

SRM UNIVERSITY

Department of Computer Science and Engineering

BLOOD BANK MANAGEMENT SYSTEM SYSTEM REQUIREMENT SPECIFICATION (SRS) DOCUMENT

Course: CSE 305 (SoftwareEngineering)

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1. INTRODUCTION

1.1. PURPOSE:

Blood transfusion is an important component of patient management in medicine. Since blood is a biological product, the biggest constraint in procuring blood and its components is finding a donor. The chief purpose of this document mainly focuses on how to build an online system or a platform for blood bank management with a two-fold intention -

1. To ease the process of getting a donor in quick time since requirement of blood in most of the cases is emergency.
2. Locating appropriate nearest blood bank available, choosing the required blood group/component, checking its availability and procuring it in hassle free manner through coordinated online process.

1.2. INTENDED AUDIENCE:

The system is useful for:

- Patients in need of blood (recipient)
- Donors with voluntary intention to donate blood
- Blood bank (links donor and recipient)

1.3. PROJECT SCOPE:

The system aims to provide patients an online facility to opt and procure specific blood component, which is of immense use in current scenario of contactless transactions. There is a shortfall of 2 million blood packets in India. It is the responsibility of the entire community to keep blood banks full all the time. The above problem is likely to become graver in post covid era. Scope of this project is to mainly increase community penetration through an interactive digital platform and make blood availability and procurement easy and safe.

1.4. REFERENCES:

1. <https://krazytech.com/projects/sample-software-requirements-specifications-report-airline-database>
2. https://www.medicinenet.com/blood_bank/definition.html
3. <https://www.guru99.com/non-functional-requirement-type-example.html>
4. <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/blood-banking>

2. OVERALL DESCRIPTION:

2.1 PRODUCT PERSPECTIVE:

The system supports three types of users in the form of Donor, Recipient and Blood Bank all of whom have to register by filling different forms to use the system. The personal and biological details of the Donor and Recipient are taken in their respective registration forms and stored in the system. Personal details form asks name, ID Proof, phone number and address whereas the biological details form is akin to the form filled at hospitals during donation/requisition. The other

data stored in the database of the system includes locations of blood banks, the stock availability in each and requests all of which are made visible to the user.

2.2 PRODUCT FUNCTIONS:

Brief outline and methodology of the entire system -

1. The system opens with 3 options namely – DONOR, PATIENT and BLOOD BANK. Any icon on being clicked leads to a different registration form.
2. Create a account by clicking “Registration”
3. “Login”
4. Once logged in -

On Patient side:

Requirements options prop up with the following options:

i) Blood Group selection:

A+, A-, AB+, AB-, B+, B-, O+, O-

After selection, component(s) need to be selected

ii) Component selection:

- Platelets
- RBC packed cells
- Fresh Frozen plasma

- Whole blood

iii) Quantity selection:

- How many packs needed?
- Numerical number display icon

Once 4 steps are completed, blood banks with available stock are displayed

i) If available proceed to payment after which time of delivery is shown along with the message “wish you a quick recovery, thank you”.

ii) If not available or not in stock the below icons or options will prop up:

- Do you have a group specific donor available with you?

->yes

->no

On Donor Side:

The group selection section remains and blood bank can be chosen.

On Blood Bank Side:

The blood bank gets to update the details of the stock with the same groups and components section

2.3. USER CHARACTERISTICS:

The users of this system can be classified as Donor, Patient and Blood Bank. The blood bank acts as admin as they manage the details pertaining to Donor and

Patient. All the activities available to users have been listed in above section and have been further briefed in section 3.1.

Donor: Can select blood bank where he/she wants to donate. Can browse through the requests and communicate online with Blood Banks or even Patients directly.

Blood Bank: Manages data of Donor and Patient and also the stock thereby acting as link between them. They can immediately know requirements through “view requests” and also contact a myriad of donors immediately in case of emergency all thanks to the donor database they have access to.

Patient: Can request blood sitting at their place.

The characteristic which is unique to our system is the option which asks the patient of the availability of group specific donor with them. Suppose the patient needs A+ RBC packed cells which is not available in stock, if he/she has a friend who is a willing donor and whose group is also A+, the said donor can be advised immediately to come over for donation following which patient's requirements will be processed. Traditionally relative of the patient would travel all the way to Blood Bank with request form and not knowing whether what he needs is available, he will go to other blood bank in the same uncertainty. After wasting multiple precious hours, he or she will start enquiring amongst friends whether they can donate. This entire mental and physical stress is sorted out by our system thus making it a corely patient centric tool.

2.4. CONSTRAINTS

The implementation constraint is to implement the database using a centralized database system as there is a lot of sensitive data which needs to be stored securely.

The system constraint is that the online chat option may be misused and may also be unsafe sometimes.

3. SPECIFIC REQUIREMENTS

3.1. FUNCTIONAL REQUIREMENTS

The functions which are provided successfully to the end user include:

- 1.Registration: Donor, recipient and blood bank get separate forms in which the details are taken accordingly.
2. Login: Once registered, everyone gets an individual login option using an ID and password.
3. Display blood groups: All the available blood groups are displayed along with components.
4. Quantity: The number of packets of selected group are displayed and can be selected.
5. Search blood bank: The nearest blood bank can be chosen.

6. Online request: Request can be made by filling form and all these requests can be viewed
7. Online chat: Enables communication amongst donors recipients and blood bank
8. Payment: Online payment option available
9. Time of delivery: Eliminates sitting in blood bank
10. Update stock: Blood Bank gets this option.
11. View Requests: All the requests of PATIENT can be viewed here all the users

3.2. NON FUNCTIONAL REQUIREMENTS

3.2.1. Performance Requirements:

The database is designed cautiously keeping in mind that improper design may lead to modification anomalies. Good hardware with upto date software may result in the boost of the performance and layout of the system.

3.2.2. Safety Requirements:

The entire data being particularly sensitive and important cannot be lost at any cost to any kind of catastrophes. Thus, multiple backups need to be kept in archival storage and even cloud and they should also be encrypted so that damaged database can be restored.

3.2.3. Security Requirements:

There is involvement of payment. Hence, a secured POS system is used. The access to the database is only given to the blood bank officers of the respective blood bank and all the backups are requested to be encrypted by them. The online chat option does not allow certain words and also warns the user on mention of address or contact number.

3.2.4. Software Quality Attributes:

Correctness: The system shows accurate availability of the stock as it relies on database for it. The admin should cautiously alter these details in case of updation.

Maintainability: The system is very easy to maintain if given constant attention during modifications and transactions.

Usability: The system is highly user centric medical tool and can be used by any number of users as long as the hardware and software on user side are well functioning.

3.3. SYSTEM REQUIREMENTS

Developer side:

Front end Requirements:

HTML, CSS, Bootstrap, Javascript

Backend Requirements:

PHP, MySQL

Software Requirements:

XAMPP Server, Sublime Text 3

Hardware Requirements:

Minimum of 4 GB RAM, Intel Processor i3

User side:

The system runs on all types of web browsers. A sound internet connection is all that is needed for convenient functioning

Hardware and Software Interfaces:

The system has been designed for Windows Operating System.

The browser needs to support HTML, Javascript and CGI.

All the data is stored in databases which are created and updated using MySQL

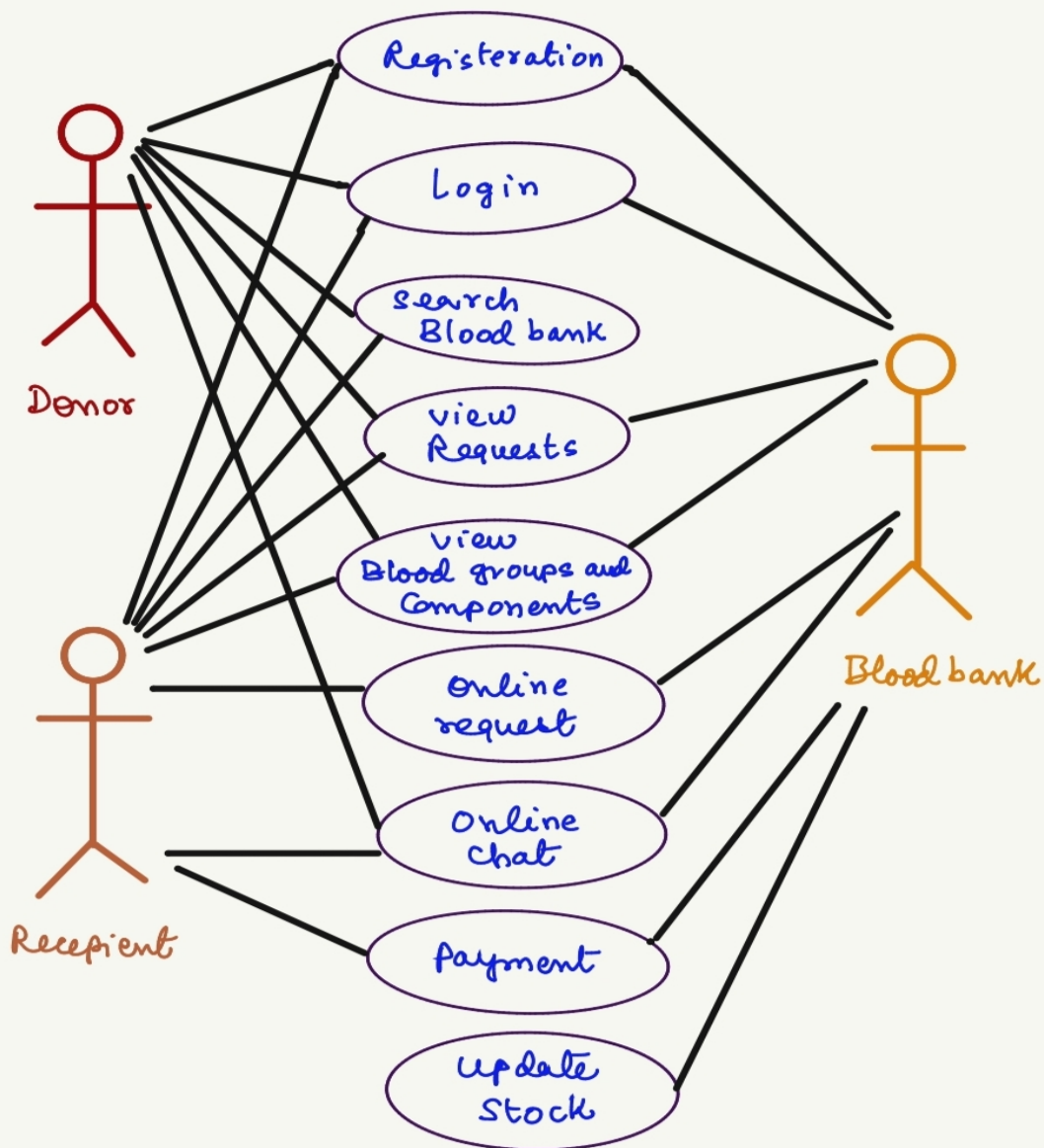
4 . DIAGRAMS:

Use Case Diagram:

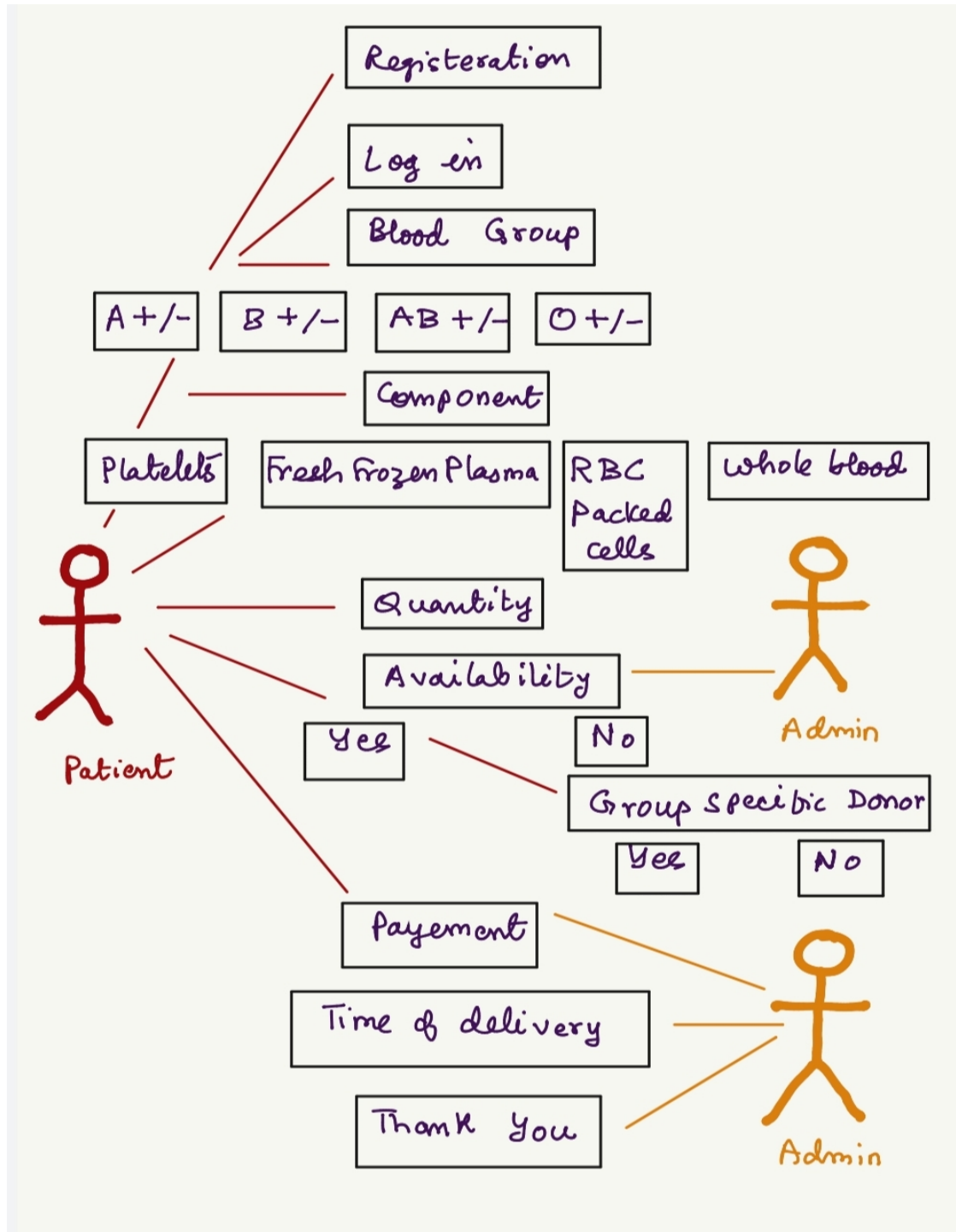
Use case diagram :

- System actors :

Donor , Receptient , Bloodbank



FLOW DIAGRAM:



5. CONCLUSION:

The era already being digital is now also going through the COVID pandemic thereby making most things online. The aim of our system is to draw more donors, create awareness amongst them about blood banks near them, provide them with the satisfaction that they are helping someone as they can see the requests, enable online management of data for blood banks and finally for the patient to find blood immediately. Many features can be further added to the system and can be successfully used by medical institutions.