Internship Project Report

Project Name - CodeMeet

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Introduction

This is a web application which is an online real-time code editor to improve pair programming.It is web-based application that allows multiple users to simultaneously view and edit code files over a distributed environment.We developed the features for a seamless editing experience among the users.

This application has a feature of compilation in different languages i.e Python, C/C++, Java etc. It can help users to code in different languages at the same time and at the same place.

To use this website , users directly interact with the website and without any registration, they can code the same editor instance in the same roomId.

Different groups of users can create different rooms having different roomId.

Process Flow

1. Clients can create a new editor document by selecting a random roomID in the server URL. This would create a new document, which is rendered to the user.

2. To join the same room/document, other clients also need to join with the **same roomID**.

3. When a client successfully connects, it opens 2 connections, one an HTTPS connection with the session manager server and a WebSocket connection with the edit resolver server.

4. When clients update the document, the changes are sent to the server through WebSockets. The socket server broadcast the update to other clients in the same room using WebSocket. We can change language here from the dropdown.

5. Once every client is disconnected, the session is closed.
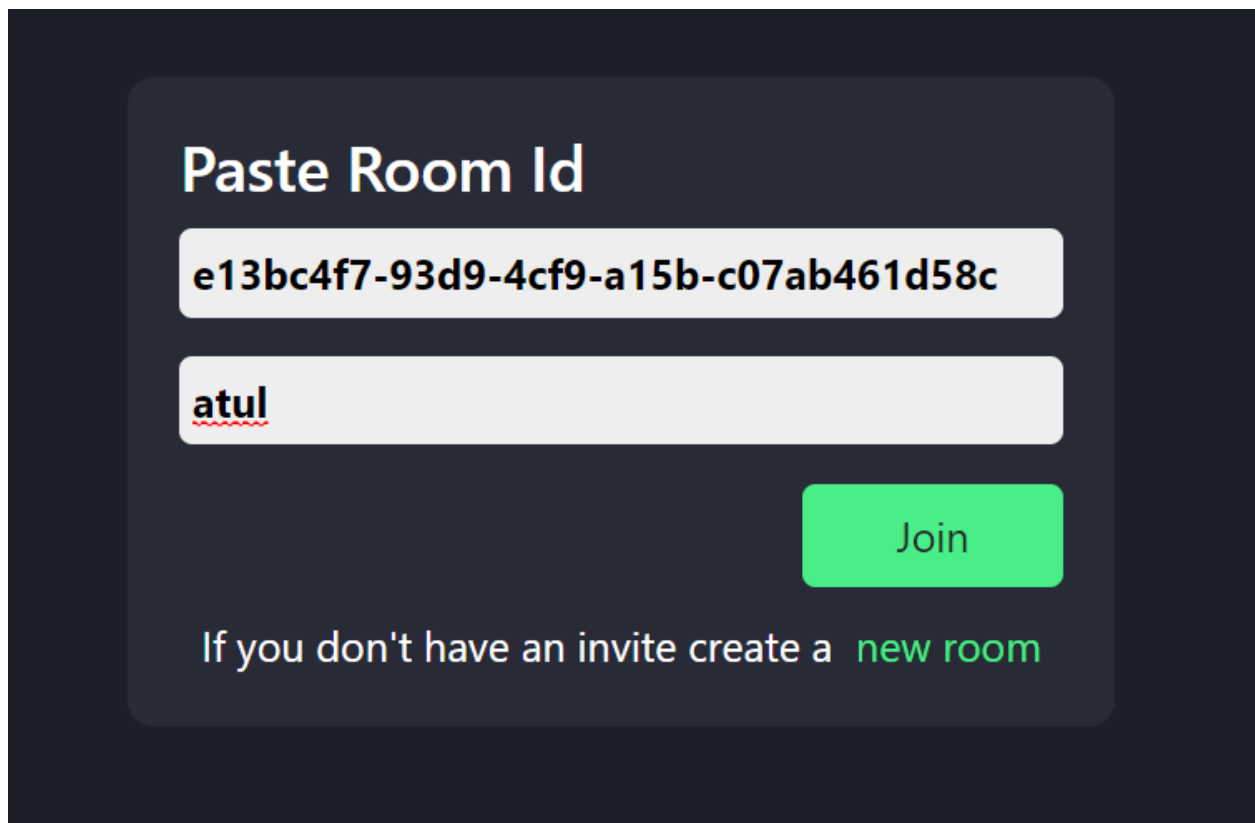
Implementation

Back-end

In this project, we used Node.js and Express server for building application logic.

• **Node.js**: The express framework runs 2 servers: HTTPS server and WebSocket server. HTTPS server is responsible for handling HTTP get requests and the WebSocket server is responsible for handling socket connections between clients and the server

• **HTTPS server**: Clients are connected to the HTTPS server through HTTP requests and the server continuously listens to the incoming requests. The requests are handled using the request object and the response from the server is initiated using the response object. The following HTTP endpoint is exposed to the clients

• **WebSocket server**: Web sockets enable sending messages continuously between client and server. Initially, clients are connected to the server through an HTTP request. In this project, the clients establish socket connections with the server as soon as the HTTP request is received. The client sends the changes to the server through sockets and the server then broadcasts the changes to clients via sockets.

Front-end

User Interface: The web user interface is built with plain HTML, CSS, and JavaScript. When the client requests the document access(https://localhost:8080/1), It is first prompted with the username field as shown in the following figure.

Username dialog box

➢ Users maycreate new rooms for coding.
➢ Users may also enter roomId and type username to start coding with their peers.

CodeMeet: The UI integrated CodeMeet as a code editor. CodeMeet is a code editor component for the web. It provides a text input field.It has a feature to change language from the dropdown.We can also change the theme of the code editor .