SOFTWARE ENGINEERING

REPORT

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Team members:Annavaram Nishanth
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Abstract

The project we have built is an android application which is an anonymous chat application, which enables users on the campus with people based on their interests. The user registers and and chooses a few interests, and a nickname. Once he/she registers, he/she can search for users based on a particular interest and check his profile and message him if he/she wants to. The app uses firebase for authentication and also uses the firebase realtime database.

Objectives

The objective of this work is to connect people with similar interests together. I feel that there are many people in the campus who restrain themselves to their rooms and do not have a good social interaction, the aim of the app is to make sure that people like this have a new chance to start interacting with people. Even among people who have a decent amount of friends, do not make new connections as they go through their college years. This app could be a new way of increasing your social circle.

Another motivating factor to build this app is there is no way for people with some specific interests to connect with each other, because even though there are clubs and departments, they cover a very small section of what a person's interest could be. This app could enable people to do that.

Scope

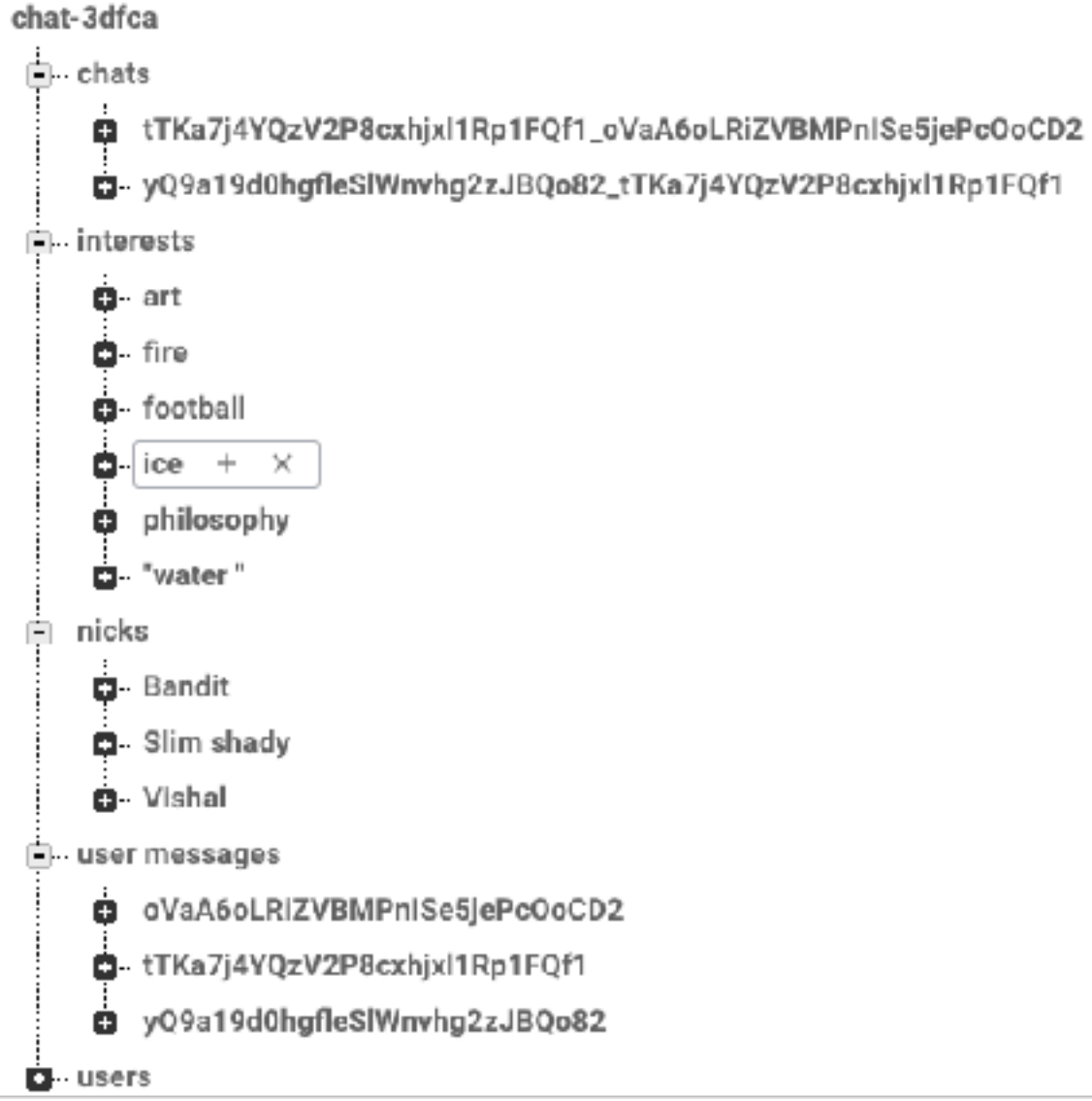
The app works better in closed institutions like colleges, so as of now, in the future versions we might release this in the campus.

Procedures followed

I followed a fast paced, agile model while developing the app as i went back many times and re planned how each component should be as i faced people with the current application. And after developing each and every component, i tested it before building the next unit, so i followed unit testing, and after a set of comonents were built, i checked the interaction between them went as planned. Through out the process of development i had to modify the schema of the database as i faced new problems.

Coming to the database schema , as i used Firebase, it is a noSQL database, and follows a JSON like structure. I tried making the database as flat as possible. There are cases where there is some redundancy in the database, but this redundancy was necessary to make queries fast and less expensive.

Below is the basic database schema:



One possible place where there is a possibility for redundancy is chats, if every user has a copy of all the messages that he ever sent and received, it is redundant as the same message appears under both user's message section, so instead, what was done is a single room was created for every pair of people that had a conversation, and this room id is created by combining the user ids of both the users in a unique way(by comparing the strings lexicographically and appending the lower value string to the higher value one. And in order to populate a user's chats, a new section was created with the last messages that user gets from a particlar user and overwriting this node again with the new message as the user gets a new message from this user. The interests node also introduces redundancy but this is essential, to get faster results when someone searches for people based on interests.

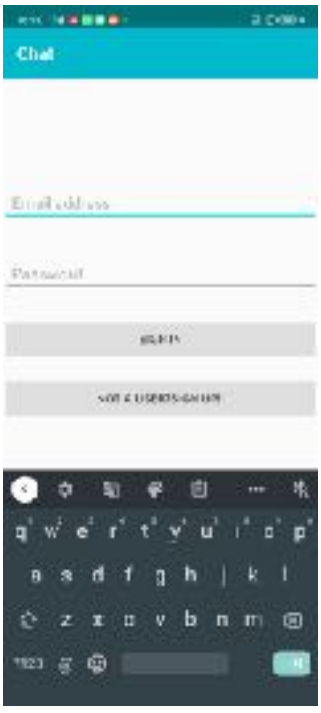
Problems faced during development

Our initial plan was to make a native web app as my ex-teammate was a little proficient in it, but later when he dropped the course, i had to switch to android applications as it was a heavy task for me to build everything in case of a web app.

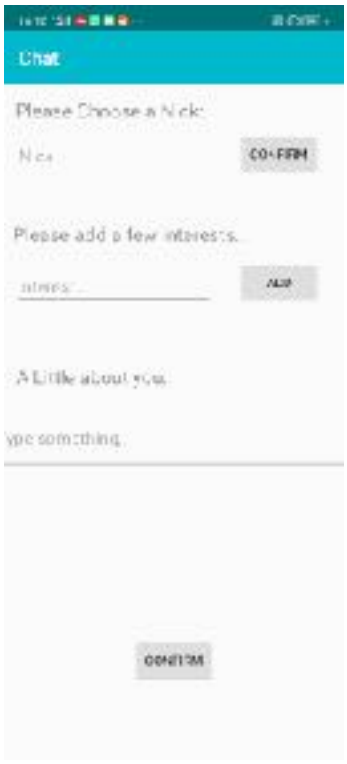
Another problem faced was the android debug bridge wasn't working initially and it became wvery difficult for me to debug and understand what was going wrong.Later i deleted the SDK tools and reinstalled them , then it was working.

Working of the app

Initially you will either see your chats list or the login page depending on whether you are signed in or not. This is the login page:

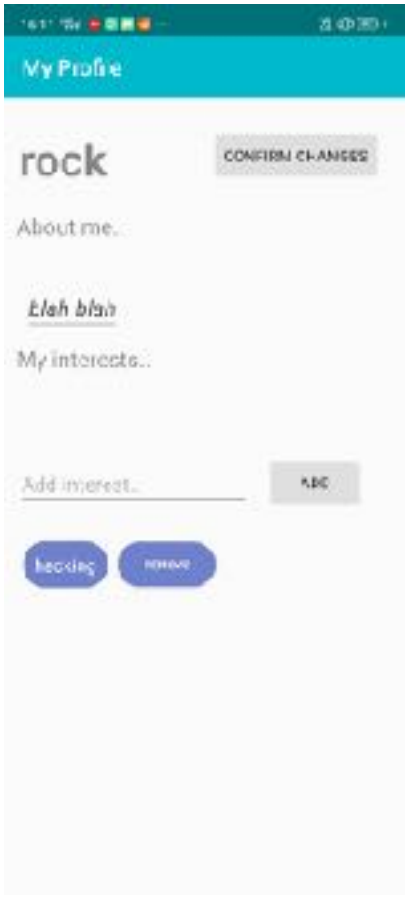


in case of a new user, he/she can click on sign up, which will take the user to the sign up activity, after entering essential details, he will see a register page where the user can choose a nick, add his interests and write a little about himself.

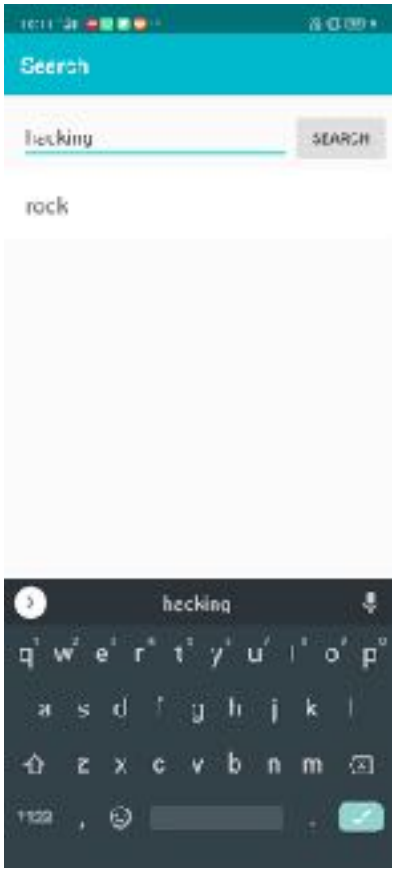


After this the user sees the main activity where chats are visible.The user can edit his profile or search for people with interests or by clicking the menu button which is visible in the main chat activity,

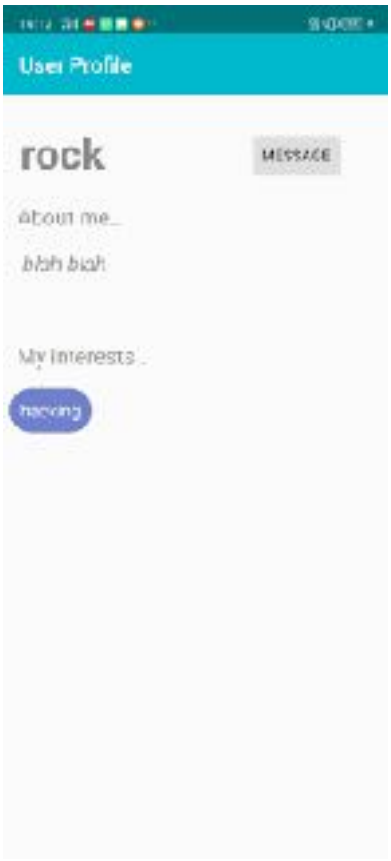
he can see his profile to edit when he clicks edit profile in the menu



He can also search for users and users based on interests.



Upon clicking on his nick, his profile will be made visible.



Upon clicking message, you can directly text him.

Individual contributions

Since, M Sri Harsha joined late, most of the work was done by me(Annavaram NIshanth).