Brief Introduction

The webApp is being developed for the medical field where medical personnels can have online meetings to discuss various patient cases. This app is being developed so that the personnel who are unable to meet in physical mode, can discuss their cases efficiently using our application.
The web Application will serve as an online meeting platform with an inbuilt editor where the meeting participants can share their files and collaboratively edit the same and discuss among each other regarding the case. The application will support real time text and audio chatting for discussions and the users can also record the same if they wish to do so.

Functional Requirements

- **Authentication**
  Users are required to sign up with the application in order to use the functionalities.
- **Meeting Scheduling**
  Once authenticated successfully, users will be able to schedule a meeting (i.e meeting link will be generated) and the same can be shared with other participants.
- **Attend the meeting - Link Validation**
  The users can successfully join the meeting once they have been successfully authenticated and the meeting link has been verified by the app. Those who have been invited by the users can directly join the meeting however other participants will require permission from the host to join the same.
- **Share Patient Records**
  Medical personnel can successfully share the patient records and the reports (in image format) can be edited/commented by the users using the tools provided.
- **View and edit shared files**
  All the participants will be able to view the shared reports after choosing the appropriate one. Only the report that is being currently edited by the host will be allowed to edit by other participants.
- **Real time - Discussions**
  The web will support real-time chat functionality via audio and text during the meeting.
- **Meeting Recording**
  Meeting record functionality will be provided in the application along with the functionality to save or download the edited reports. Only the host's screen will be recorded. The recorded meeting video along with the reports along with the list of the participants that have attended the meeting will also be displayed for the user even after the later date.

The web application is targeted for the medical field, where doctors can have an online conference to share their opinions on different cases. They will be able to schedule a meeting, share the link of the same with other members. On successfully joining only the host will be able to upload the report. Once the report is displayed the members will have access to the tools to edit the report. There will be real-time audio and text communication facilities available for
discussion and simultaneously editing the report.

When visiting the webApp the doctor has to first sign up. Once successfully signed-in the user can create a meeting and share with other members. Apart from live report editing the user will be able to record the entire meeting and the video recording along with the list of participants can be viewed on the previous meetings board where the user will be available to access the same.

Technologies used

- **Server**:
  i. NodeJS Server
  Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser, which was designed to build scalable network applications. It lets developers use JavaScript to write command line tools and for server-side scripting—running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser.
  Node.js represents a "JavaScript everywhere" paradigm, unifying web-application development around a single programming language, rather than different languages for server-side and client-side scripts.

- **Database**:
  i. MariaDB MySQL
  MariaDB is a community-developed, commercially supported fork of the MySQL relational database management system (RDBMS).
  It is intended to maintain high compatibility with MySQL, with library binary parity and exact matching with MySQL APIs and commands, allowing it in many cases to function as drop-in replacement for MySQL.

- **Frontend**:
  i. HTML
  The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.
  Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.
  ii. CSS
  Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML or XML (including XML dialects such as SVG, MathML or XHTML).
  It is designed to enable the separation of presentation and content, including layout, colors, and fonts.[3] This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web

pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

iii. JS

Javascript abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS.

All major web browsers have a dedicated JavaScript engine to execute the code on users' devices.

It has dynamic typing, prototype-based object-orientation, and first-class functions. It is multi-paradigm, supporting event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

- **Frontend framework**:

i. Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

ii. W3 CSS

W3.CSS is a modern CSS framework with built-in responsiveness. It supports responsive mobile first design by default, and it is smaller and faster than similar CSS frameworks.

It is a CSS only library i.e. no Javascript or jQuery

- **Backend framework**:

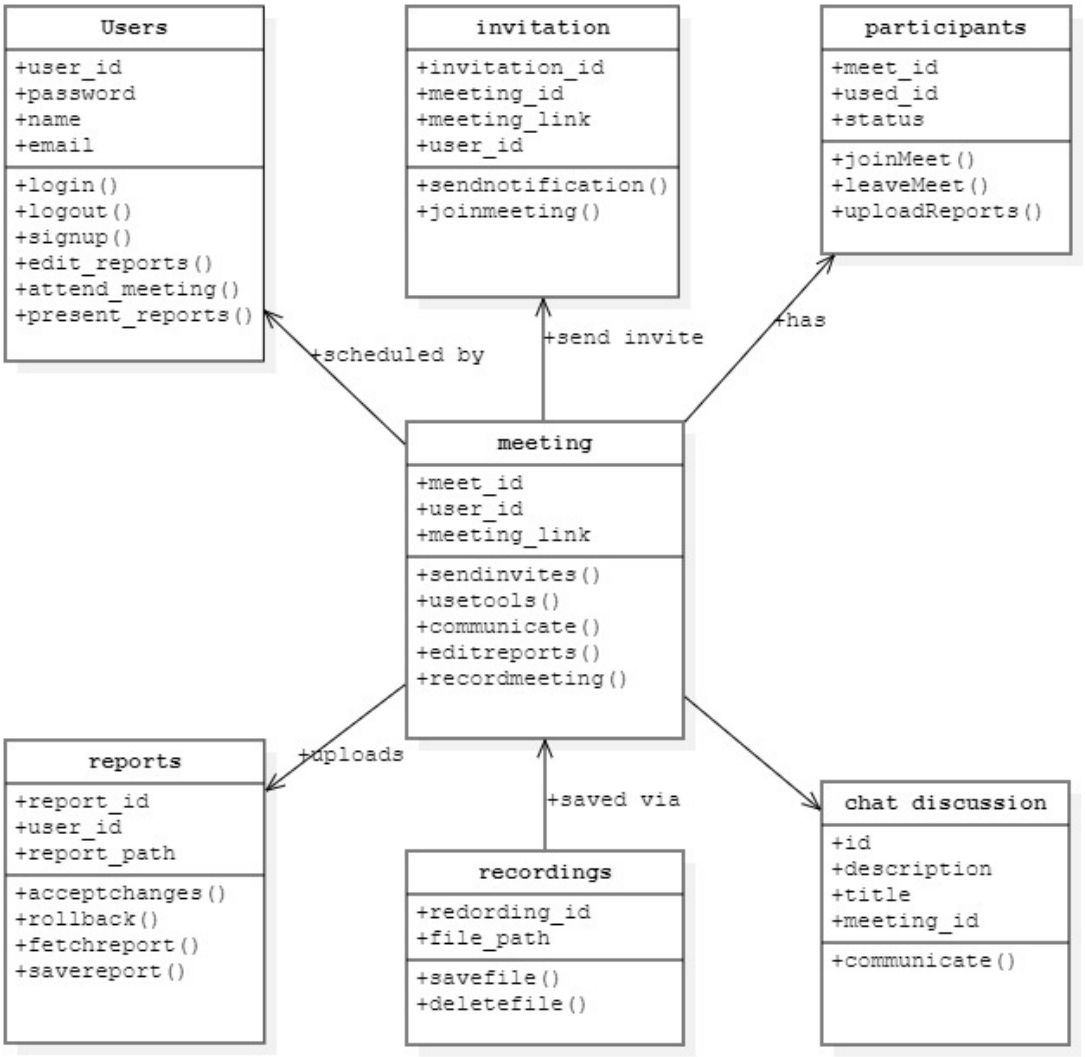
i. Express JS

Express.js, or simply Express, is a back end web application framework for Node.js. It is designed for building web applications and APIs. It has been called the de facto standard server framework for Node.js. It is relatively minimal with many features available as plugins. Express is the back-end component of popular development stacks like the MEAN, MERN or MEVN stack, together with the MongoDB database software and a JavaScript front-end framework or library.

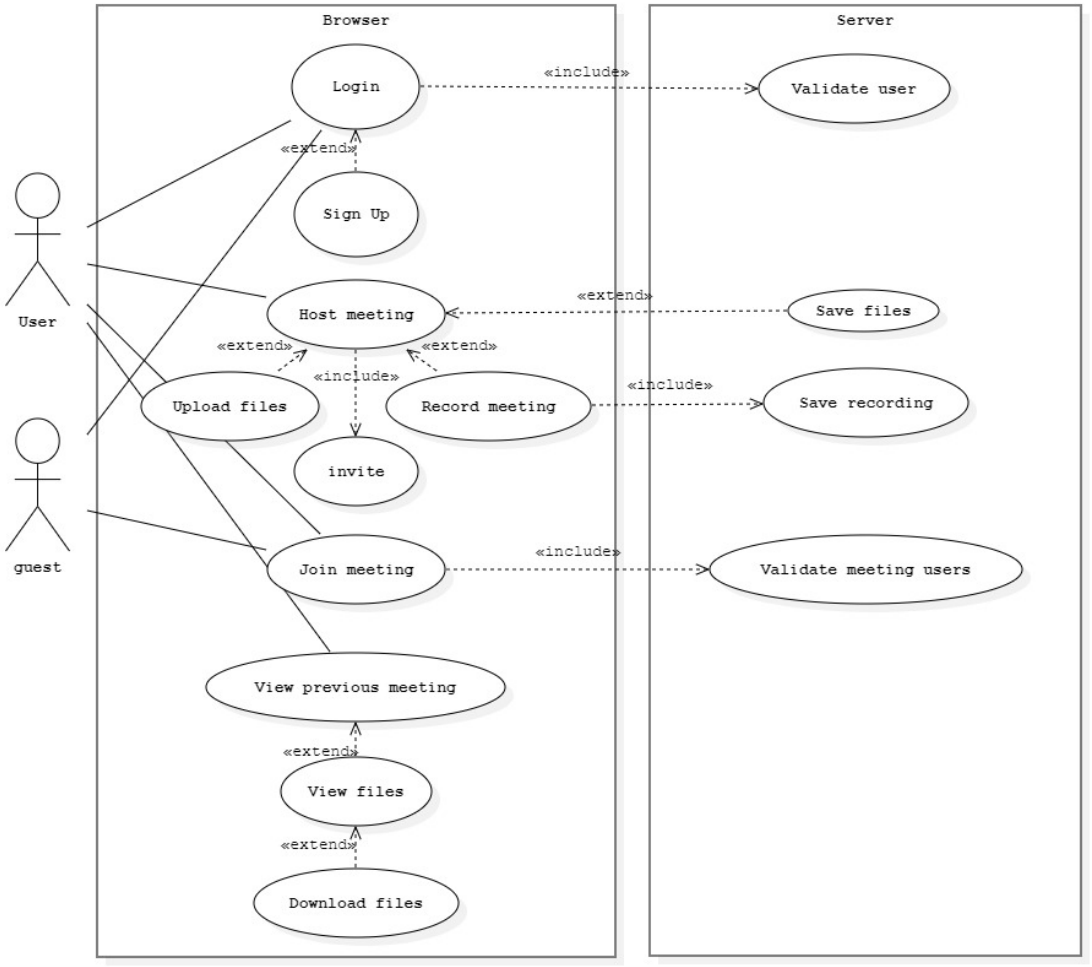
- **Communication**:
  i. WebRTC
     WebRTC is a free and open-source project providing web browsers and mobile applications with real-time communication (RTC) via application programming interfaces (APIs). It allows audio and video communication to work inside web pages by allowing direct peer-to-peer communication, eliminating the need to install plugins or download native apps.
     It is supported by all major browsers and WebRTC specifications have been published by the World Wide Web Consortium (W3C) and the Internet Engineering Task Force (IETF).
  ii. Socket.io
     Socket.IO is an event-driven library for real-time web applications. It enables real-time, bi-directional communication between web clients and servers. It has two parts: a client-side library that runs in the browser, and a server-side library for Node.js. Both components have a nearly identical API.
     Socket.IO primarily uses the WebSocket protocol with polling as a fallback option, while providing the same interface. Although it can be used as simply a wrapper for WebSockets, it provides many more features, including broadcasting to multiple sockets, storing data associated with each client, and asynchronous I/O.

- **Image editing**:
  i. Marker JS
     Marker.js is a JavaScript library for image annotation. It enables you to add image annotation to a web applications with just a few lines of code. Whether the application or webapp is built with plain JavaScript, TypeScript, React, Vue.js, Angular, or any other web technology, you can use marker.js to let users annotate and draw on images.

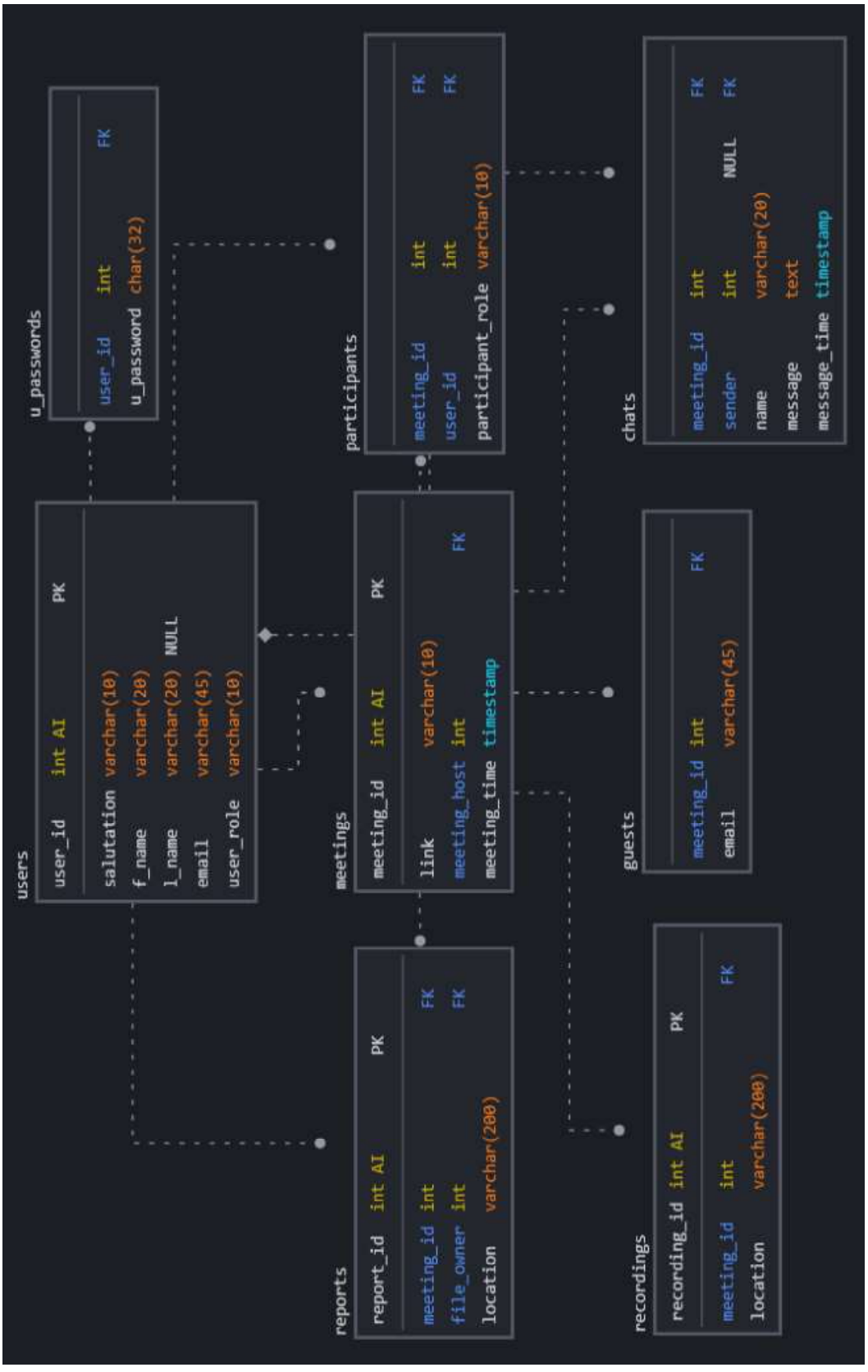
Class Diagram



Usecase Diagram

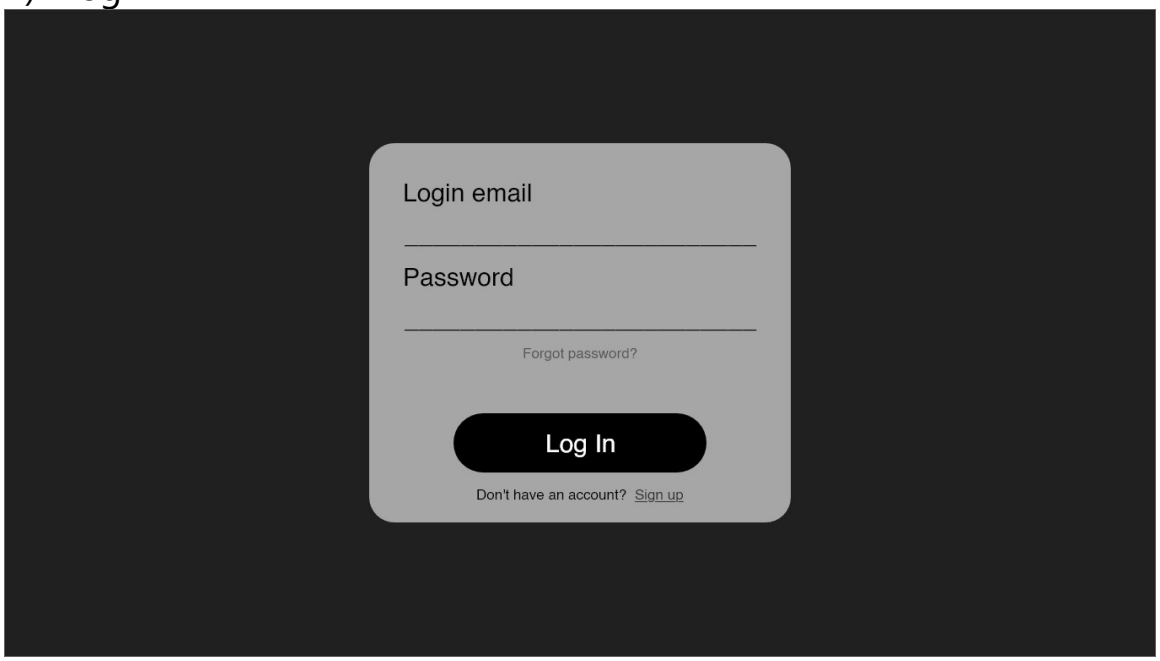


Database Schema

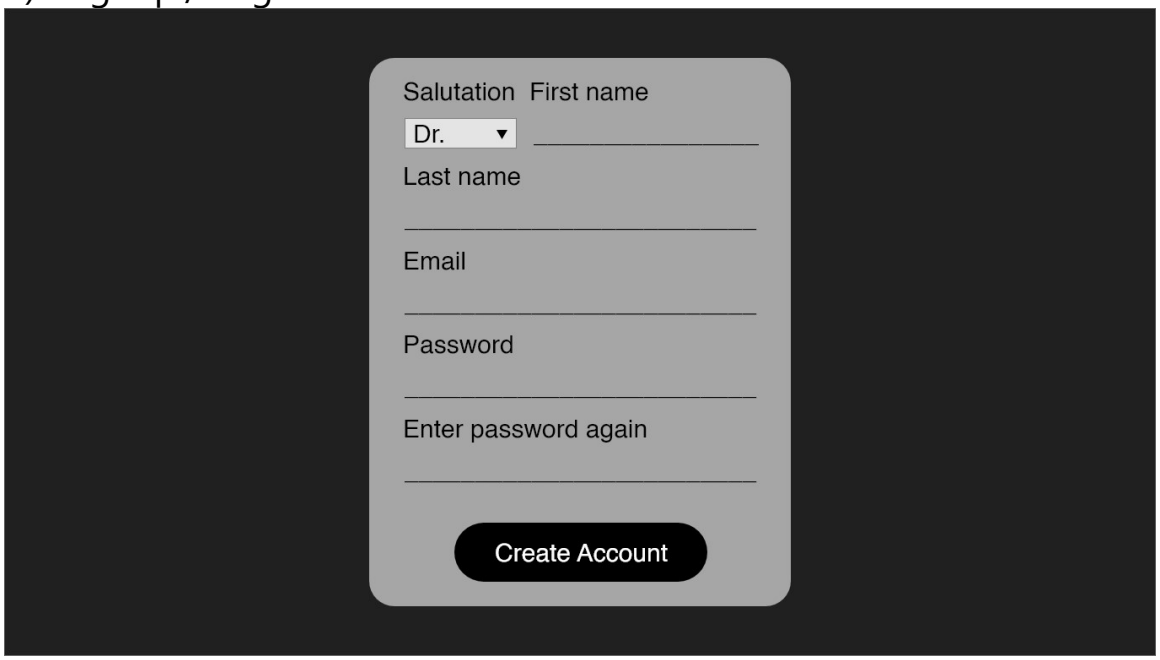


Wireframe

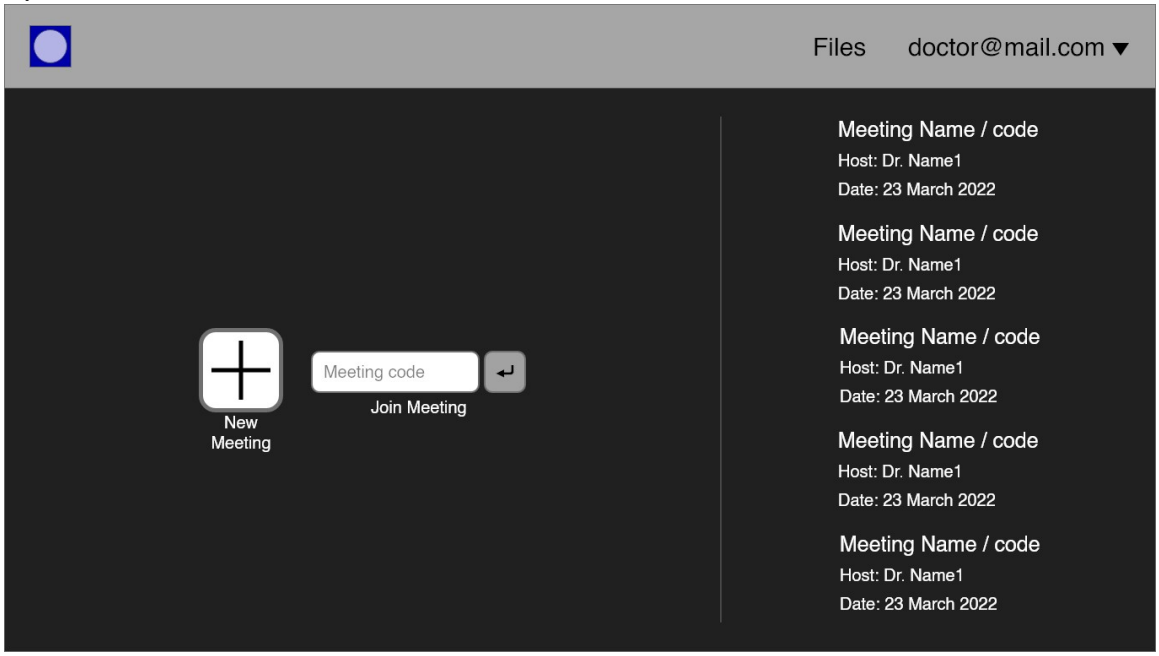
1) Login



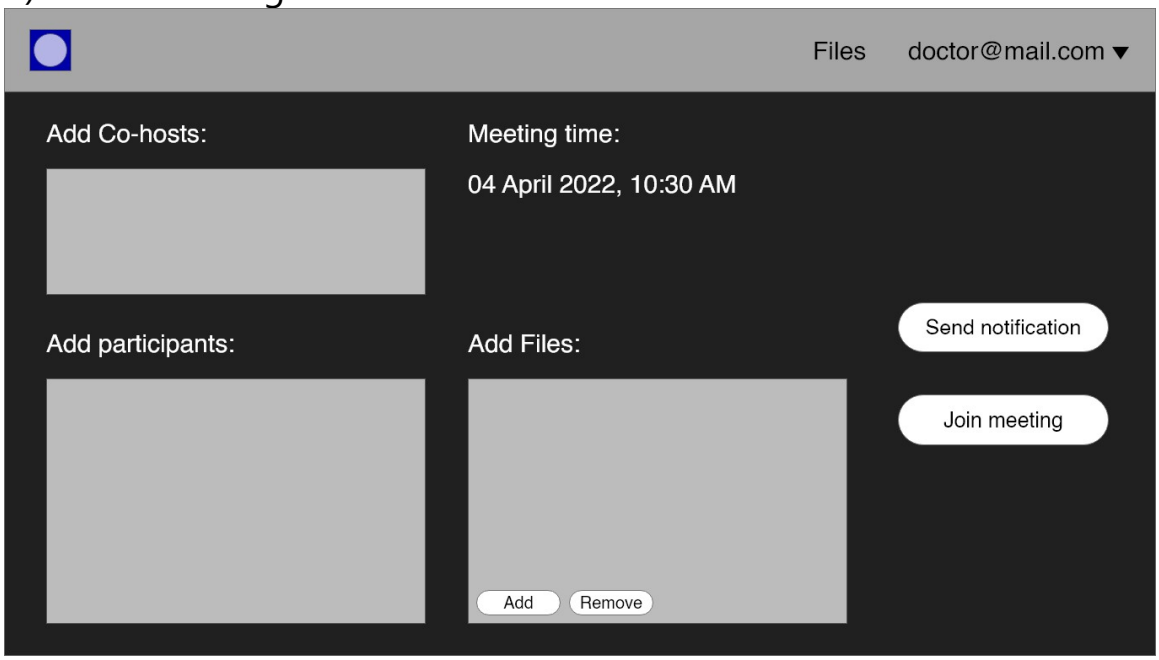
2) Signup / Register



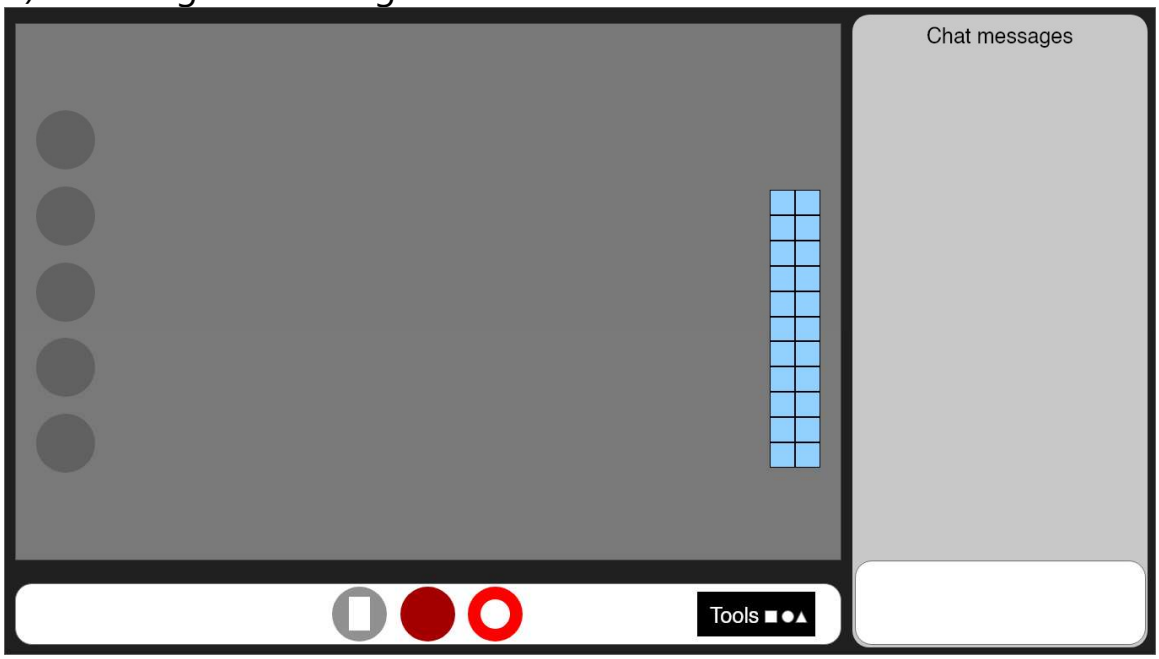
3) Home Screen



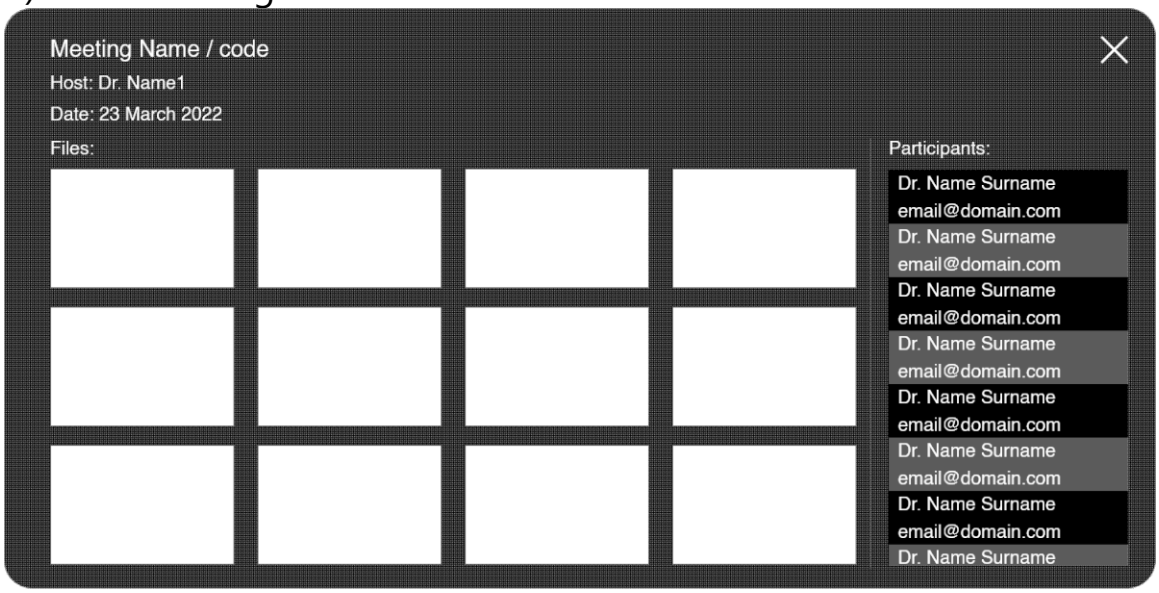
4) Host Meeting



5) Meeting and editing



6) Past Meetings



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