

Design and Implementation of Search-Box in Instant Messaging Application

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ABSTRACT

Phenomenon of communication technology on smartphones can be used to meet the needs of actual real time communication. Communication consists of several factors such as text message, video, audio exchange or personal notes, personal documents and also file sharing in-between individual or in chat/group room. As we know most of the percent people used Instant Messaging application to communicate and there are several such application available. A search box is a technique used in this application to enhance the communication between users. The basic feature of search box is, it replies to the query on any word given by the end user. The search box is used to provide the meaning of the word, user enter in the search box. This is the main concept we find to work on in Instant Messaging Application.

Keywords: - Firebase, Real Time Chat, Instant Messaging, Search Box, Data Mining, Personal Chat, Group Chat

I. INTRODUCTION

Emails which are not facilitate to give the speed in real time communication, So the IMA overcome these conflicts and support the facilities of practicality and speed of real time chat. Therefore IMA becomes important in the world of communication. Lasted average of conversation via IM is 20 seconds, thus making this communication technology becomes more efficient to get quick respond from chat. With the power of detecting whether a user is online or not, it improves the ability to respond faster than e-mail and improve the quality of communication [1][2][3].

In addition, when compared with a phone-call, using IM application is cheaper and considered less obtrusive. Actualization and file sharing needs will increase in line with the number of IM application users which already more than the number of e-mail users. Online collaboration through instant messaging is also easier because the intercourse takes place within one working window (chat history can be

seen), and low-bandwidth because the previous message is not attached as email reply as usual.

A search box is a controlled element present in many GUI-based applications that is used to carry out search operations by the application user. Search-box offer a convenient way to conduct search. The search term or query is entered into the search box and then the search button is clicked [4]. Some applications also allow the user to press the Enter key or have to enter key to initiate the search.

The application acquires the text from the search box and matches it with the items in its database and returns the search results so to find the meaning of required word various search algorithm are used. The most common applications that use search boxes are search engines (search engines such as bing, yahoo, google, ask.com, baidu etc). The search box is the most important graphical element in popular search engines like Google and Yahoo to show the inputs result [4].

II. APPLICATION DEVELOPMENT METHODOLOGY

The application development methodology used in this research is Android Studio on version 3.2 with 4 steps: inception, elaboration, construction and transition.

In the inception step, we take views about current instant messaging app and finds where it lags. The views were taken mostly from students. In the second step, remaining required were collected and to better understand application system was modelled by using Use Case Diagram(Fig. 1). The third step, was carried out were we developed technical part coding of application. Development of authentication page, chat room and search box. In the fourth step, to build android package, test and fix the bugs used android studio compiler which is inbuilt in android studio software. After all this steps we released application to user.

use as UI between user. It is developed on Android Studio which for Android platform. To provide better and reliable performance to user we code application in Java language we can go for higher or updated languages such as Kotlin or Python both are supported by Android platform. UI as shown in Figure 2 (a, b and c) [3][1].

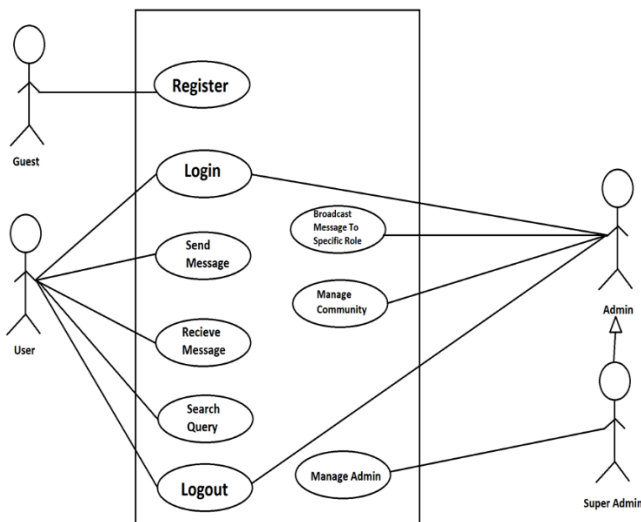
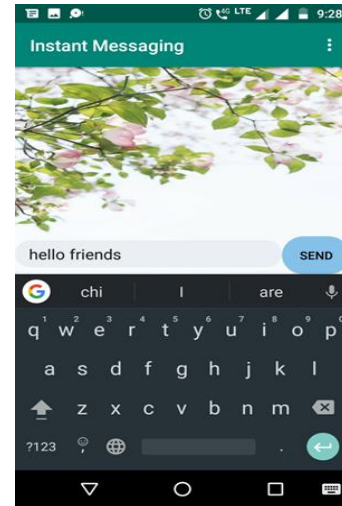
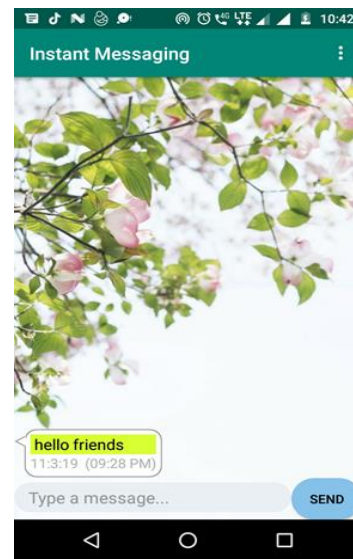


Figure 1. Use Case Diagram of System

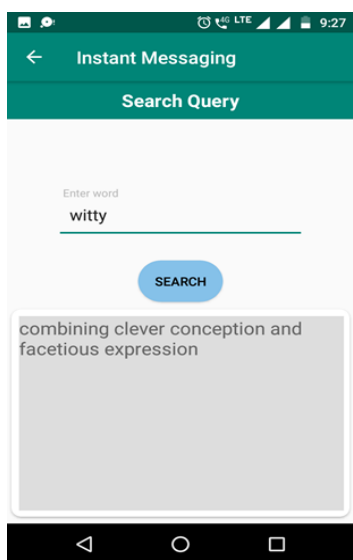
This IMA application contains two parts, Front-end and Back-end as shown in above Use Case Diagram (Fig. 1). Front-end side is used by the User (made up of students, lecturers, staffs, parents, and institution's associated communities or many other). Front-end is



(a)



(b)



(c)

Figure 2. User interface on smartphone

III. PROPOSED ARCHITECTURE MODEL

The android IMA application will be connected via Internet permission provided from manifest to access data from a database server that has been implemented on Firebase. In Android application all work is done with adding dependency for particular task and the XML design for layout is carried in layout file. Also the coding part are write in Java file [6]. We used firebase to store user information, chats and those chats and info are retrieve from database. We used firebase because it provide more functionality than server based application. It is very easy to manage data in firebase [7].

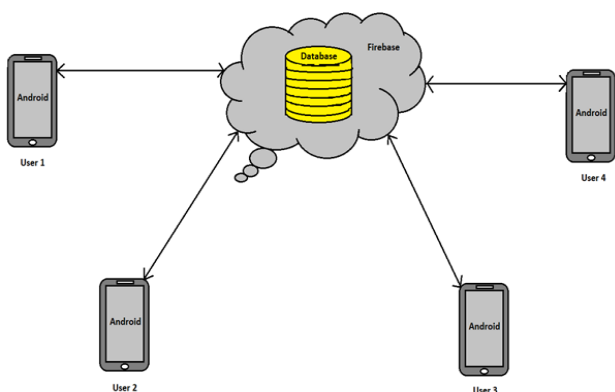


Figure 3. The Architecture of Application

In firebase database data is pass through Hash Map and retrieve data from firebase by the reference name given in database. The message insert by the user is store in database on the reference and display with the help of View Holder on user application [7]. Getter Setter Java file is used to call the constructor. We also make database of meaning which provide meaning of word user insert in search box. To retrieve the meaning from database we simple given database reference to access the meaning of word. It is static dictionary we can make it dynamic by using API of any dictionary which is available otherwise we have to purchase.

IV.SYSTEM SPECIFICATION

The architecture design and back-end application for chat are implemented on a server with the following specifications:

- ✓ Intel Core i5 7200U 2.50 GHz Processor
- ✓ 1 TB hard drives
- ✓ 8 GB RAM¹
- ✓ Internet network connected
- ✓ Windows 10 Home Single Language 64-bit operating system
- ✓ Version 1802
- ✓ Firebase Server of Google with google-services: 4.2.0 plugin

The application is install on Moto G Play smartphone device with the following specifications:

- ✓ 7.1.1 (Nougat) Android operating system version
- ✓ Quad core, 1.2 GHz, Cortex A53, Qualcomm Snapdragon 410 processor
- ✓ 720 x 1280 pixels touch-screen resolution
- ✓ 2 MB RAM
- ✓ 802.11 b/g/n Wi-Fi or mobile networks (LTE, with speeds around 384 Kb/s)

Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions. Authors are strongly encouraged not to call out multiple figures or tables in the conclusion—these should be referenced in the body of the paper.

V. EXPERIMENTAL RESULT

The software is installed in user smartphone which consume 3.71MB of internal storage. IM application is supported from minimum sdk version 15 (Ice Cream Sandwich) to sdk maximum version 27 (Pie).It consume less time and easy to operate with significant manner. Space consumption in smartphone is shown in following fig 4.

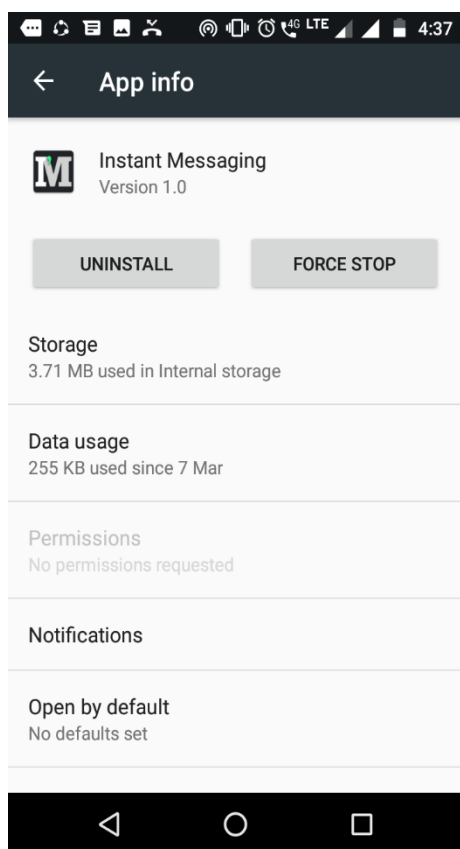


Figure 4. Memory Usage in Smartphone

VI.CONCLUSION

This project has been implemented in Rashtrasant Tukadoji Maharaj Nagpur University, India. It is possible to individuals that they can exchange their thoughts or communicate through this application. Sending and receiving of messages in real-time, it is also use for searching the meaning of word, both the facilities are most important which is provided in these application for IMA user. The proposed architecture model is running well by combining Firebase server to accommodate real-time chat for Android platform.

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