

Secured Chat Messenger with pdf Reader

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ABSTRACT

Chat Messenger was created with the mind set to not just be another chat application but to add a level of clean UI (user interface) or a solid app structure function over a secure broadcast network. Chat Messenger is an effort for a more modern approach to internet security on a communication medium. The design of the UI (user interface) was greatly influenced by the already existing Chat Applications so as to give its users a fresh but familiar UI (user interface) design. The Implementation of Chat Messenger was based on a new but effective set up of flutter, firebase, where Java was for the app structure and UI (user interface) tool, firebase for the central network database. An end-to-end connection stream was used for data transfer from client to server and back to client. In conclusion the application worked well without a lag and having a 95% acceptance when tested with a potential user.

Keywords: - Template, Scribbr, IEEE, format

I. INTRODUCTION

Chat messenger apps have revolutionized the way we communicate, offering instant connectivity and seamless interaction across distances. With the real – time messaging features the apps have become Integral to our daily lives. There are numerous chatting application available in this world. Each application has different additional features varying from other applications. These application organizations compete with each other and add some competing features during each release. They have reached people much and have an impact on people’s life. People find a better application from an available internet application which they feel much reliable and secure. Some of the available chatting applications that are available these days are WhatsApp, Facebook, Instagram, Hike, etc... The above mentioned applications have billion users all over the world. Those companies are one of the top companies in the world. They have higher revenue per year and have many employees for their organizations developing additional features to compete with other organizations during each release. These applications have different features and follows different ways to ensure security of their user data. Today a data theft is the major crime and most people are involved in it. There are many cases being filed these days about personal data loss. So the organizations have to ensure the security from data loss by the third party data crisis. The basic chatting system should involve both sending and receiving processes simultaneously. In this application both sending and receiving. Messages simultaneously happens through java multi-threading concept.

II. SCOPE AND GOAL

As this world is into the internet and nothing happens without it. This application will have huge impact and help in exploring the world with an experience of instant communication. People can have easy access to the application. Private organizations like IT parks, Colleges, Institutions prefer to have separate chat applications over

public one. Hence this application can be implemented over there. Thus, this application has a huge impact over the people, mostly in private networks. This provides good scope for developing a better application with additional features than other traditional ones in the world. The basic goal is to create a system which can create Chat Room according to the users and store the related data at a single place to implement the real time chatting application which can allow the user to make instant group messages. Implementing Google firebase cloud and real time databases to store the data.

III. ADVANTAGES AND CHARACTERISTICS OF FIREBASE

Android is an operating system for mobiles which was developed by Google. This operating system allows the applications to be used on mobiles. As it was developed by Google, android users can develop mobile applications and can sell it through android application stores such as play store. Firebase is a NoSQL database which makes use of sockets which allows the users to store and retrieve the data from the database. An Android version should be greater than 2.3, android studio 1.5 or higher version, and android studio project are the prerequisites to connect the firebase to an android application. Firebase provides a various kind of services such as:

Firestore Authentication: Firestore Authentication is useful to both developers and the users. Developing and maintaining sign-in set-up may be a bit difficult and time taking. Firestore provides an easy API for sign in. It also provides the data backup using real time databases.

Security and privacy: Many chat messenger apps prioritize security and privacy, offering end- to- end encryption, privacy settings and other measures to safeguard users.

Customization options: Users often have the ability to customize their chat experience by changing the themes, setting custom chat backgrounds, choosing notification preferences, and more to personalize the app according to their preferences.

Read Receipts and Typing Indicators: These features inform users when their messages have been read by recipients and when someone is typing a response, providing insight into the status of the conversation.

Integration with other services: Some chat messenger apps integrate with other services and platforms, allowing users to perform tasks such as sending payments, ordering food, booking rides, and many more.

Multimedia sharing: Users can share various types of multimedia content, including photos, videos, voice messages, and documents, to enrich their conversations and convey information more effectively.

Group Chat: This chat messenger apps support group conversations, enabling users to create or join groups with multiple participants for collaborative discussions and interactions.

Firestore cloud: For storing the data such as video, text, pictures building the infrastructure would be difficult and expensive for a new developer so the firestore provides the platform of cloud storage.

Real time database: It is a cloud hosted NoSQL database. Apart from the authentication, cloud service and real time databases firestore also provides a service for crash reporting

Crash Reporting: when an unexpected crashes occur in any applications it becomes difficult to conclude how and why the application crashed. Firestore provides crash reporting service to deal with these crashes. This paper is concerned of a software application for the establishment of a real time communication services between operators/users.

Cross-Platform Compatibility: Often available on multiple platforms, allowing users to access their chats and messages seamlessly across different devices, including smartphones, tablets, and desktops.

Offline Messaging: Supports offline messaging, allowing users to send messages even when they are not connected to

the internet. Messages are delivered once connectivity is restored.

Chat application many-to-many type of communication system where the users will able to exchange the messages among themselves. User can create the chatroom according to the requirement or can also join to the existing chatroom

IV. PROPOSED WORK

The proposed work on the chat messenger app encompasses a multifaceted approach aimed at enhancing its functionality, security, user experience, and overall performance. Chat messenger is an internet based instant messaging 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 firestore as the backend to store the data of the application such as messages, pictures, files and more. User has to register or sign-in through their respective mail id 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. Overall ,chat messenger apps have become indispensable tools for communication in both personal and professional contexts, offering a convenient and versatile way to stay connected with others in today'

3.1 Algorithms used

There are certain algorithms which have been used to develop the application, which includes, Authentication: Most of the application requires the identity of the user which will help making the data of the user safer and more secured in a cloud. Firestore provides backend, SDK and ready to use libraries which help the developer to provide authentications effortlessly. One of the fundamental algorithms used in a chat messenger app is the Message Delivery Algorithm. This algorithm ensures that messages sent by one user are reliably delivered to the intended recipient(s) in a timely manner, even in the presence of network disruptions or failures.

```

declare and initialize sign_in variable of type private integer to 1
function onActivityResult
    if request code equals to sign_in then
        display signin successful
        display chat messages
    else
        display signin unsuccessful
    end task

```

Fig. 1

The algorithm lets the user to login into the application with a valid email id. The algorithm first initializes the variable sign-in to 1. That means true. The user then enters the email id which is stored in another variable internally in the database. The email id is then verified and the result is stored in a variable request_code. If the value of the request_code matches with the value of the variable if both the values are same then it is considered as the email is valid and the user sing in to the application. If the values do not match then the sign-in will not be done and the task ends. Send and receive messages: After a successful sign-in the user can now able to send and receive the messages.

```

create function onclick
    initialize variable of type EditText to input id
    FirebaseDatabase.getInstance().getReference().push().setValue
    (new classname(input.getText().toString(),
    FirebaseAuth.getInstance().getCurrentUser().getEmail()));
    set the input to null
    if(current username from database instance is not equal to null then
        display welcome and username
        call function display
    end function

```

Fig. 2

The function onclick is a function defined and the variable of type EditText is declared and initialized to the id of input text which is retrieved from the layout xml file. Email id and username of the sender is received from the firebase database instance along with the text which need to be sent. These two are converted to string and stored in the database reference of the database root node. When this process is done then the input is set to null and the user is allowed to send another message. Secondly, for the existing users if the current user name from the firebase database is not equal to null then the user will get a welcome screen with the previous messages and new messages by calling the message display function.

```

create function display
    initialize variable list of type ListView to list id
    declare TextView variables text and user
    initialize text to text id
    initialize user to user id
    set text to model.getText
    set user to model.getUser
    display list of messages
end function

```

Fig. 3

A variable of type ListView is initialized to list id. Text and user variables of type TextView are initialized to text and user id that means the sender text and name are stored in these variables. By using predefined function ‘model.get’ the data is stored into the variables and displayed at the time of the function call. Chat room: when the user wants to get the information about any topic then the user can search 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..

V. CONCLUSION (2)

There is always some place for enhancements in any software application, however good and efficient the application may be. Right now, we are dealing with only the instant messaging between the peers. The chat application provides a better and flexible system for chatting. It is developed with recent advanced technologies in a way to provide a reliable system. With features such as security measures, voice and video calling, and integration with contacts, chat messenger apps offer a comprehensive communication solution while prioritizing user privacy and convenience. This application can find better need in the market for most of the organizations aim at having private applications for them In future the application may further developed to include some features such as

1. Post sharing
2. Status sharing
3. Personal messaging

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