

BLOOD ESSENTIAL ANALYSIS SYSTEM

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ABSTRACT

Blood donation is required during an organ transplant, accidents, cancer treatment etc. For blood donation, one needs to check for a donation camp or needs to visit blood bank. The manual blood donation system has many disadvantages which includes, it is too time consuming, often leads to error prone results, consumes lot of manpower, lacks donor information, retrieval of data takes a lot of time, percentage of accuracy is less. In the time of emergency, it becomes difficult to approach the right donor. Rare blood groups are not available all the time at all blood banks and recipients find difficulties to track the right blood donor.

I. INTRODUCTION

The online blood donation management system maintains the list of blood donors and also helps the recipients to track and search the donor easily. It has two modules namely admin and user. Admin can add hospitals having blood banks and can also add various blood donation camps. We can also view the list of donors of a particular area with proper Blood cross match. We can also check for blood requests and in case of emergency we can send notifications to blood donors as per the requirements. Users can register and make a request. Users can also register as a donor. Donors can check for Blood camps and hospitals for blood. They can either accept or ignore it. This project aims at maintaining all information regarding blood donors, different blood groups available in blood banks as well as blood camps and help them manage in a better way.

There are many blood donation management systems, but these systems only maintain the information of blood banks and donors. But this, project has proposed a system which not only maintains the information of blood banks, but also maintains information of blood camps which makes blood transfusion process easier. This project is aimed to developing an online Blood Donation Information. The entire project has been developed keeping in view of the distributed client server computing technology, in mind. The Blood Donation Agent is to create an e-Information about the donor and organization that are related to donating the blood. Through this application any person who is interested in donating the blood can register. Moreover, if any general consumer wants to make request blood online, he can also take the help of this site.

Admin is the main authority who can do addition, deletion, and modification if required data. The project has been planned to be having the view of distributed architecture, with centralized storage of the database. The application for the storage of the data has been planned. Using the constructs of Firebase as a backend Server and all the user interfaces have been designed using the Java(kotlin) technologies.

The standards of security and data protective mechanism have been given a big choice for proper usage. The application takes care of different modules and their associated reports, which are produced as per the applicable strategies and standards that are put forwarded by the administrative staff. The specification has been normalized up to 3NF to eliminate all the anomalies that may arise due to the database transaction that are executed by the general users and the organizational administration. The user interfaces are browser specific to give distributed accessibility for the overall system. The internal database has been selected as Firestore. The basic constructs of documents, clusters and indexes have been exploited to provide higher consistency and reliability for the data storage. The total front end was dominated using the Java technologies.

At all proper levels high care was taken to check that the system manages the data consistency with proper business rules or validations. The user level accessibility has been restricted into two zones namely. Blood bank is a place where blood bag that is collected from blood donation events is stored in one place. The term "blood bank" refers to a division of a hospital laboratory where the storage of blood product occurs and where proper testing is performed to reduce the risk of transfusion related events Pathology Department is one of the most important departments in. Before the blood is supplied to the patients, the blood will undergo several tests to

ensure that the blood receiver is not infected by serious diseases. There are a few units operating in this department such as Blood House Unit, Blood Transfusion Unit, and Blood Distribution Unit. Every month. All of the blood received at the blood donation events must be managed thoroughly and systematically to avoid patient who need the blood infected by any viruses or diseases.

II. METHODOLOGY

A system development methodology refers to the framework that is used to structure, plan, and control the process of developing an information system. When it comes to software development SDLC is the process that takes place. It consists of a phase that system developers follow during the process of system development. There are different methods of system development life cycle and for this project we will use waterfall methodology and rational unified process.

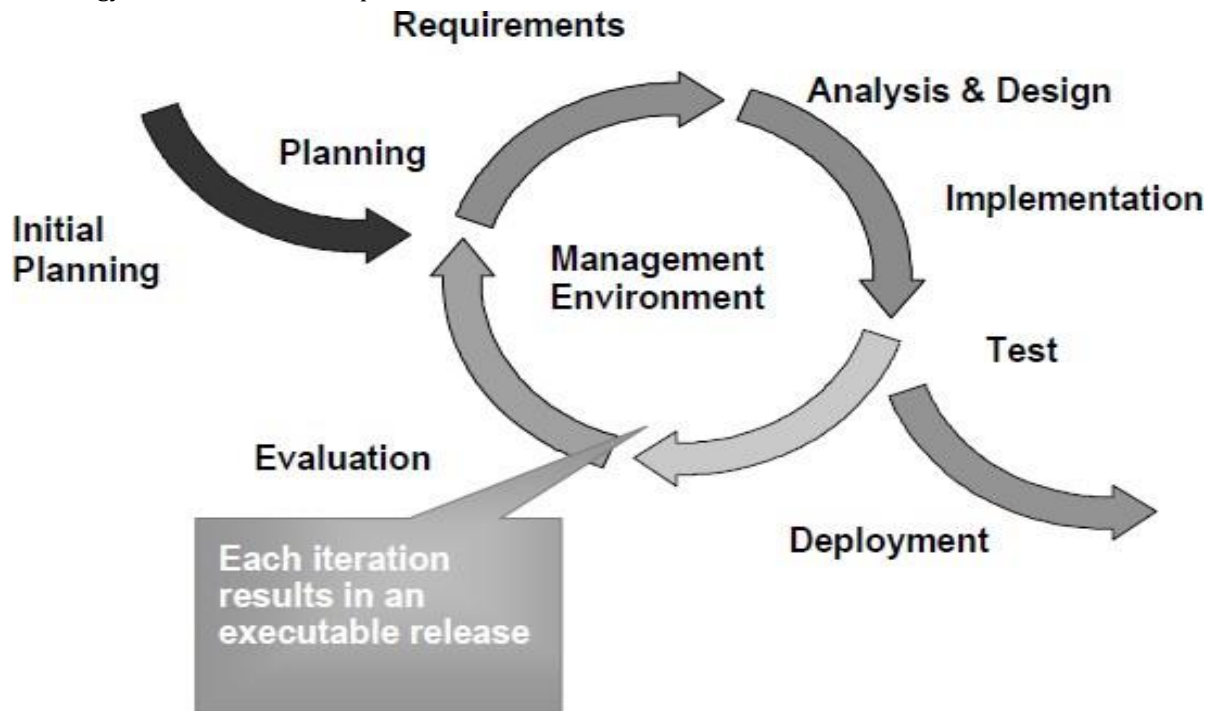


Fig 1: Rational unified process combined with waterfall methodology

III. MODELING AND ANALYSIS

HARDWARE REQUIREMENTS:

- PIV 2.8 GHz Processor and Above
- RAM 512MB and Above
- HDD 20 GB Hard Disk Space and Above

SOFTWARE REQUIREMENTS:

- WINDOWS OS (XP / 2000 / 200 Server / 2003 Server)
- Android studio
- Java
- Firebase

User can register as both Blood seeker and donor, Send blood donation details to the relevant donors. Search for hospitals based on seekers detail. Admin can update the stocks based on availability. In this module the Administrator has the privileges to add all the blood groups,

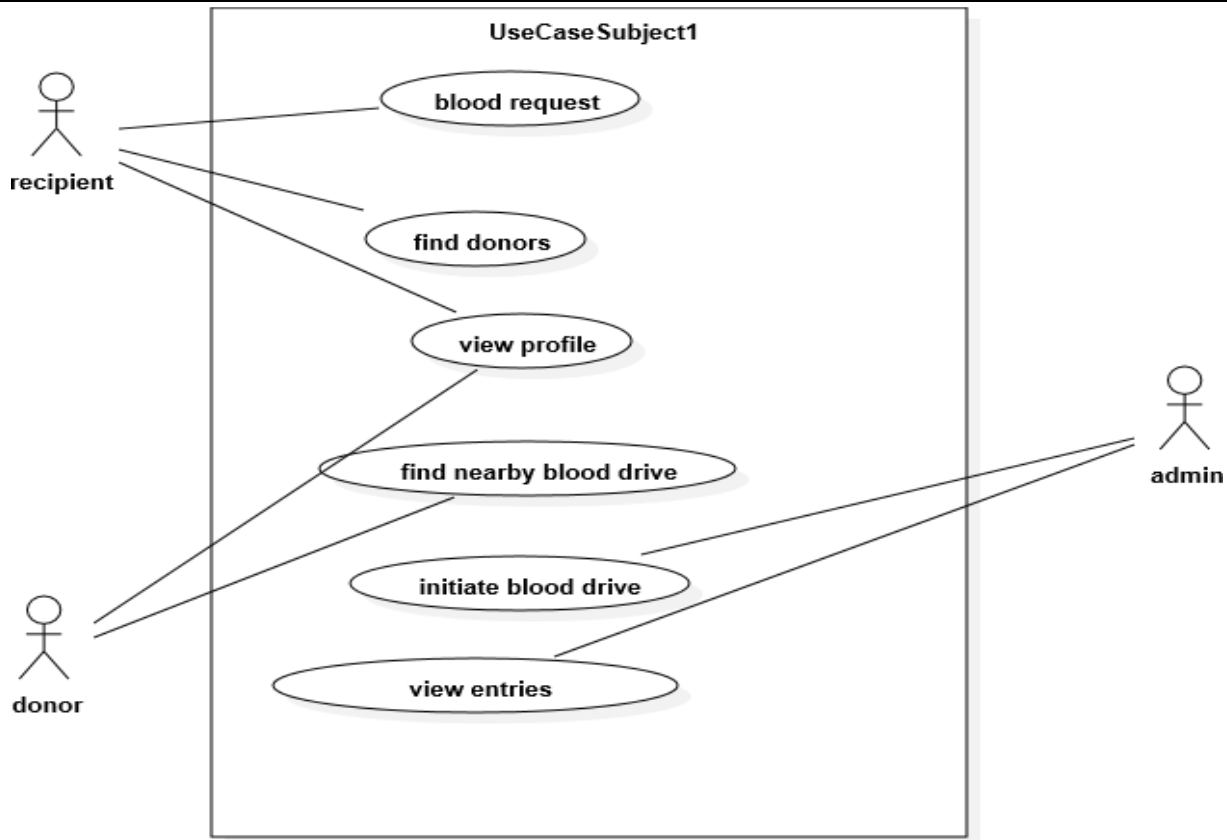


Fig 2: Use case diagram

The above diagram explains the functions the administrator, the donor and acceptor are supposed to perform. Blood type, Organization, type, Country, State, City, and Location. Seeker can search all the info about the organization, donor. association personal details with preferred location day time details. association donor frequencies with blood donation preferences.

IV. RESULTS

- **Introduction**

In this part and with the requirements quite clear, we embarked on the implementation of the findings so far. Implementation is the stage of a project during which theory is turned into practice. It is in this stage that we developed the programs that will help meet the expectations of the system. Moreover, we developed the interfaces that will interact with the various users of the system. During this phase all the programs of the system are loaded onto the user's computer. In our system there are various modules.

- **User Interface**

This system is used by the blood coordinator, recipients and the donors and we designed it simply without so much use of colours. The interface is user friendly and easy to use. This can be proving when the user knows what the button's function is when he or she looks at the button. This is due to the fact that the button's text is clear and easy to understand.

- **Main homepage**

This is the main page for all the users of the system i.e., the admin, donor and the recipient. The users will login first to access the other parts of the system.

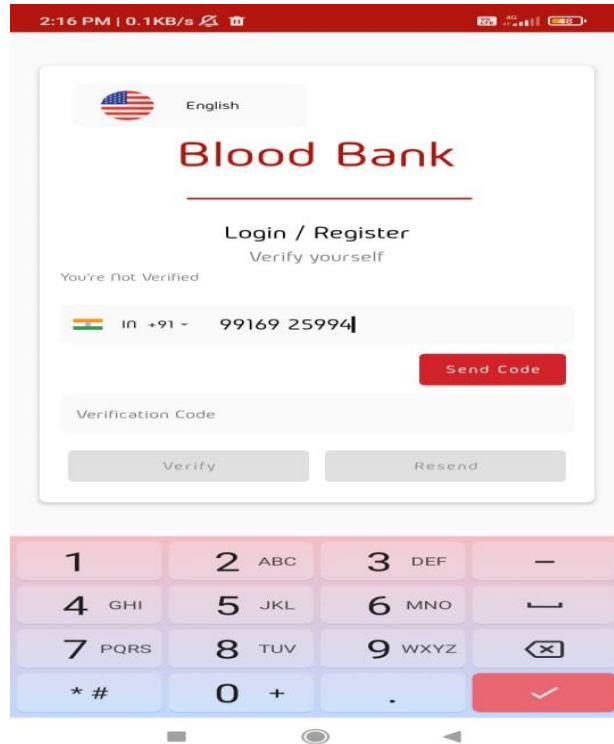


Fig 3: Login Page

- **Donors' registration**

The profile of the donor, where they need to enter the required details. After registration donor can maintain according to his availability. The registration page with Full name, email Address, Last donated date, Password, contact details, Blood group and Location is illustrated in figure.

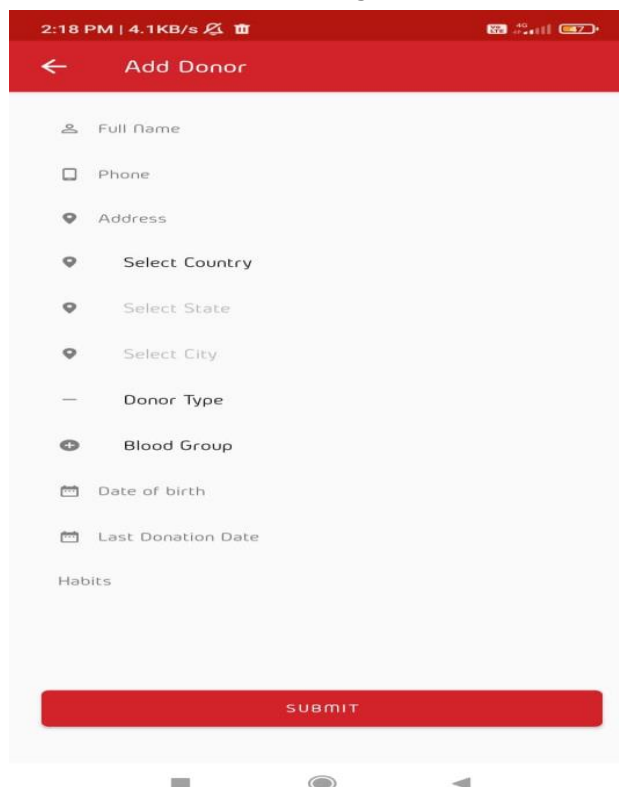


Fig 4: Donor form

- **Blood donor dashboard**

The blood seeker can search for donors using this app

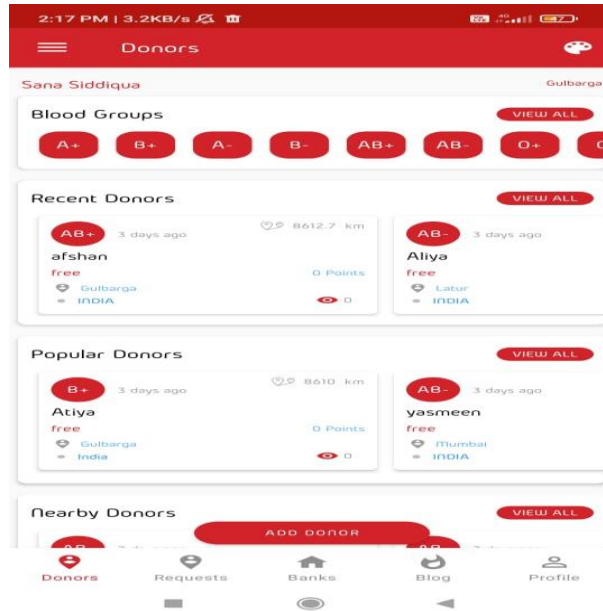


Fig 5: Seeker Dashboard

- **Request page**

The donors with the respective blood type will be shown on the screen after the search. The donor is determined with some inbuilt parameters.

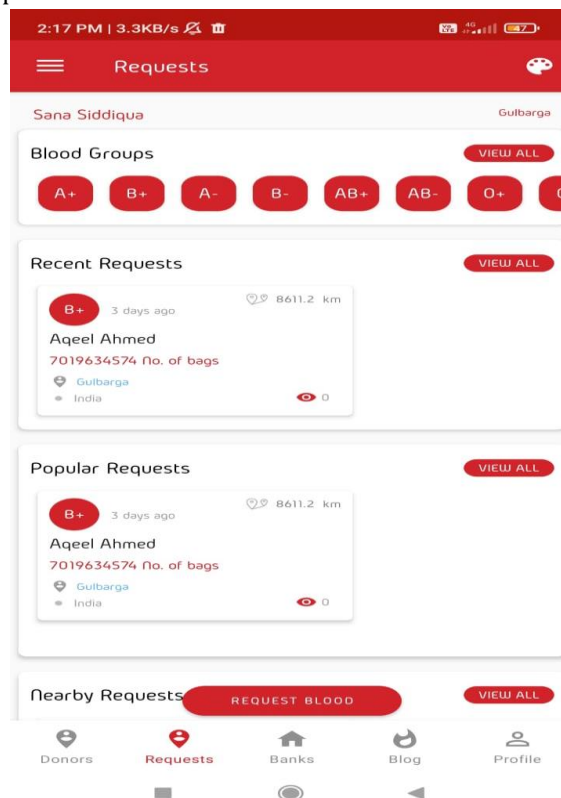


Fig 6: Donor Dashboard

- **Blood bank dashboard**

All blood banks details are displayed based on user profile location.

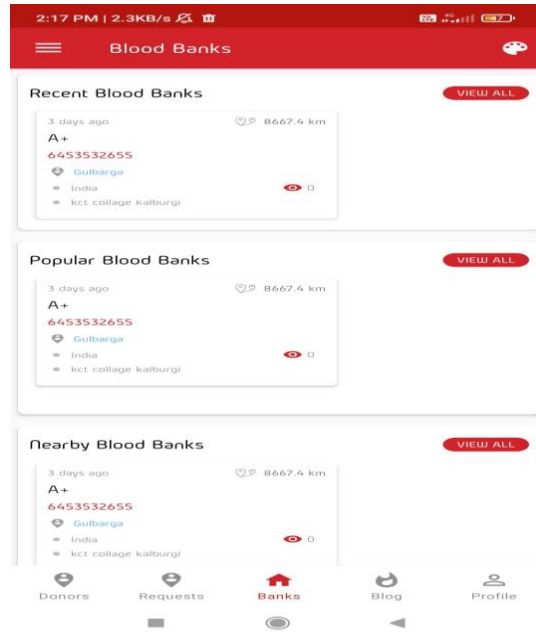


Fig 7: Blood bank page

- We offer both light and dark mode for the application and reminder for the donors so that there should be minimum 3 months gap for next blood donation.

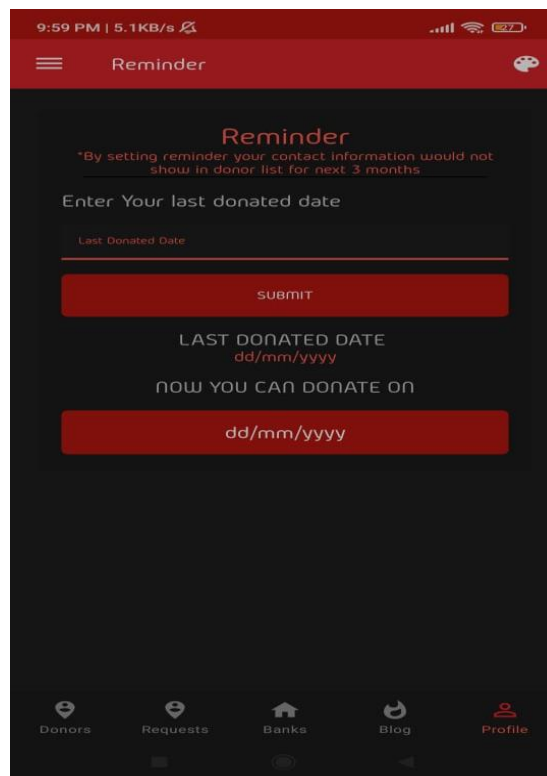


Fig 8: Donor Reminder layout

V. CONCLUSION

Today the world is become a global village where everything is online there are so many web-based solutions provided in the market for the comfort of the people but without blood human being is nonliving, just by providing the web solution of blood bank management information system is not one more step in order to serve the mankind. One thing is clear-donating blood has many benefits to the donor as well as the recipient. So, if you want to pick up a healthy habit head over to your local blood center and give the gift of life. It has been a

great pleasure for me to work on this exciting and challenging project. This project proved good for me as it provided practical knowledge of not only programming in Java and Android web-based application and no some extent Windows Application and Firebase as Server, but also about all handling procedure related with "Blood Bequeath Federal". It also provides knowledge about the latest technology used in developing web enabled application and client server technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

VI. REFERENCES

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