INTERNSHIP REPORT

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by
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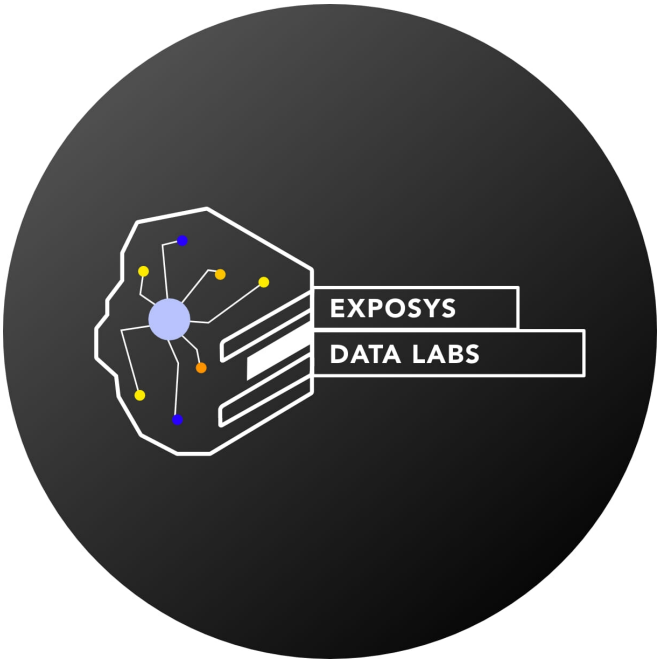

ABSTRACT

Chat is the process of exchanging messages with one another. It could be through voice,text,video,etc. With other people.
Chat Application is a program with which Users can communicate directly with other Users on the Internet who are online through the Internet.
With Chat Application Users can communicate with anyone, at anytime and anywhere.

BuddyUp is an Chat application built in Android Studio for android devices.
BuddyUp uses Google Firebase as the database for the Chat application.
The app allows Users to register,connect and find people with similar interests like the user and start chatting with them.
The BuddyUp App uses Java as the programming language and is built and runned on Android Studio. Users can create an account using email and password and can also login with the same email and password.
After logging in users can find new people with similar interests and can say Hello to them and start chatting with them and send messages.

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Introduction

Communication is an important process which is required for communicating or passing messages or information with people. Communication is required for work or business or for passing emergency messages to people.

It is very difficult to communicate or pass messages or information to people staying at one place and communicate or pass messages or information to people staying at some other place far or near to the person trying to communicate. And it is also a highly timing taking process to pass messages or information to each person and every person who are staying at different places.

To solve this problem the solution is to use a Chatting Application to communicate or pass messages or information to the people over the internet. By using a Chat Application one can save a lot of time and money by sending or passing messages or information over the internet.

For easy and fast communication between people over the internet, Chat application is a program which can be used by users on the internet for communicating with each other over the internet.

Existing Method

WhatsApp or most of the other messaging apps does not work on a peer-to-peer basis. So it wouldn't open a connection from your device to each of your friends' devices. Instead, your device connects to their server. It could then use a custom TCP protocol or maybe HTTP to communicate your messages to the server. The server in return would dispatch them to your friends devices. If your friend had their app open or at least the app process running then there might be a live connection to the server. WhatsApp will use that connection to send them your messages. If their app is "offline" then they might choose to send them a push notification instead.

WhatsApp uses Erlang as the programming language built for writing scalable applications that are designed to withstand errors. Erlang uses an abstraction called the Actor model for its concurrency instead of the more traditional shared-memory approach.
WhatsApp actually uses the XMPP protocol instead of the vastly superior protocol that is storing the message data in a file called sent messages, this file stores all message data sent to that particular user.

Proposed method with Architecture

What is Firebase

Firebase provides a cloud platform that pays for what you use. It means instead of building your own server to store your data, optimize and maintain your hardware, make an effort to scale up your system when the number of users has increased, you are able to use Firebase to resolve all of the above issues with reasonable expense. In addition, on this subject matter of Chat App, Firebase offers two cloud based databases which are Realtime Database and Firestore.

The reasons why you should choose Firestore is:

- Client-first SDKs, with no servers to deploy and maintain
- Realtime updates
- The free tier, then pay for what you use

Structure of the Database

About to be mentioned Firebase is a NoSQL data model, you store data in documents that contain fields mapping to values. These documents are put into collections that are used to organize your structure and build queries. The Cloud Firestore data model supports whatever data structure works best for your app. So far that your database is simply a large JSON object.

Email and Password Authentication

Firebase provides various Authentication methods like Google,Email,Phone authentications etc. The BuddyUp app uses Email and Password Authentication for creating user account and login authentication.

Methodology

The methodology used for making and building the BuddyUp Application is Firebase Database which provides realtime Database for the Application. The realtime Database is used for storing Name, Interest and the sent and received message data from other users on the Application.

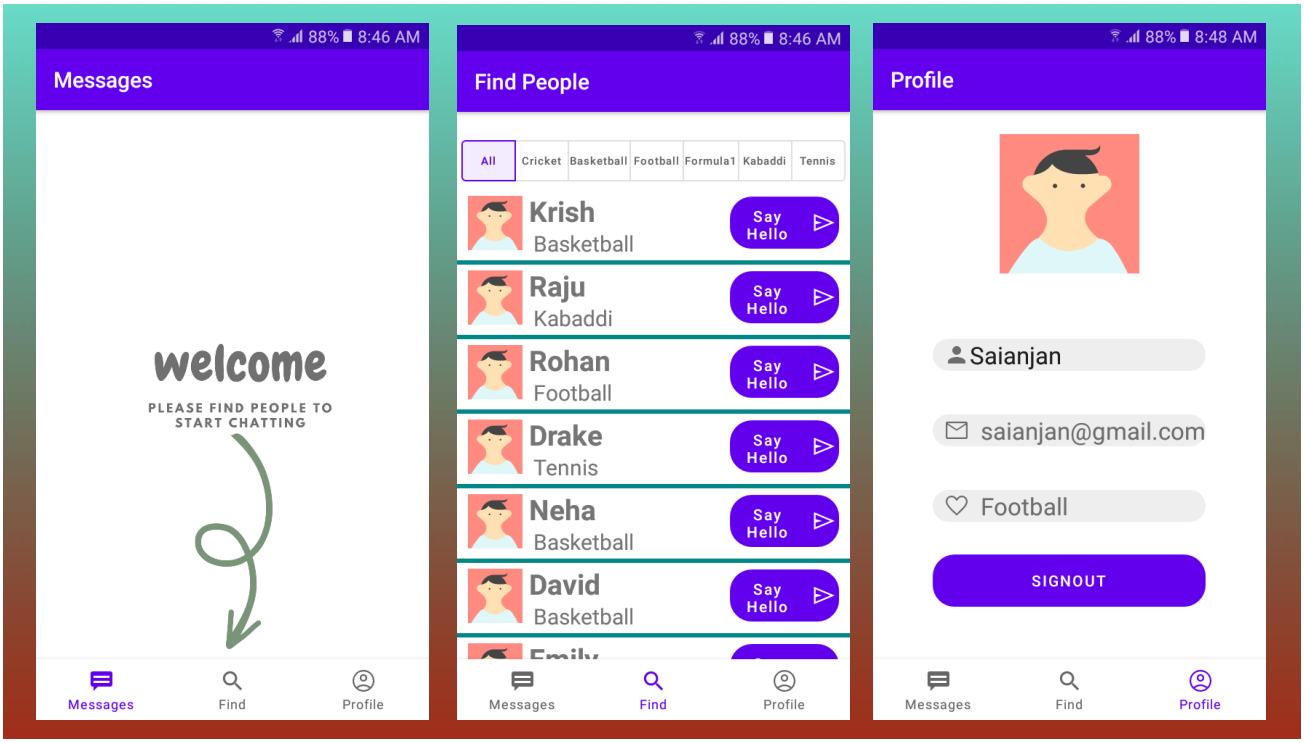
The BuddyUp app uses Email and Password Authentication provided by Google Firebase Authentication where users can login using email and password and create an account using the email and password.

When a user sends a message to another user the message data is pushed to the Firebase Database and the message data pushed to Firebase Database is stored. When a user logins the message is retrieved from the Firebase Database and delivered to the user whom the message data is sent by the sender.

Implementation

The BuddyUp App is implemented and built using Android Studio version 2020.3 on Windows platform. The BuddyUp App is connected to Google Firebase for backend process it uses realtime Database and Email and password authentication provided by Google Firebase for registering and logging users in the App.

I have used RecyclerView in Android Studio for displaying list of users and the list of messages in the Messages fragment. The App has three fragments and a navigation bar for navigation between the fragments.



The message is pushed to the Firebase Database through the internet from the sender and the pushed message is then received by the receiver and read by the user.The App creates a private room for two users and all the messages are stored in these in private rooms.

Conclusion

I had a great learning experience working as an intern at Exposys Data Labs as a Full Stack Developer. I had learned many things in the process of developing the BuddyUp App in Android Studio, things like RecyclerView, handling databases, using Firebase.Thank you so much for giving me this great opportunity at Exposys Data Labs.
Thank you.

References:

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