Android Based Chat Messaging Application Using Firebase

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Abstract— **Communication through web is turning out to be crucial nowadays. An online communication permits the clients to speak with others in a quick and advantageous manner. Considering this, the online communication application should be capable offer the writings or pictures or some other documents in a quicker manner with least postponement or with no deferral. Firebase is one of the stages which gives an ongoing information base and cloud administrations which permits the designer to make these applications effortlessly. Texting can be considered as a stage to maintain communication. Android gives better stage to create different applications for texting contrasted with different stages like iOS. The fundamental target of this paper is to introduce a product application for the starting of a continuous communication between administrators/clients. The framework created on android will empower the clients to speak with another clients through Chat messages with the assistance of web. The framework requires both the gadget to be associated through web. This application depends on Android with the backend given by google Firebase**

Keywords— *communication; firebase; android; Chat messaging; real-time databases; group messaging*

I. INTRODUCTION

In reality the communication assumes an indispensable part. Individuals have been speaking with one another through different applications or mediums. In the first place individuals spoke with one another utilizing letters or different sources, as these mediums could set aside much effort to convey the substance. Cells are another mechanism of communication however the downside is for any restricted or little message which should be passed to another client at that point call is certifiably not an ideal way. The engineers at that point hoped to execute a book based communication which would permit an in moment communication administration. In 1984, the idea of SMS was created in the Franco German GSM participation by Friedhelm Hillebrand and Bernard Ghillebaert. The restriction of SMS was the restricted size i.e., 128 bytes, after the ascent of cell phones

from 10 years many informing applications have been created. Some are Bluetooth based and some were web based, for example, WhatsApp, WeChat and others. Android is a working framework for mobiles which was created by google. This working framework permits the applications to be utilized on mobiles. As it was created by google, android clients can create versatile applications and can be sold through android application stores, for example, play store. Firebase is a NoSQL data set which utilize attachments which permits the clients to store and recover the database. An Android version should be greater than 2.3, android studio 1.5 or higher version, and android studio project are the essentials to interface the firebase to an android application. Firebase gives a different sort of administrations, for example,

- Firebase Authentication is helpful to the two engineers and the clients. Creating and keeping up sign-in set-up might be somewhat troublesome and time taking. Firebase gives a simple API to sign in. It additionally gives the information reinforcement utilizing continuous data sets.

- Firebase cloud for putting away the information like video, text, pictures assembling the framework would be troublesome and costly for another engineer so the firebase gives the foundation of distributed storage.

- Ongoing data set it is a cloud facilitated NoSQL data set. Aside from the validation, cloud administration and real-time databases firebase additionally offers an assistance for crash announcing Crash Reporting: when some sudden accidents happen in any applications it could be hard to close why the application slammed. Firebase gives crash revealing help to manage these accidents. This paper is worried of a product application for the foundation of an ongoing communication administrations between administrators/clients. Visit application many-to-many kind of communication framework where the

clients will ready to trade the messages among themselves. Client can make the chatroom as per the prerequisite or can likewise join to the current chatroom.

A. Related Work

A large portion of the web public informing, picture or record sharing applications are utilizing reasoning through which the substance that has shared freely will be gathered under one reference or name. Instagram or Facebook which has a moment picture or video sharing component utilizes this sort of system. The calculation for this reasoning is to check whether the content posted by the client contains a unique character hash image (number sign or pound sign) toward its start. The hash image is considered as a key and checks if the name is as of now existing. In the event that indeed, the substance posted by the client is shared and appears at different clients when significant inquiry demands starts. In the event that the name is new, the room is made in the data set and the leftover system is same as referenced. Numerous designers are at present creating informing applications with online arrangements like Firebase, which give continuous data set incorporation offices. Different open-source stages, for example, Parse Server or Horizon offer comparable administrations like Firebase and offer designers to move starting with one seller then onto the next, however they likewise accompany their own issues. Engineers are additionally attempting to create techniques to enhance record move through such applications and to coordinate more innovatively progressed highlights into their applications. In the course of recent years, clients worries over their security has been expanding, close by the quantity of web-based media applications giving security to their clients (Taylor et al., 2014). Other than their positive use, the safe administrations offered by these applications are too widely abused in assortment of criminal cases. Computerized criminology along these lines has become a most significant segment of any wrongdoing examination. Texting applications permit clients to send/get messages silly. It requires web association with move messages from one gadget to another gadget. There are different applications like BBM (Black Berry Messenger), Ping Chat, Imo and so forth are couriers utilized for correspondence over the web. BlackBerry Messenger (BBM) is an exclusive Internet-based moment courier application remembered for BlackBerry gadgets that permits informing between BlackBerry clients. The assistance imparts via telephone's Internet association utilizing the cell phone organization.

B. Objectives

The essential objective is to make a framework which can make chatroom as indicated by the clients and store the connected information at a solitary spot. To execute the continuous visiting application which can permit to the client to make moment bunch messages. Executing google firebase cloud and constant data sets to store the information.

C. Proposed Work

It is an internet based Chat application which provides the user to communicate with other users in a fast and convenient way. Both the devices must have an active internet connection for the communication. There are many other chat applications like WeChat, hike, WhatsApp, Telegram, Facebook messenger, Snap Chat, Line etc. but in this system the pdf creation and pdf reading feature will be included. As a part of day to day life, academic or professional life users need to send and receive files. By using this system, the user need not have any other pdf reader-writer application on the device. Using this application user can communicate with any user all over the world. In this application we are using Google firebase as the backend to store the data of the application such as messages, pictures and videos. User has to register or sign-in through their respective phone number and can use the services. When the user sign-in to the application, user can search for another user where the communication is need to be done. The user can be able to delete the chat after the communication. User can create their profile according to which other users will be able to identify each other. This application is designed of android mobile phone users. User can respond to the messages received by just typing the reply message and press the send button. This application also provides the user to delete the account. User can also sign-out from the present device and can sign-in through another.

D. Algorithms used

There are sure calculations which are been utilized build up the application, which incorporates

- Authentication most of the application requires the character of the client which will help making the information of the client more secure and more got in a cloud. Firebase gives backend, SDK and prepared to utilize libraries which assist the engineer with giving verifications easily. The calculation lets the client to login into the application with a substantial phone number. The calculation initially introduces checks for login. That implies valid. The client at that point enters the phone number id which is put away in another variable inside in the data set. The phone number is then checked and the outcome is put away in a variable request code. In the event that the estimation of the request code matches with the estimation of the variable assuming both the qualities are same, it is considered as the phone number is legitimate and the client signin to the application. In the event that the qualities don't coordinate, the signing won't be done and the under taking closes. Send and get messages: After a fruitful signing the client can now ready to send and get the messages. The capacity on click is a capacity characterized and the variable of type Edit Text is pronounced and instated to the id of info text which is recovered from the format xml document. Phone number and username of the sender is gotten from the firebase information base occurrence alongside the content which should be sent. These two are changed over to string and put away in the information base reference of the data set root hub. At the point when this cycle is done then the info is set to invalid and the client is permitted to send another message. Furthermore, for the current clients if the current client name from the firebase information base isn't equivalent to invalid then the client will get an invite screen with the past messages and new messages by calling the message show work. A variable of type Array list is instated to list id. Text and client factors of type Text View

are instated to text and client id that implies the sender text and name are put away in these factors. By utilizing predefined work 'model Get' the information is put away into the factors and showed at the hour of the capacity call.

- Group chat when the user wants to get the information about any topic then the user can for the room by giving the keyword. If user finds any relevant chat room then the user can directly join the room. If there is no chat room with that name existing then user can create the chat room and refer it to another users. After the users are joined in the chat room, users can decide whether the messages which they send will be displayed along with the sender name or not. If the user wants to be visible to other users then the messages are displayed along with the username. If the user does not want the actual name to be visible then a unique id is generated as a username for that particular chat room and the messages are displayed with the generated name. The chatroom can be deleted by the user who created them. The following flow chat explains the chat room work flow.

Figure 3: Chat work flow chart

II. LITERATURE REVIEW

Walter Kriha in his article has mention the systematic overview of NoSQL database and common concepts, techniques and patterns as well as several classes of NoSQL databases (key/value-stores, document databases, column oriented databases) and individual products. Various advantage and disadvantage of using NoSQL database has been discussed.

Supriya S. Pore, Swalaya B. Pawari conducted a comparative study of SQL and NoSQL. The study highlights on the types of databases like SQL and NoSQL, it also differentiates among them. The Axiomatic of SQL and NoSQL databases has been described in this paper. The study says that due to data consistency, ACID property is not used in the NoSQL databases

Vatika Sharma, Meenu Dave have given an overview of NoSQL databases focusing on how it has declined the dominance of SQL with its background and characteristics.

Daniel Pan in his article has shown how to connect firebase to an Android app and basics of designing the structure of database in Firebase.

Landon Cox study highlights the comparison between SQLite and firebase. It also focuses on organizing data in the form of JSON tree in order to store in Firebase.

Our first target: to maintain categories and add subcategories to allow people to find what they were looking for more quickly. Our second target was to subtly suggest popular dishes that were quick to prepare. Less prep time meant faster deliveries and so we introduced Recommendations.

III. FEEDBACK AND SURVEY

Many visiting applications are arising nowadays and are being utilized by individuals adequately. To build up the application, the client criticism about what is required and what is existing in the current applications accessible. This review depended on the highlights of the current applications like WhatsApp, Snap Chat, Hike, Telegram and Facebook Messenger. Coming up next are a few inquiries which were posed among a gathering of 50 individuals of various age gatherings.
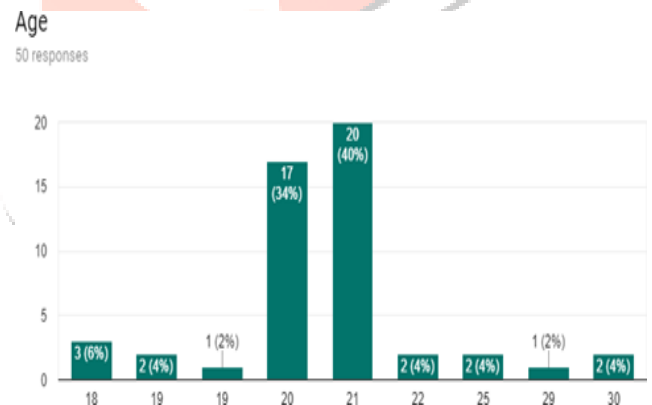

Figure 2: Ages of the participants in the survey

A. MOST LIKED FEATURES FROM THE FOLLOWING:

- Disappearing messages (delete after viewing for a given/mentioned time)
- VoLTE (Voice over LTE)
- Group
- Text message (SMS)
- Message encryption (for security)
- Status
- File sharing(photo, Video)
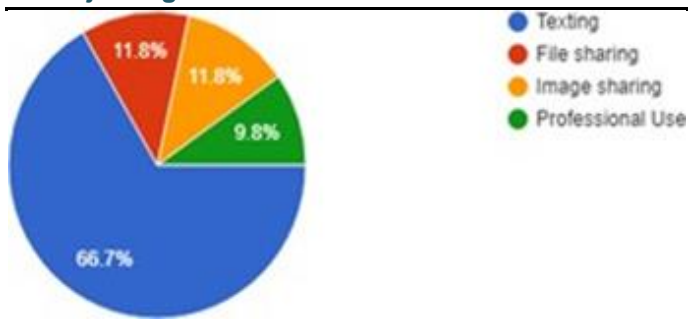- Emoji's
- Stickers
- Feelings

Figure 3: Pie chart showing the percentage of usage in different types of communication

B.   Purpose of using
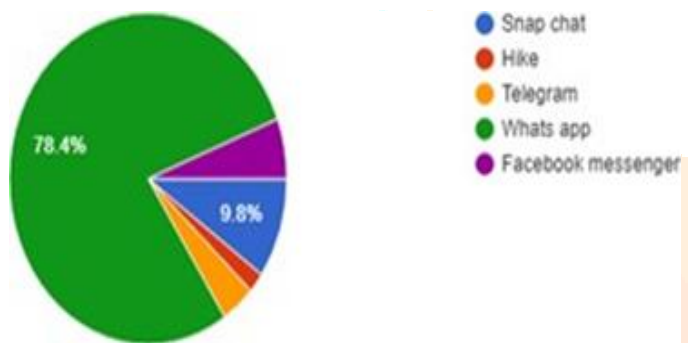
- Texting
- Image sharing

Figure 4: Pie chart for percentage of user preference in the communication applications.

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IV. RESULT

The last framework will result as a constant communication application which gives the clients to convey to one another no sweat. The application will have a login page through which the client can enroll and login themselves. Landing page of the application contains the past messages assuming any. The client can be ready to look for the other client. Client can send and get Chat messages. The client can make talk rooms and can look for the substance or data. With these visit rooms clients can trade perspectives and data about different themes. The character of the client can likewise be disclosed covered up in these visit rooms.
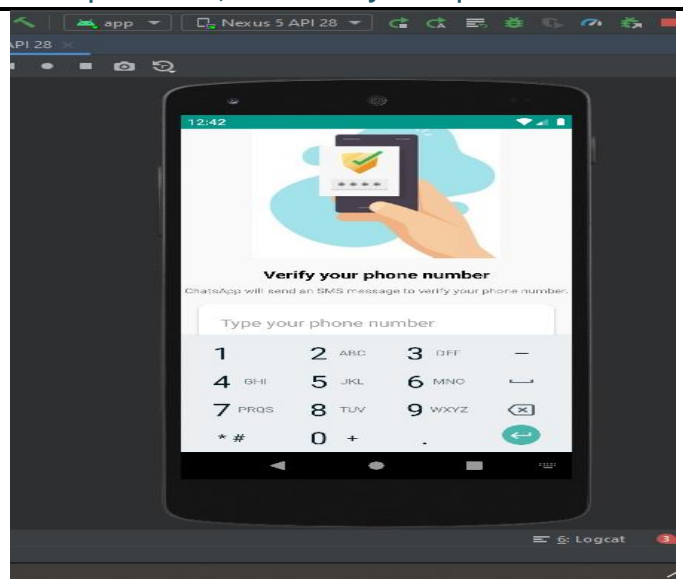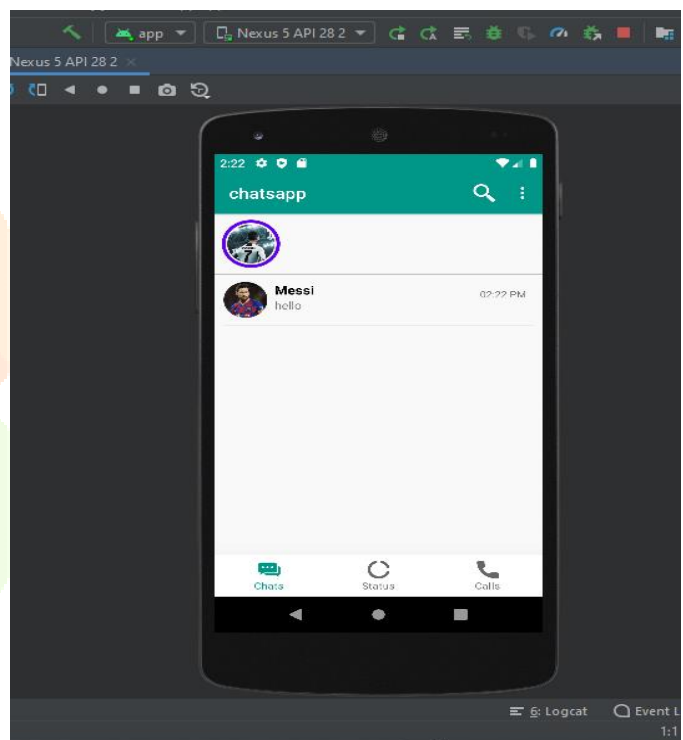

Figure 5: Interface of login page

Figure 6: Interface of chat window

V. CONCLUSION AND FUTURE SCOPE

There is in every case some spot for improvements in any product application, anyway great and proficient the application might be. At this moment, we are managing just the texting between the companions. In future the application may additionally create to incorporate a few highlights, for example,

1. Messages erase (Delete for everyone / Delete for me).
2. Personalized message tunes.
3. Status
4. Group chat

What's more, an informing application include which permits the client to make talk room while in discussion with another client simply by sending the chatroom name with the hash image toward the start.

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