International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 04 Issue: 08 | August -2020 ISSN: 2582-3930

Blood Bank: An Android Application

(Prof.G.V.Bhole , Professor in Dept. of Information Technology)

Authors Name/s: Nitya Srivastava, Muskan Bansal

Department of Information Technology

Bharati Vidyapeeth(Deemed to be)University College of Engineering,Pune-411046

Abstract

As there is a rapid increase within the usage of social networking sites across the world,along with that there is also a gradual increment in blood donation requests as we are ready to notice it within the amount of posts on the social networking sites like Facebook and twitter and also whatsapp forwards seeking blood donors. Finding donor is also a challenging issue in almost every country. There's an expectation that the blood will always be there when it's really needed. Donor volunteers constitute the foremost supply source in an efficient blood supply chain management. They feed blood stocks through their donation. In an emergency situation, if the stocks are insufficient, the only real source of blood supply are the volunteers that come to the health facility and donate the blood on a voluntary basis. It's certain that time could also be a significant component in such situation. For this reason, the health care center should call the closest available donor so on show urge the service as quickly as possible. a wise phone application is developed to facilitate the identification of the closest available donor volunteer and also the communication with him/her within the emergency situations, where the blood can't be supplied through the blood banks' stocks. There are some applications for locating the donor within the market like Blood app by Red Cross and donor Finder application by Neologix,etc. However, more reliable applications that meet the necessities of users and encompasses a awfully simple user -friendly are prompted. Several software technologies including languages and framework are accustomed to develop our blood-donor web application stated as BLOOD BANK application.

Introduction

Despite all the advances in medicine and technology, another medical thanks to substitute blood, blood components or blood-derived products haven't been found yet . Blood can only be supplied by living donors. Intromission has been to blame for saving several lives every year round the world. Yet the amount and quality of blood pool available for transfusion remains a significant concern across the world, especially within the developing countries. Most donations are as a results of replacement donations provided by the relatives of patients. just in case of operation or treatment, health care center employees asked to patient's relatives to donate blood even they don't have the identical blood type. Professional donors are those that donate blood in exchange for money. Unfortunately these forms of blood donors don't help maintaining a reliable stock of blood. Moreover, they are doing not provide rare blood groups. These points indicate the necessity and

importance of voluntary blood donations. Voluntary donors are non-remunerated donors and donate blood voluntarily with none inducements like money or the other substitute money. The system which we've proposed might make the procedure of blood donation centers less tedious. during this there are different modules for contributor, recipient, and blood donation center. Giver has to enlist himself to utilize this enhanced blood donation framework. The beneficiary likewise has to enroll themselves at blood donation center to test the blood accessibility. The blood donation center administration offers functionalities for fast access to benefactor records gathered from different parts of the state. It empowers observing the outcomes and execution of the blood gift movement to such an extent that significant and quantifiable targets of the association are often checked. In bank Android Application is developed in order that users can view the knowledge about registered blood donors like name, address, and other such personal information together with their details of blood type and other medical information of donor. The project also includes a login page where within the user is required to register and only then can view the provision of blood and should also register to donate blood if he/she wishes to. This project requires internet access and thus there's an obstacle of internet failure. Thus this application helps to pick the proper donor online instantly using medical details together with the blood type. the most aim of developing this application is to scale back the time to a good extent that's spent in attempting to find the correct donor and also the availability of blood required. Thus this application provides the desired information in no time and also helps in quicker deciding. This project aims in developing a web Blood Donation data system. Keeping in sight of the distributed client server computing technologyin mind,the entire project has been developed.The bank App is to make an e-Information about the donor and therefore the organization that are associated with donating the blood. Through this application any individual who is inquisitive about donating the blood can register himself.In the same way if any organization wants to register itself on this app can even register. Moreover, if any general consumer is in need for blood then he also can make letter of invitation for the blood online on this application.In this app admin is the main authority who can modify it by adding, deleting, and modifying the app if required.

Problem Statement

There is an increase of blood and plasma demand with the advancement in medical fraternity.In spite of the fact that we have a good numbers of potential donors in our country , there is only 5% of the total population who is donating blood voluntarily. Advanced surgery patients need immediate blood and most of the times there's a shortage of blood donors.And also the blood donors are usually unaware of the situations when the blood is needed.This is the main reason why this application system is being proposed.The main aim of this system is to bring the blood donors and blood requesters one step closer to each other so that there they will be easily accessible to each other.

As the existing applications lack in providing all the details of the donor and requester and also the stock availability of blood in the blood banks.The proposed system overcomes these drawback and gives a clear detailing of the donors ,the requesters and also the stock of the blood bank and the location of the blood bank.This application also sends push notifications for blood need to the registered users and also to the contacts in the contact list of the registered user.

Literature Survey

1.According to **Teena, C.A, Sankar, K. and Kannan, S. (2014)** in their study entitled **"A Study onBlood Bank Management"**, they defined bank data system as an information management system that contributes to the management of donor records and bank. In their system they allowed an authorized bank administrator who will register with a password to

manage the records of blood donors and blood requesters easily. The system has several features including the central database, quick access to the system content through the login, includes the search code to hunt out donors on a specified basis, and also the addition and updation of donor data. The system aimed to complete the process of the blood bank. Once successful within the implementation of the application, it's applied and extended in several blood banks. This application contains User Login Screen, Blood Management, Menu Form, Blood Stock, Donor Management, Donor Registration, Blood Request, Donor biopsy, Recipient Management and Blood Reservation. In similar manner, the researchers planned in their application to possess hospital administrator, doctors, and bank receptionists as users. The authors did not mentioned the search method they used, and they also failed to provide screenshots of the system prototypes, making it difficult for the researchers to visualise their application. Subsequently, the researchers planned to provide figures to clarify the system, screenshots of system prototypes, and other diagrams that can help other researchers to visualise the event of web-based blood bank management system.

2. During a study entitled **"Blood Bank Management System"** done by **Kumar, R. Singh, S.Ragavi, V.A. (2017)**, the researchers developed a web-based blood management which assists the donor records management, and also provides easy control in the distribution of blood products in various parts of the country considering demands of hospitals. The developed system was scalable and adaptable to meet the complex needs usually of a bank.In this system , the records of the blood donor and the donor related details are entered manually, thus, tracking of blood donation activities was difficult and complicated, and even led to erroneous information. Subsequently, the researchers mentioned that manual-based system is also waste of some time, lead to the error-prone results, consumes lots of manpower, lacks data security, data retrieval requires many some time, reports consumes an extended time to produce, and there's less precise accuracy on the results. By development and implementation of a web-based blood management system, users can quickly and timely access the records of the donor , and thus the system provided management which is timely, confidential and secured medical details. There are 3 users within the system, namely: Administrator, Donor, and Acceptor. Every registered user has been assigned a specific user ID and password to identify them. The proposed system was developed using ASP.NET, C#.NET, and using SqlServer for the database management. The researchers didn't mention the methods of research used in this paper.In this study, the researchers learnt the importance of implementing a web-based blood bank management system in handling records for blood donors and blood donation activities to ensure accurate and readily available information for transfusion services. The impact of using Information Technology on healthcare system provides better and convinient healthcare facilities for the general public.

Proposed System

We have proposed a reliable and efficient system to connect the blood donors and blood requesters directly to the blood bank.The service which is provided by this proposed system breaks the barriers between the users and blood bank and maintains transparency between them.It increases the ease in the availability of the blood and hence proves to be valuable to the health sector.The proposed system has a very efficient user interface and regular notification system which helps the user to get more active on this application.It provides safety of the data of the blood bank and users.This system also show some facts related to the various blood diseases on the splash screen of the user's application.These facts are regularly updated by the admin module.The proposed system spreads awareness about the genital blood diseases which require blood transfusion or blood need.

1. User Module

a. Registration using phone number. Once registered it will be validated by Admin.
b. Create/Update profile with basic information such as Name, Number, Address, City, State, blood group, role
c. User can select his role as Doner/Requester. He can change this anytime.
d. User can raise request either for blood donation or for blood requirements.
e. Above request will reach to admin and then admin will assign respective blood bank either to collect or provide blood.
f. User can see the stock details of the admin. He will not be able see blood bank details until it is assigned by Admin.
g. User will get notifications once he is assigned with blood bank.
h.User will be notified by the admin whenever there is request raised for a certain blood group.

2. Blood Bank Module

a. Registration using phone number. Once registered it will be validated by Admin.
b. Collect details such as Name, Number, Address, City, State, Stock info of the blood bank, Number of doner currently available with them. Upload logo. This information can be updated any time.
c. Show list of user who wants to donate the blood for this Blood bank.
d. Blood bank can send reminders to doner.
e. Show list of user who has requested blood with this Blood bank.

3. Admin Module

a. Register yourself using phone number.
b. Collect basic information for admin such as stock which will come from blood bank DB.
c. Validate user and blood bank.
d. Assign blood bank for the user, who wants to donate or raise request for blood.
e. Once bank is assigned notification will be sent to User and respective blood bank.
f. Show list of Blood bank and User (Doner & Requester).
g. It will also show some facts related to the blood diseases on the user's terminal and these facts will be updated by the admin.

4. Broadcast Message:The push notifications will be broadcasted to the numbers present in the contact list of the registered users.

Methodologies

1.**Android Studio** : It is an official integrated development environment (IDE) for Android app development, supported IntelliJ IDEA. It's availability for downloading is on MAC OS X, Windows and Linux, and it's replaced as Google's primary IDE for the event of native Android application. It's specifically designed for the development of an Android application. It offers a versatile Gradle-based build system, code templates to assist you build common app features, rich layout editor with support for drag and drop theme editing, built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine and far more.

Android Studio features a brand new and improved interface design perspective where you'll be able to view the interface you're engaged on and its related components. Android Studio provides variety of computer program tools to help you with creating layouts, implementing style themes, and building graphic or text resources for your app.

The Android build system is that the toolkit you employ to make, test, run and package your apps. The build system can run as an integrated tool from the Android Studio menu and independently from the instruction.

2.**XML** : XML stands for Extensible Mark-up Language.The front-end of this application is

developed by using XML.It could be highly regarded fomat and commonly used for sharing data on the net.

A nomenclature is slightly different from an artificial language.Whereas, a programming language (C,C#,Java,Kotlin,Python,BASIC) will allow you to define behaviors, interactions and conditions; a nomenclature is employed more to explain data, and during this case, layouts.XML is employed anywhere which will get pleasure from adding context to data.It is used across online to form search smarter and simplify data exchange.XML has really supported the quality Generalised System(SGLM),which has been employed by the publishing industry for many years.XML performs the identical function in Android App development: describing data and introducing elements.XML describes the views in your activities, and Kotlin(the programming language) tells them the ways to behave.

3.**Kotlin** : Kotlin is a cross-platform,statically typed, general-purpose programming language that you can use in front-end, back-end, and Android development.

The backend of the application is developed by Kotlin. Kotlin is intended to interoperate fully with Java, and also the JVM version of its standard library depends on the Java Class Library, but type inference allows its syntax to be more concise. Kotlin runs on the JVM and inter-operates with Java very well, so mostly everything you can do with Java, you can also do in Kotlin .There are some interesting frameworks specifically for Kotlin (Ktor) and it is supported by some of the most popular frameworks like Spring, Vert.x.

4.**Google Firestore** : Cloud Firestore be a flexible, scalable database for web,mobile, and server development from Firebase and Google Cloud Platform. Just like Firebase Realtime Database, it is for keeping your data in sync across client apps through the realtime listeners and it also offers offline support for mobile and web so you'll be able to build responsive apps.It also offers a seamless integration with other Firebase and Google Cloud Platform products, including Cloud Functions. Cloud Firestore is an improvement over Datastore, as it provides you with:

•Strong consistency all the time (What you write in DB is what you read back)

•Transactions are now not limited to 25 entity groups

•The Writes to the entity group are now not limited to 1 write per second

5.**NodeJs** : Node Js is the scripting language used in the development of this system.Node Js is an open source server environment which runs on various platforms like Windows,Unix,Linux,Mac OS X,etc.It uses asynchronous programming.It can generate dynamic page content and can create,open,read,write,delete and close files on the server.It can collect the form's data and can add,modify,delete that data from the database.

Conclusion

Proposed system are very useful now and then of Emergency. Earlier at the time of emergency, the person had to travel at particular bank to test whether the blood is obtainable or not, but with the assistance of proposed system, user can easily find the desired blood without wasting any time.The proposed android application is more user-friendly and simple to use as compared to existing bank apps. The Proposed System activities are divided into three major parts, User , bank and Admin. The Proposed System is focussing on the productivity of the appliance by maintaining a database of the donors containing their contact numbers and email ids in order that we are able to make the foremost of it. It not only notifies the registered users on the app at the time when there's a requirement of blood but also sends broadcasted push messages to the contact list of every and each registered user sometimes when there's a requirement of blood.This system also finds the closest bank for the users by tracking their gps location and connection the

user's device with the google maps and thus guiding the precise directions to the closest bank.It also includes the blood quantity to be stored within the app database. this could be called as new entry as a user may enter his/her details within the database. While within the receiver's form this has individual's name, phone no (which a user can contact), their blood groups have to be received and also the total amount of quantity. After submitting these data within the database, these fields are visible during transaction process. This shows what quantity quantity of blood has been donated/received to the/by user. Thus this work might increase the employment of the prevailing blood banks android applications and make it more convenient for the overall public to induce involved within the donation of blood by using this app which has the foremost user-friendly interface.The Proposed System is designed in such the way that it helps the user altogether possible ways when he/she needs help. If time will permit we are going to add more features and improve the productivity of the appliance.

References

1.Android Blood Donor Life Saving Application in Cloud Computing by T.Hilda Jenipha*1 R.Backiyalakshmi*2 1M.Tech Student,Dept. of Computer Science and Engineering,PRIST University, Puducherry,India.

2.BloodR:blood donor and requester mobile application by Vamsi Krishna Tatikonda and Hosam El-Ocla

3.RedDonate:A Blood Bank Android Application by Aishwarya Shinde,Advait Gharat,Varad Sakhalkar,Rajendra Chapke Dept. of Computer Engineering,Universal College of Engineering,Kaman,Vasai

4.Android Blood Bank by Prof. Snigdha,Varsha Anabhavane,Pratiksha Lokhande,Siddhi Kasar,Pranita More : Lecturer, Dept. of Information Technology, Atharva College of Engineering,Mumbai

5.An Android based BloodBank information retrieval system by Aderonke Anthonia Kayode,Abidemi Emmanuel Adenivi and Simon Agaba Ochigbo.

6. E. Ekanayaka and C. Wimaladharma. Blood bank management system. Technical Session-Computer Science and Technology & Industrial Information Technology, page 7, 2015.

7. Narendra Gupta1, Ramakant Gawande2 and Nikhil Thengadi3, "MBB: A Life Saving Application". Final Year, CSE Dept., JDIET, Yavatmal, India.VOLUME-2, SPECIAL ISSUE-1, MARCH2015.