Questions

1. Create a Schema Design to store WhatsApp Group Messages. (Low-level design of WhatsApp group messages). Feel free to base this schema on any SQL/NoSQL database.

2. Write a simple server-side application using NodeJS (You may use Javascript or Typescript as language). This application should run a simple HTTP server on port 3000 and should contain the following API -

a. API to load all the group messages in a paginated manner.

b. API to create a message in the group (post a message in the group chat)

Solution: Several elements and technologies would be used in the low-level design of a WhatsApp group chat functionality, including:

Database: Data about the groups, group members, and messages would be kept in a database like MySQL or MongoDB. The database's schema would comprise tables for messages, groups, and group members as well as a table that would map messages to groups via a foreign key relationship.

Server: Incoming requests are handled by a server-side program, which also manages database operations like message creation and retrieval. A framework like Express and a technology like Node.js might be used to create this.

Client-side apps (such as mobile apps or web apps) can communicate with the server and the database by using a set of APIs that the server exposes. These APIs would take care of operations like sending and receiving messages, adding and removing group members, and querying a user's membership in various groups.

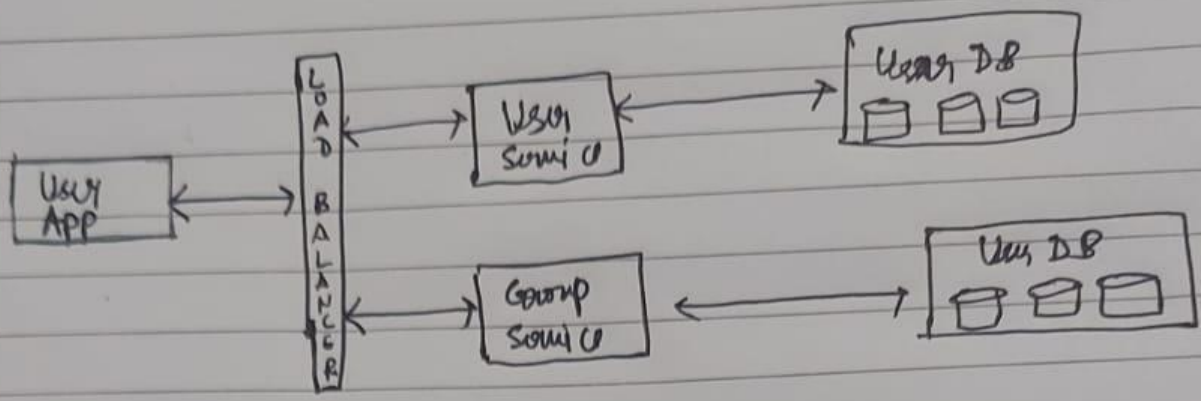
WebSocket or Push notification: The application would use WebSockets or Push notifications to notify users when a new message is added to a group in order to deliver real-time updates to the user.

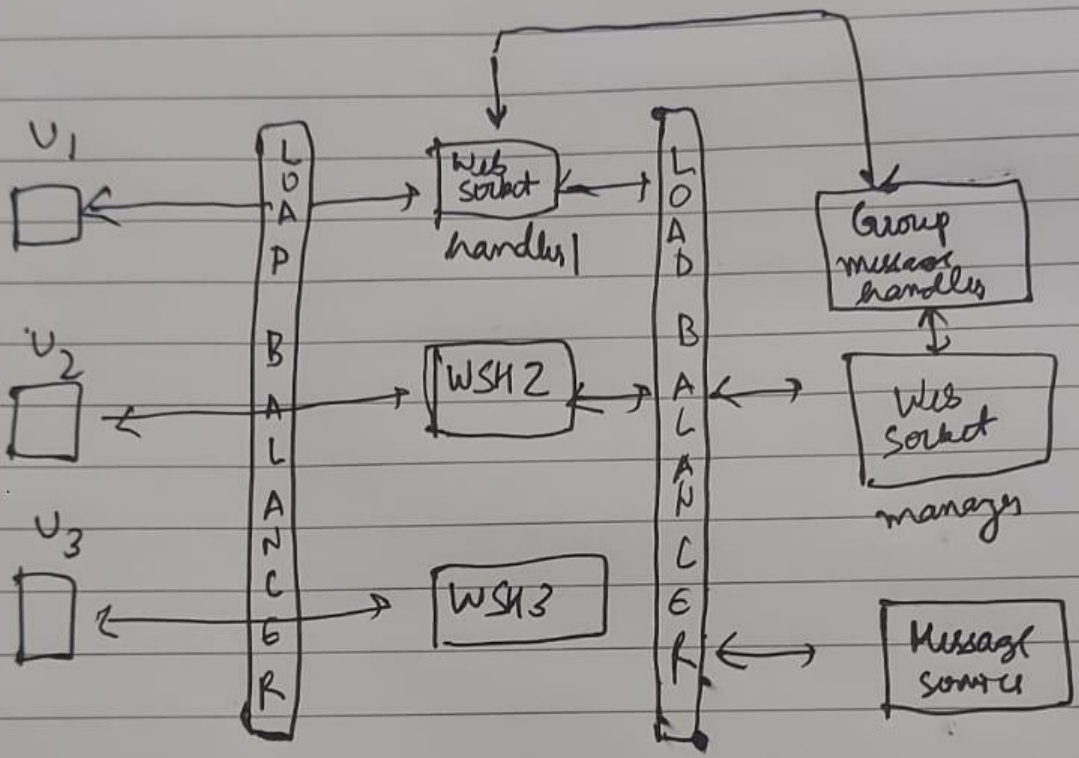
Security: To ensure that only authorized users can access the groups and messages, the application would use authentication and authorization techniques.

Storage: The program would use cloud storage services like AWS S3 or Google Cloud Storage to store the media files, such as pictures and movies.

A load balancer will be used to manage the traffic and distribute it among several servers.

Schema design





WSH :- Web socket handler