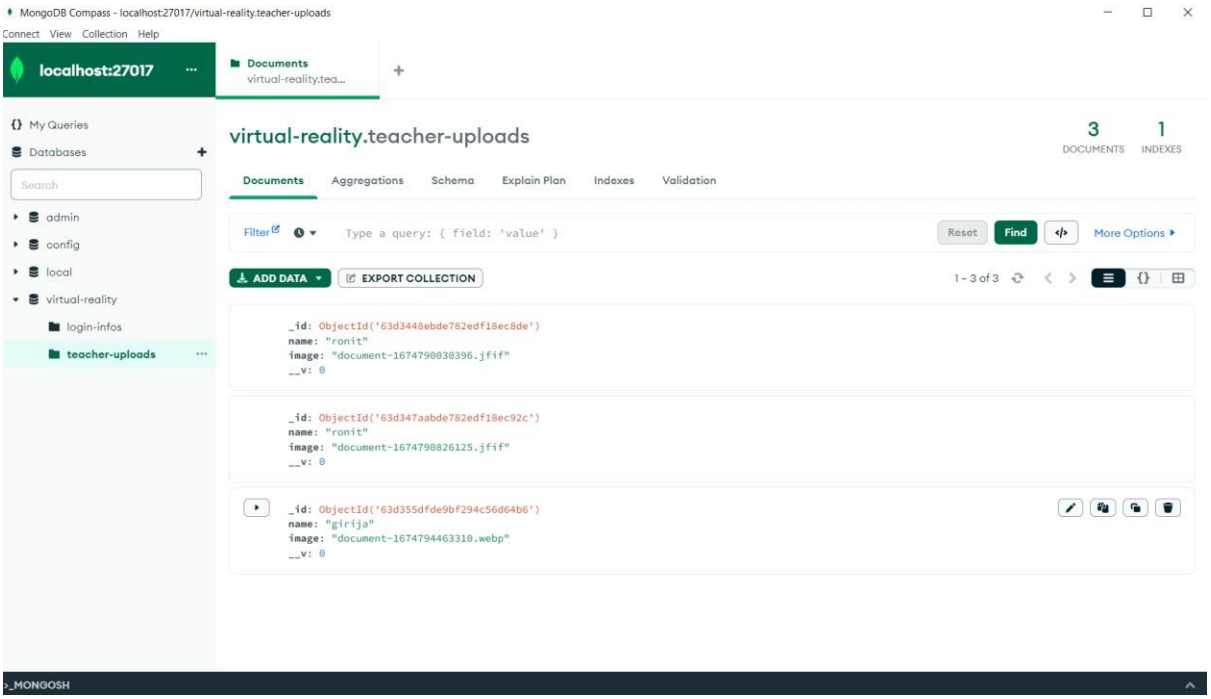
Database :- Any credentials used to Register to the project will be saved in MongoDB. Login credentials are verified by checking the credentials present in the database.



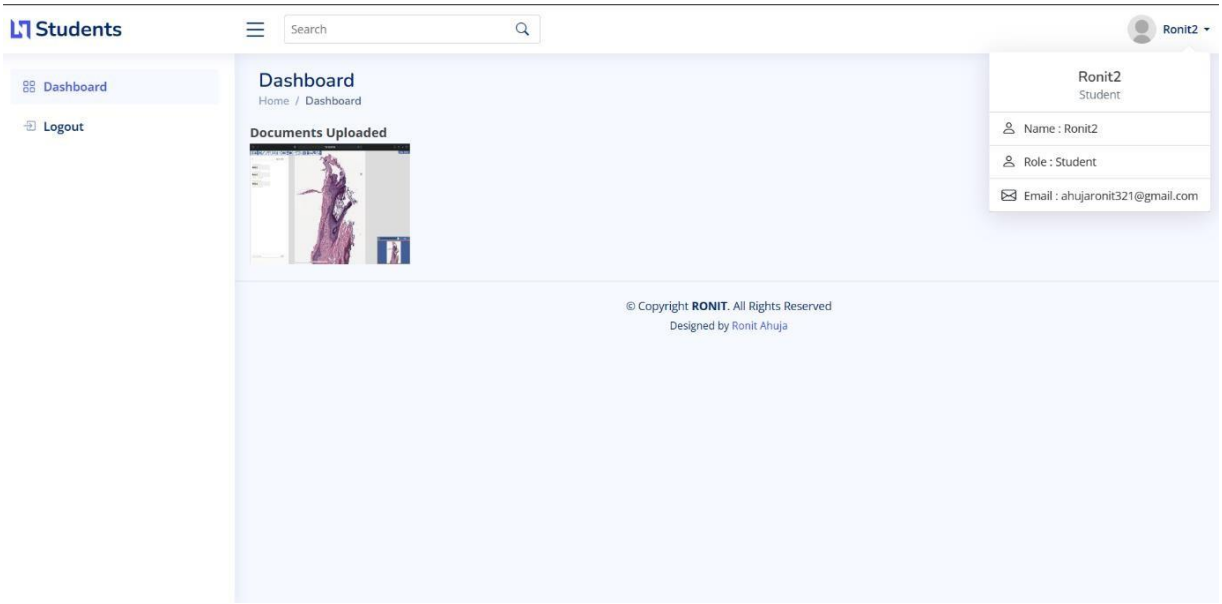
Mentor Dashboard:-All the data uploaded by the particular mentor will be seen on its dashboard after logging in. Delete option is available for mentors to delete a particular document.



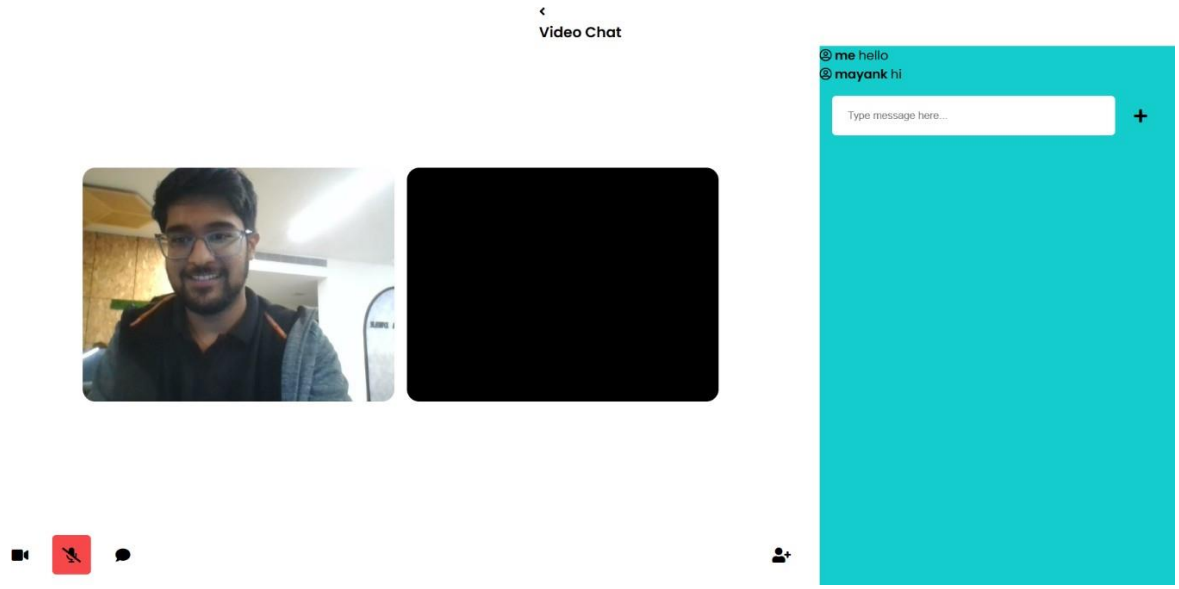
Mentor Database :- Any documents uploaded by mentor will be saved in MongoDB. Then shown on students dashboard and teachers dashboard(with delete option).

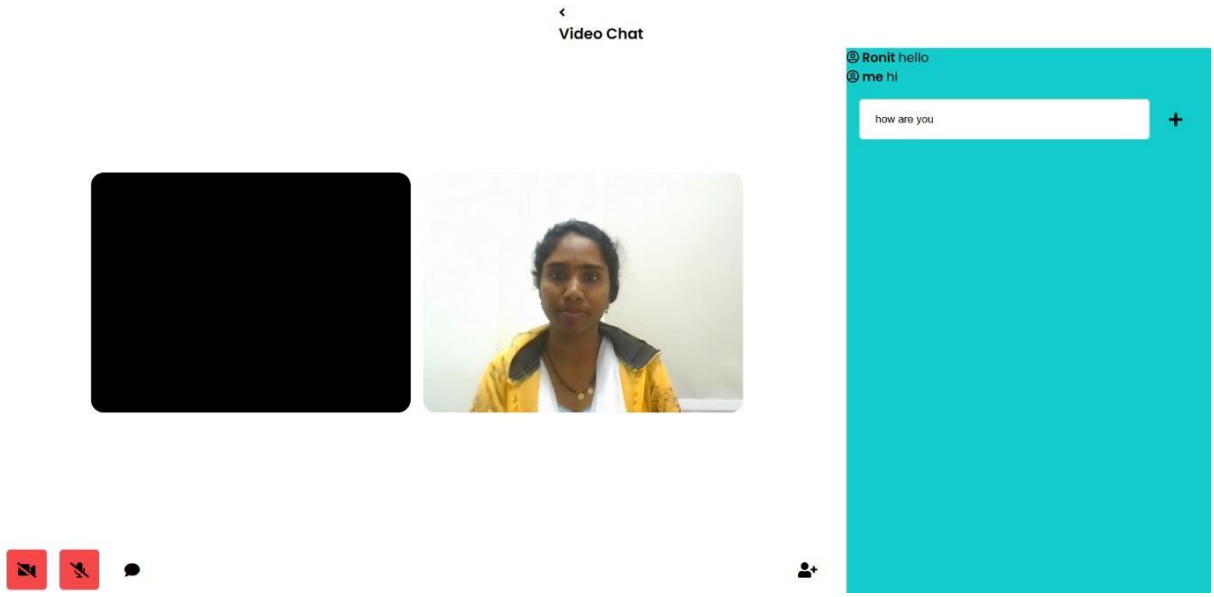


Student Dashboard:-The data uploaded by all the mentors will be seen on student dashboard.



Videocall option:-Mentors can do a video call with students.Only mentors have the option to start a video call.It also contains option of live chat during the call.





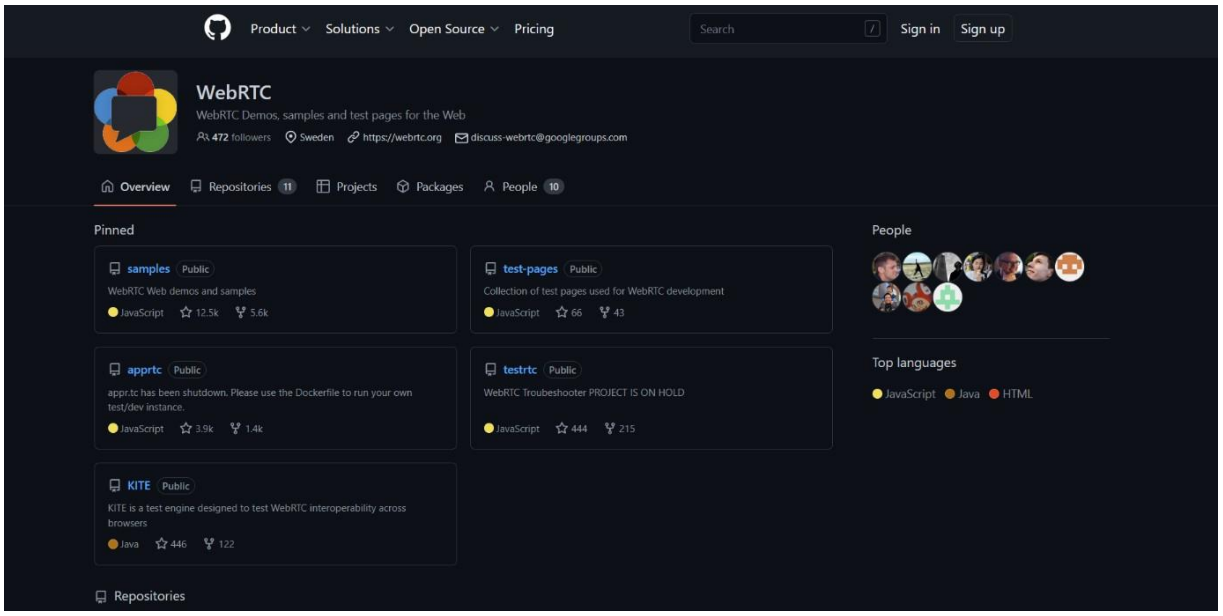
BUILDING THE MODEL

PLATFORM USED

- Visual Studio Code for Front-end and Back-end development.
- MongoDB Compass

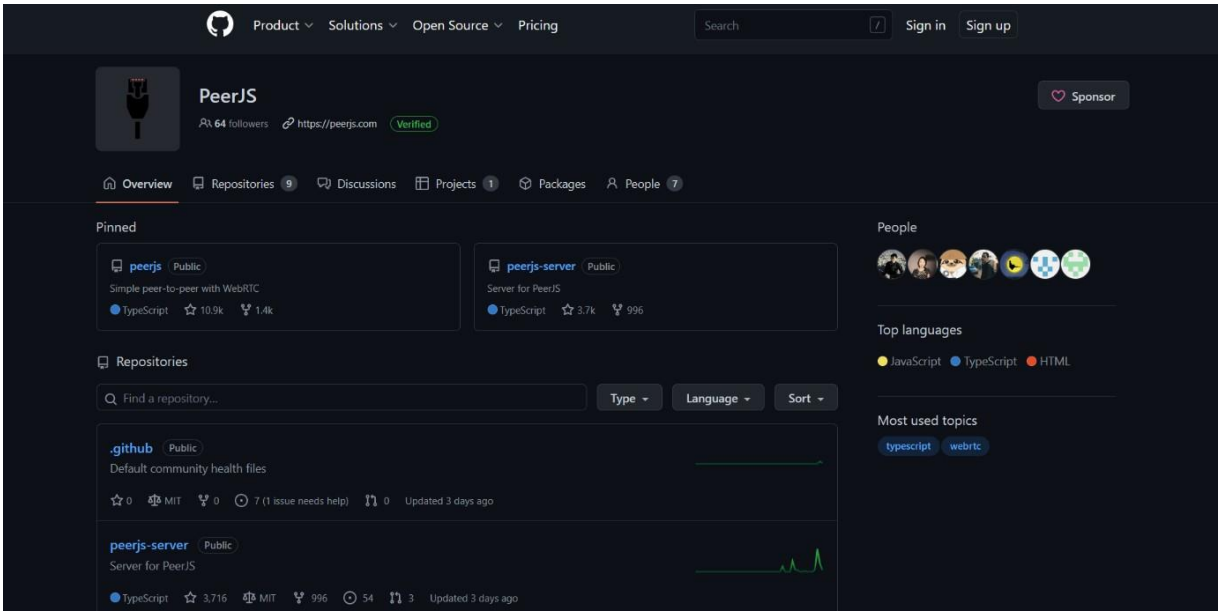
WebRTC and PeerJS

It is a JavaScript API supported by all major browsers. With WebRTC, you can add real-time communication capabilities to your application that works on top of an open standard. It supports video, voice, and generic data to be sent between peers, allowing developers to build powerful voice- and video-communication solutions. The technology is available on all modern browsers as well as on native clients for all major platforms.



WebRTC github:[WebRTC · GitHub]

PeerJS wraps the browser's WebRTC implementation to provide a complete, configurable, and easy-to-use peer-to-peer connection API. Equipped with nothing but an ID, a peer can create a P2P data or media stream connection to a remote peer.



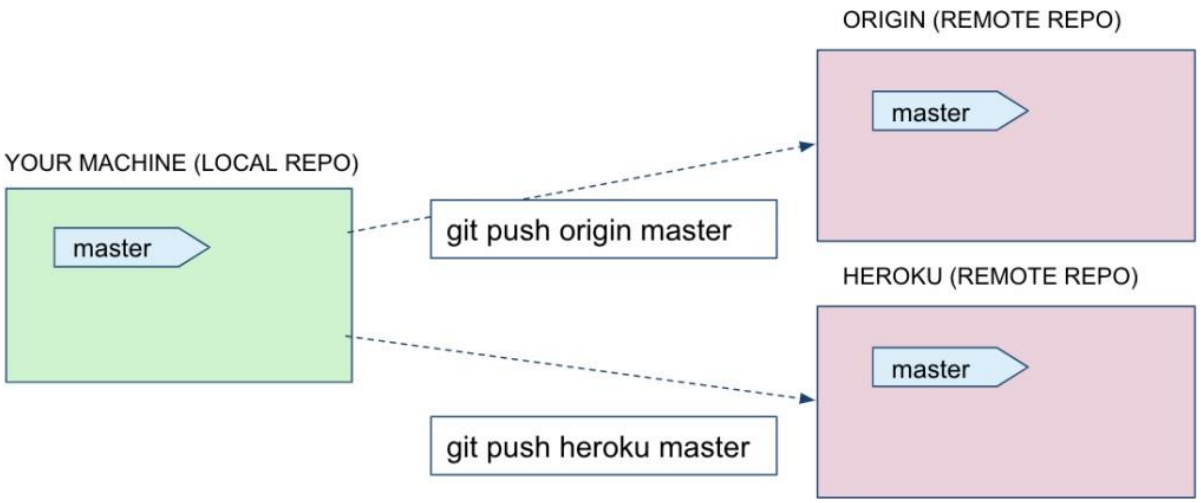
PeerJS github: [PeerJS · GitHub]

Result

The outcome of this project is a web application using MERN stack which enables real time collaboration for medical students

Deployment of project:

Heroku is a cloud platform as a service (PaaS) that enables developers to build, run, and operate applications entirely in the cloud.



Conclusion

We have reached our target by creating a web platform to establish real time collaboration for medical students through which they can share documents and contact each other via video call or audio call.