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Lab 6: Firebase Chat App
Mobile App Development Sp'25

GITHUB REPO: <https://github.com/kate-a-stenberg/CS5520Lab6>

SUMMARY:

Fireside Chat is a real-time chat application inspired by popular messaging apps such as Discord and WhatsApp. The app leverages the Firebase Realtime Database to store and manage all data related to users and their messages.

This project was created in a team of 3, with Hakshay Sundar as lead developer. We followed the oldest Software Development model - the waterfall model – to incrementally build our application as a team of 3.

This chat application was tested on multiple devices and via Android Studio's emulators, including simultaneous multi-user access/ messaging.

Learnings include the usual Git repo challenges, using Figma for the first time, and connecting the data to the database, as well as database structure.

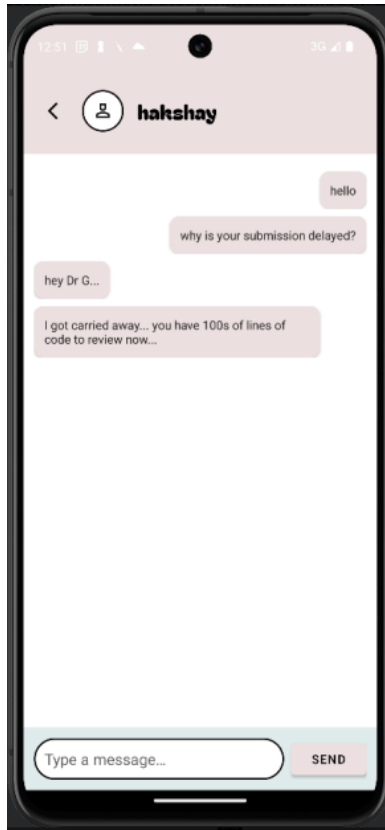
Objective 1: Create a chat room type application using Firebase Realtime Database. You should have the ability to post messages and clear content.

- **This has been completed. Messages can be cleared via a long press held on the message, and the database can also be re-initialized.**

Objective 2 : This app should run on multiple devices at the same time and facilitate communication in a room/user type fashion.

- **Tested between two users in real-time, and notifications, messages, and message history all work well.**
 - **MessageAdapter.java works to display the messages**
 - **EXTENSION: functionality to ensure positioning of sent messages aligned right and received messages are left-aligned**

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Objective 3: Add a functionality that you had to explore on your own

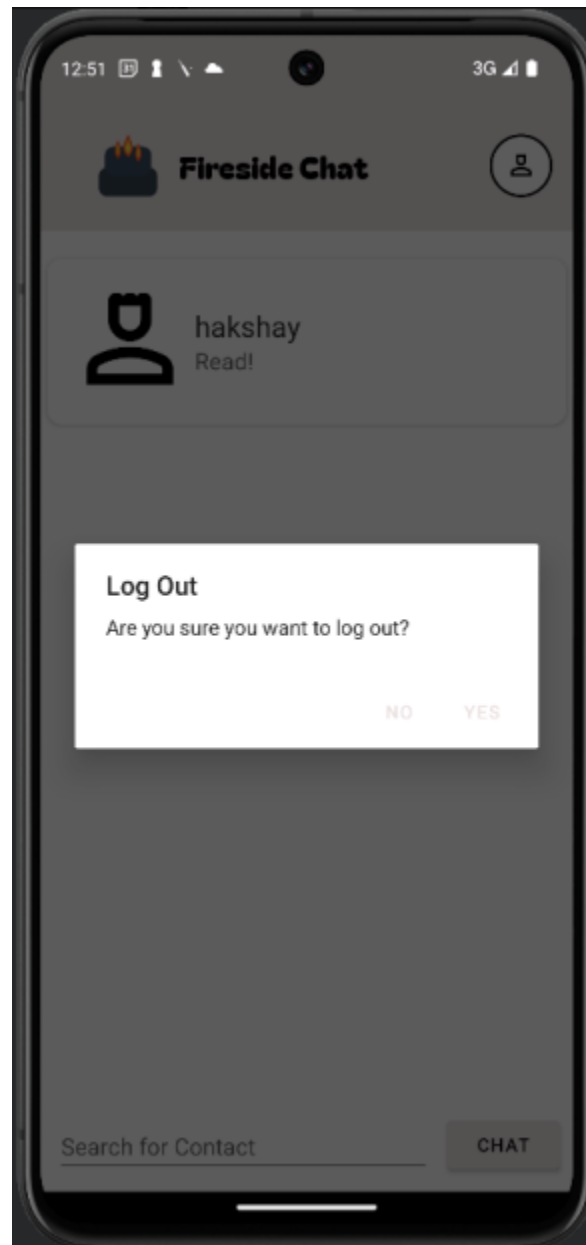
- **Keeping track of in-app notifications. We are able to track when messages are read and how many messages are yet to be read (see *image below*)**



Objective 4: Add a functionality that you had to explore on your own

- **We explored and utilized SharedPreferences for local storage.**
 - **Implementation of Shared Prefs for users allows them to avoid having to log in again when reopening the app.**
 - **Note, they would need to log back in if they logged out first. This is via storing a JWT facilitated by SharedPrefs.**
 - **see logout screen toast - add'l extension (see screenshot below)**

- We explored conditional navigation to show the login page only if necessary or take the user ahead to a chat dashboard.



Objective 5: Your app should be somewhat aesthetically pleasing.

- We designed our application on Figma and followed the "product specification" as closely as possible. Although we made some changes to the design and UI as we built the app, we learned to follow some industrial practices (see screenshots below)
- Created custom toolbar and custom XML snippets to reuse (textfield, button boxes, etc.)

