Assignment 3: Implement a multi client chat application

Submission due: February 18-24, 2026

Write a multi-client chat application using Node.JS consisting of both client and server programs. In this chat application simultaneously several clients can communicate with each other. For this you need a single server program that clients connect to. The client programs send the chat text or image/video (input) to the server and then the server distributes that message (text or image) to all the other clients. Each client then displays the message sent to it by the server. It should work fine as clients come and go.

There will be facilities for sending one-to-one message and chatrooms.

The server can have the following additional capabilities (optional):

(i) If the server detects trolling inside chatrooms then it will send appropriate message to the responsible senders and may prohibit any further messages on the same topic. The senders here should not get any stern warning from the server, rather a soothing but appropriate message to ease their mental state. The server can invoke Gemini or Chat GPT to frame the appropriate response message based on the trolled messages. It is upto you to define trolling vs fun. Don't put too much restriction.

(ii) If a client sends a very private information such as OTP through a group chat then the server should put a confirmation alert before actually sending it to the chatroom.

Develop the application using a framework based on Node.JS. Which web application framework(s) did you follow? What are design patterns you have encountered here?

Prepare a detailed report of the experiments you have done, and your observations on the protocol layers thus created.