CHIMANBHAI PATEL INSTITUTE OF COMPUTER APPLICATIONS

Project Report on

Blood Bank Management System

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Submitted To

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Acknowledgement

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We express our deep thanks to **Prof. Nehal Adhvaryu Ma'am** for her unwavering inspiration and invaluable guidance that have been instrumental in our project's success. Her timely feedback and insights were a crucial part of our journey.

We are sincerely grateful for the contributions of all those involved, and we recognize the importance of their support in our achievements.

We acknowledge that this endeavor is not solely the result of our efforts but a collaborative effort involving the invaluable support and guidance of many.

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Project Profile

Project Title:
Blood Bank Management System

Domain:
Blood Bank Operations

Objective:

The objective of a blood bank is to ensure the safe collection, testing, storage, and distribution of blood and its components to meet the medical needs of patients. It aims to provide a reliable supply of screened and processed blood for emergencies, surgeries, and chronic conditions. Blood banks also promote voluntary blood donation and maintain strict quality and safety standards.

Project Overview:

The Blood Bank Management System is a software solution designed to manage blood donations, inventory, and requests efficiently. It helps blood banks and hospitals track available blood units, register donors, handle blood requests, and reduce wastage. The goal is to ensure timely availability of safe blood to those in need.

Existing System

The existing blood bank system is mostly manual or semi-digital, with donor records, inventory, and blood requests often handled through paper-based or outdated software. Communication between hospitals, blood banks, and donors is limited, leading to delays and inefficiencies in emergency situations.

The current system faces several issues:

- **Manual record-keeping** – increases chances of data loss or errors.
- **Lack of real-time inventory tracking** – leads to shortages or overstock.
- **Poor communication channels** – delay blood request and supply.
- **No donor notification system** – reduces repeat donations and engagement.

Proposed System

To overcome the drawbacks of the manual process, we propose **Blood Bank – Project Management System**, a web-based platform that centralizes streamline donor registration, blood inventory tracking, and request handling efficiently.

Key Benefits:

- **Real-time Blood Inventory Tracking:** Automatically updates stock levels of different blood types across multiple locations.
- **Online Donor Registration & Notification:** Enables users to register as donors and receive alerts when their blood type is in demand.
- **Hospital & Recipient Request Portal:** Allows hospitals and patients to place and track blood requests online.
- **Automated Matching & Allocation:** Matches requests with available blood units based on type, location, and urgency.
- **Data Analytics & Reporting:** Generates insights on donation trends, shortages, and expiry alerts for better planning.

Tools & Technology

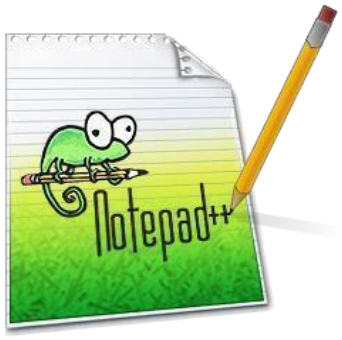
Frontend:

Tools & Technology	Logo
HTML	
CSS	
JavaScript	

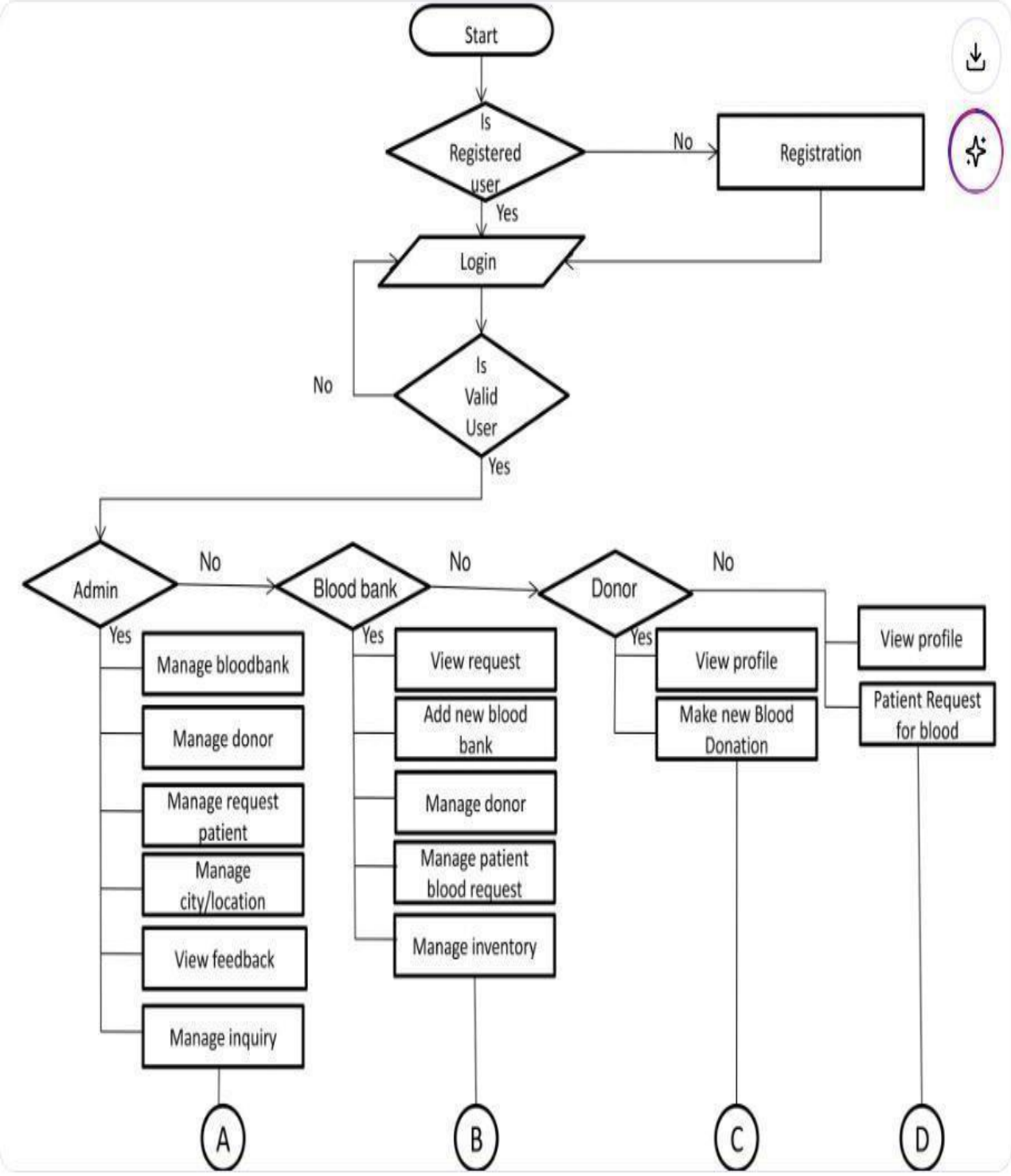
Backend:

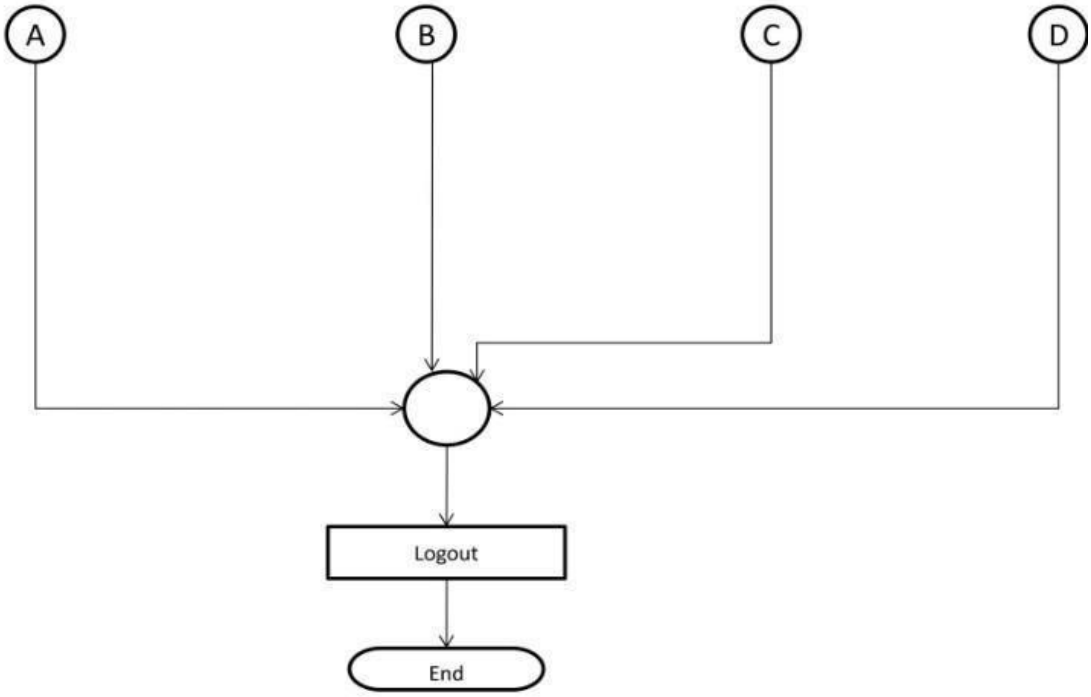
Tools & Technology	Logo
PHP	
MySQL	

Other Tools:

Tools & Technology	Logo
VS Code	
Notepad++	
Google Chrome	

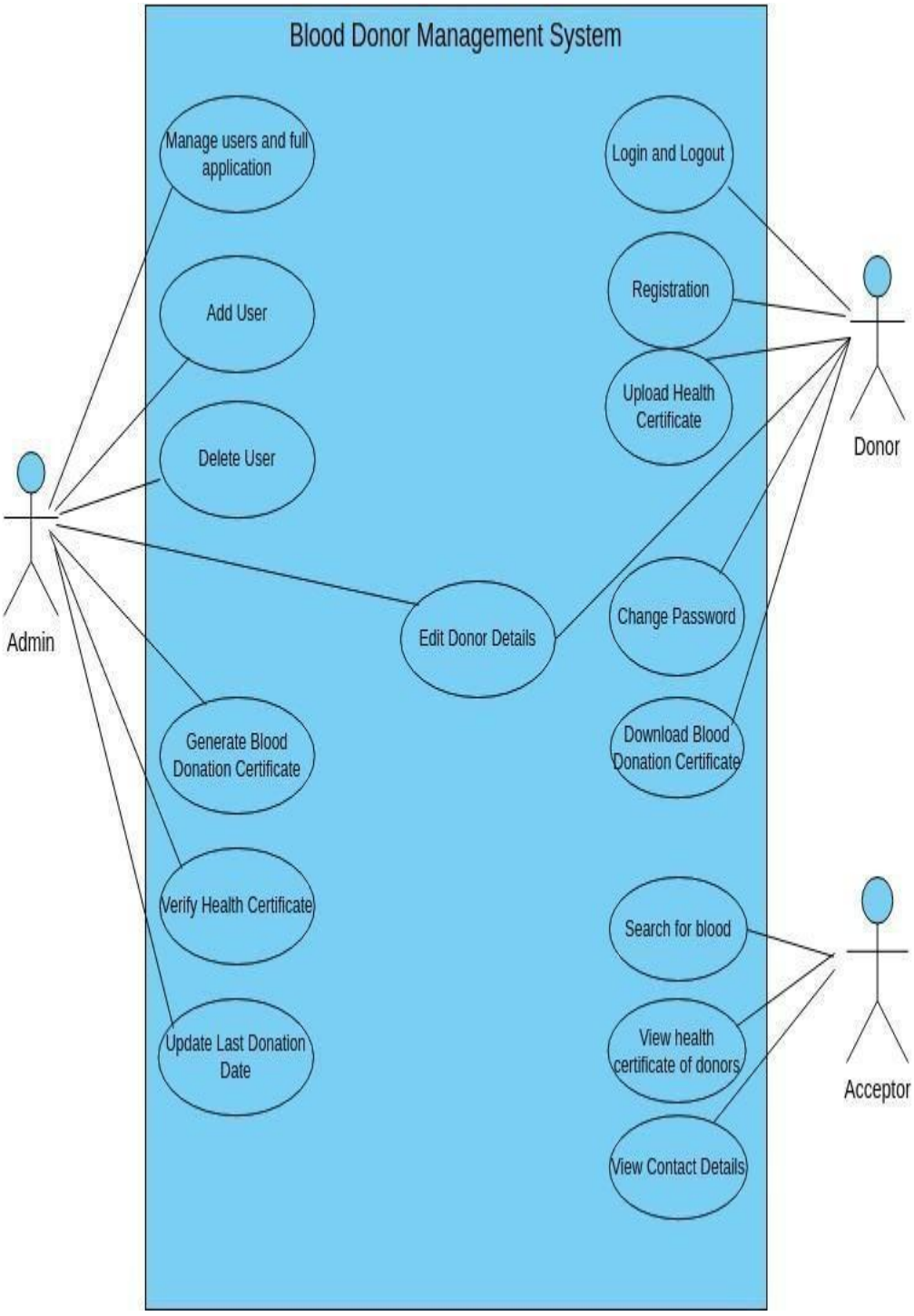
System Flow Diagram



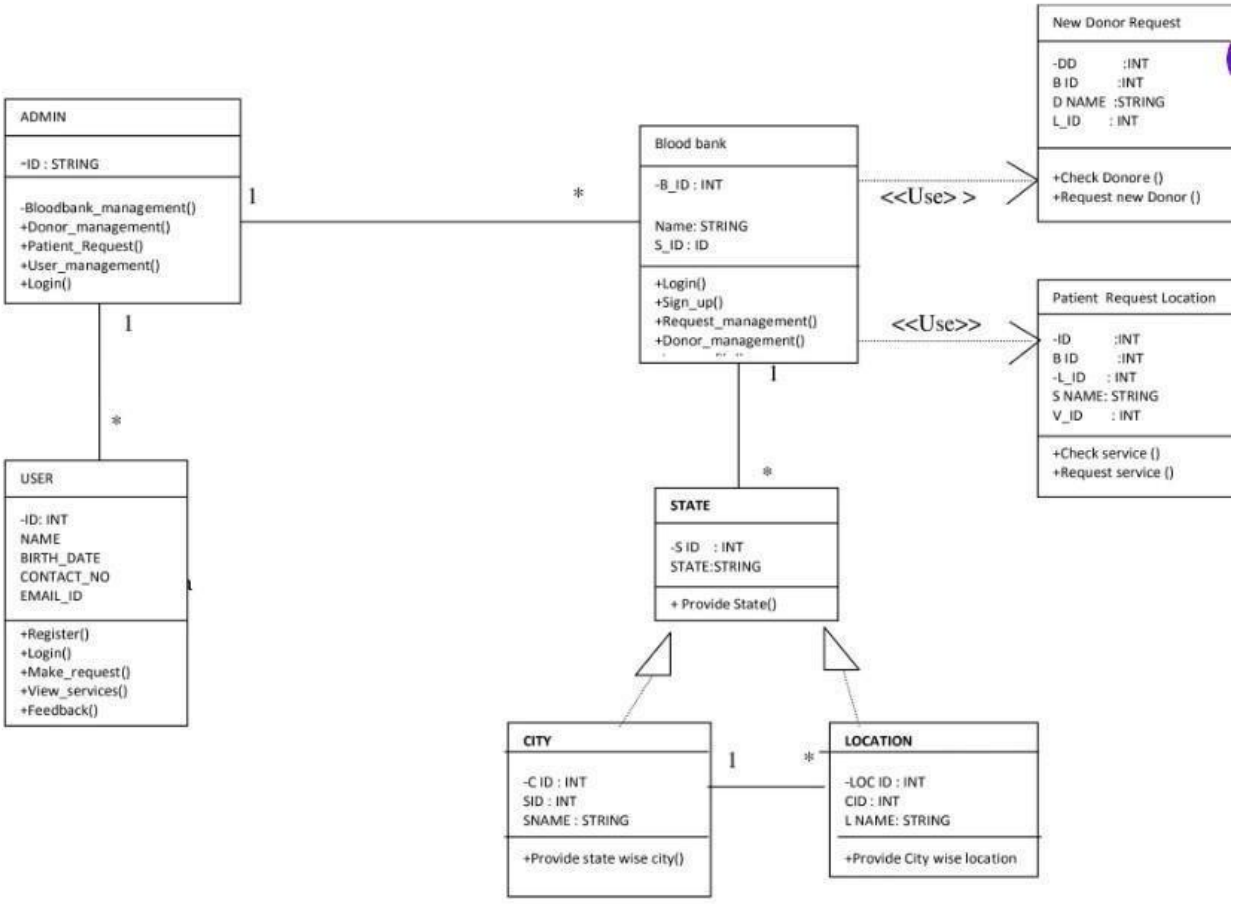

A
B
C
D
Logout
End

UML Diagram

1. Use-Case Diagram

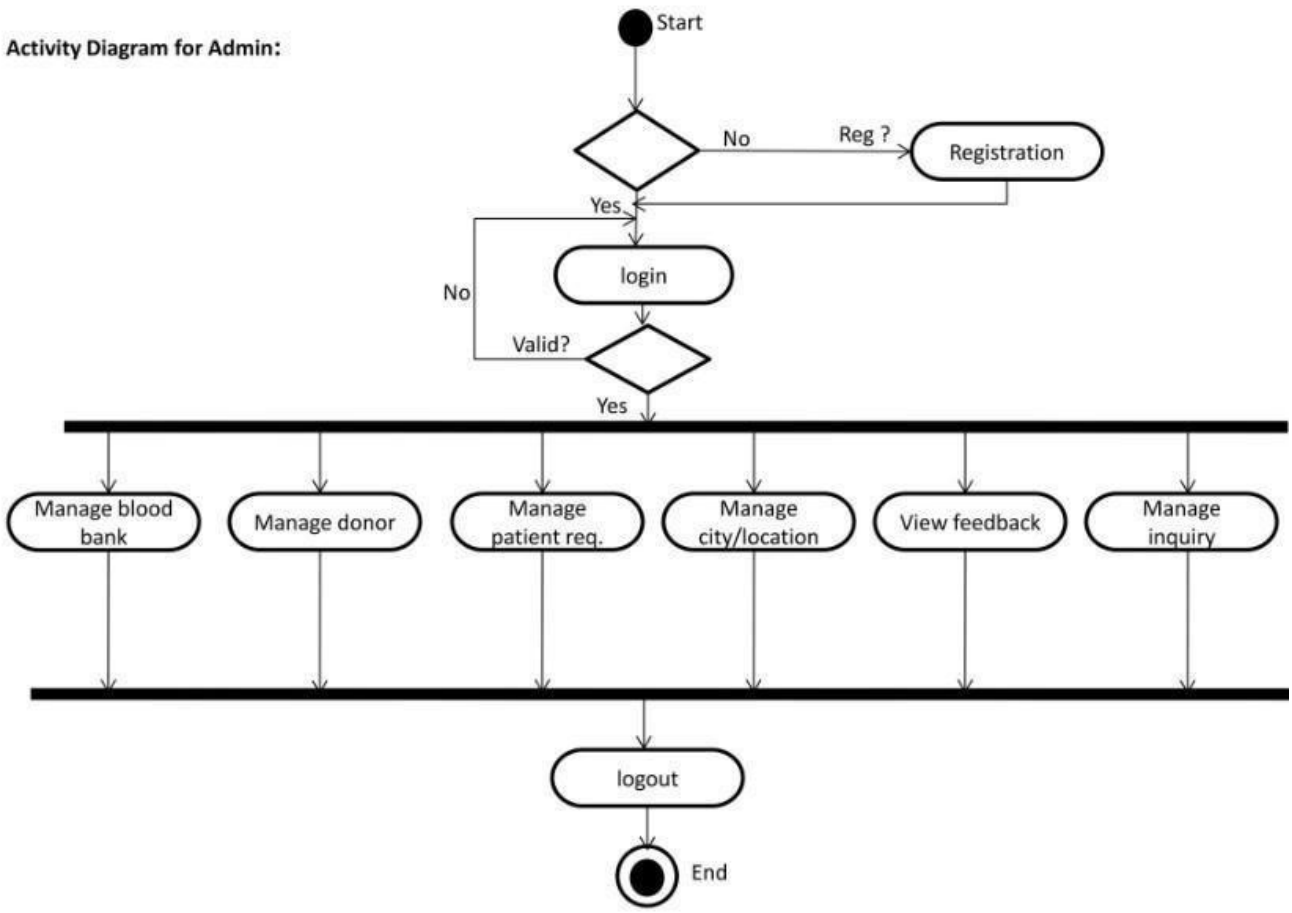


2. Class Diagram



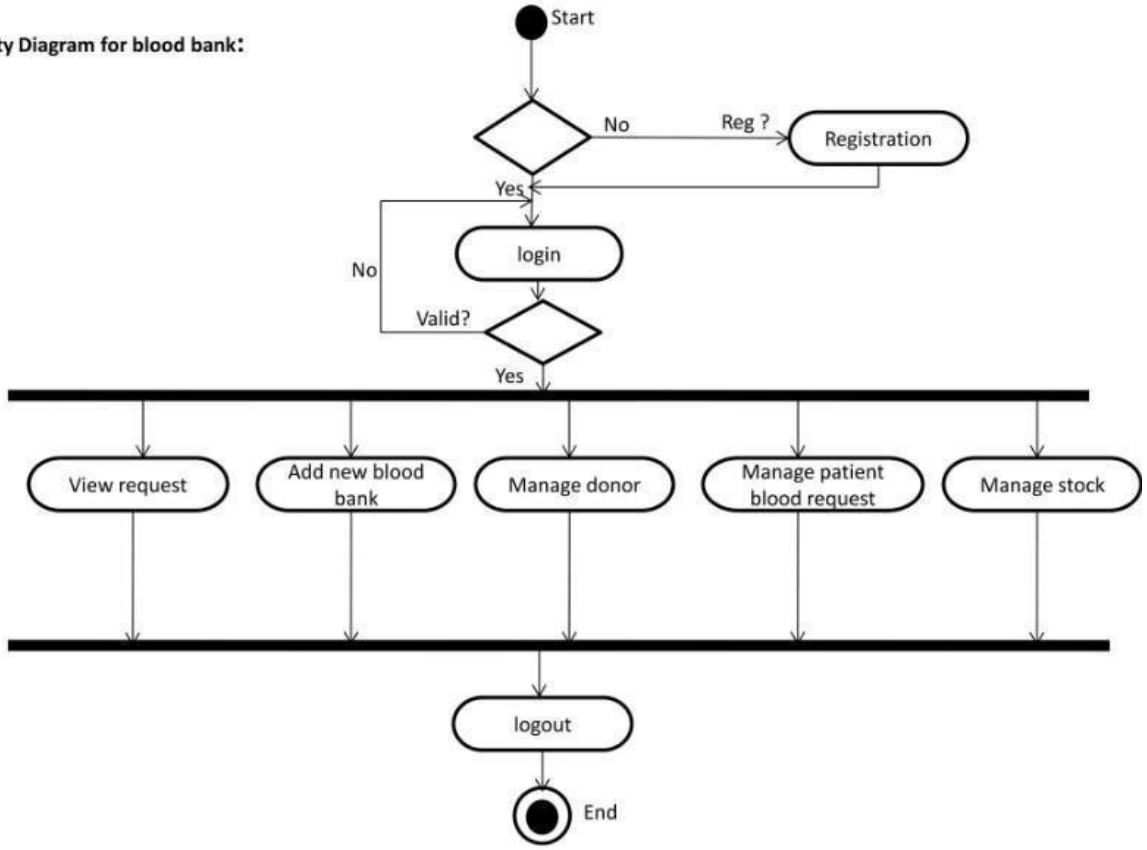
3. Activity Diagram

3.1 Admin



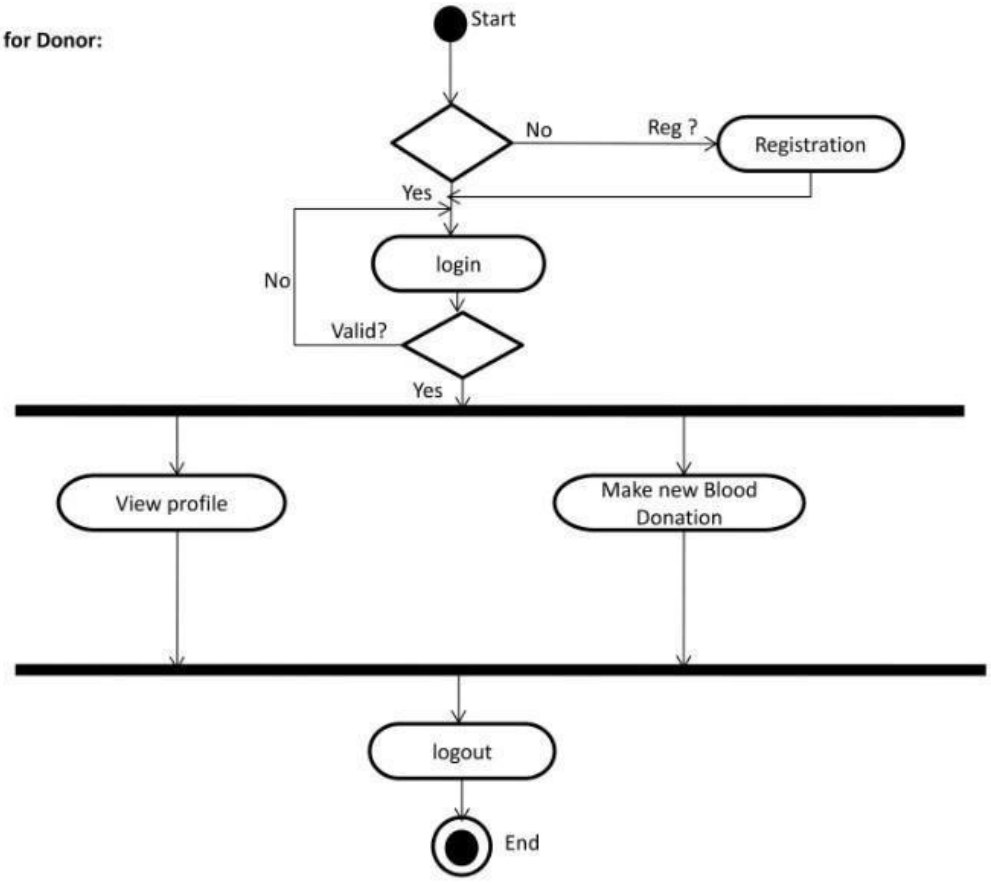
3.2 Blood Bank

Activity Diagram for blood bank:



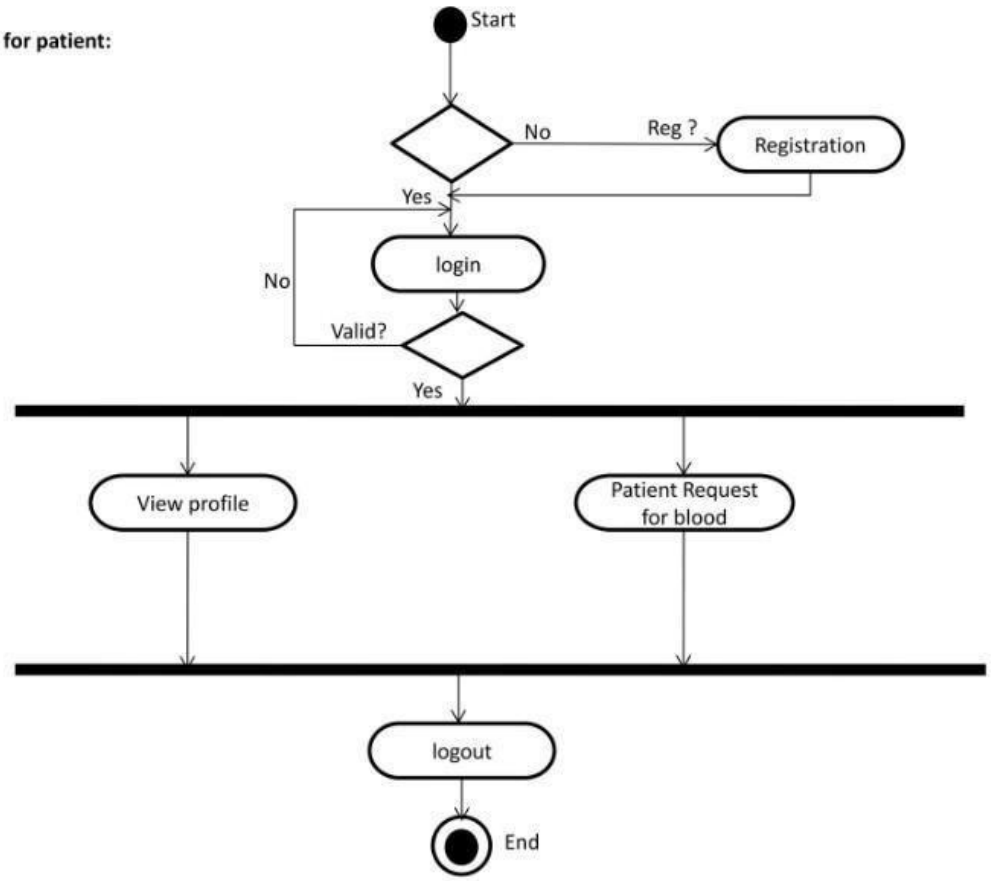
3.3 Donor

Activity Diagram for Donor:



3.4 Patient

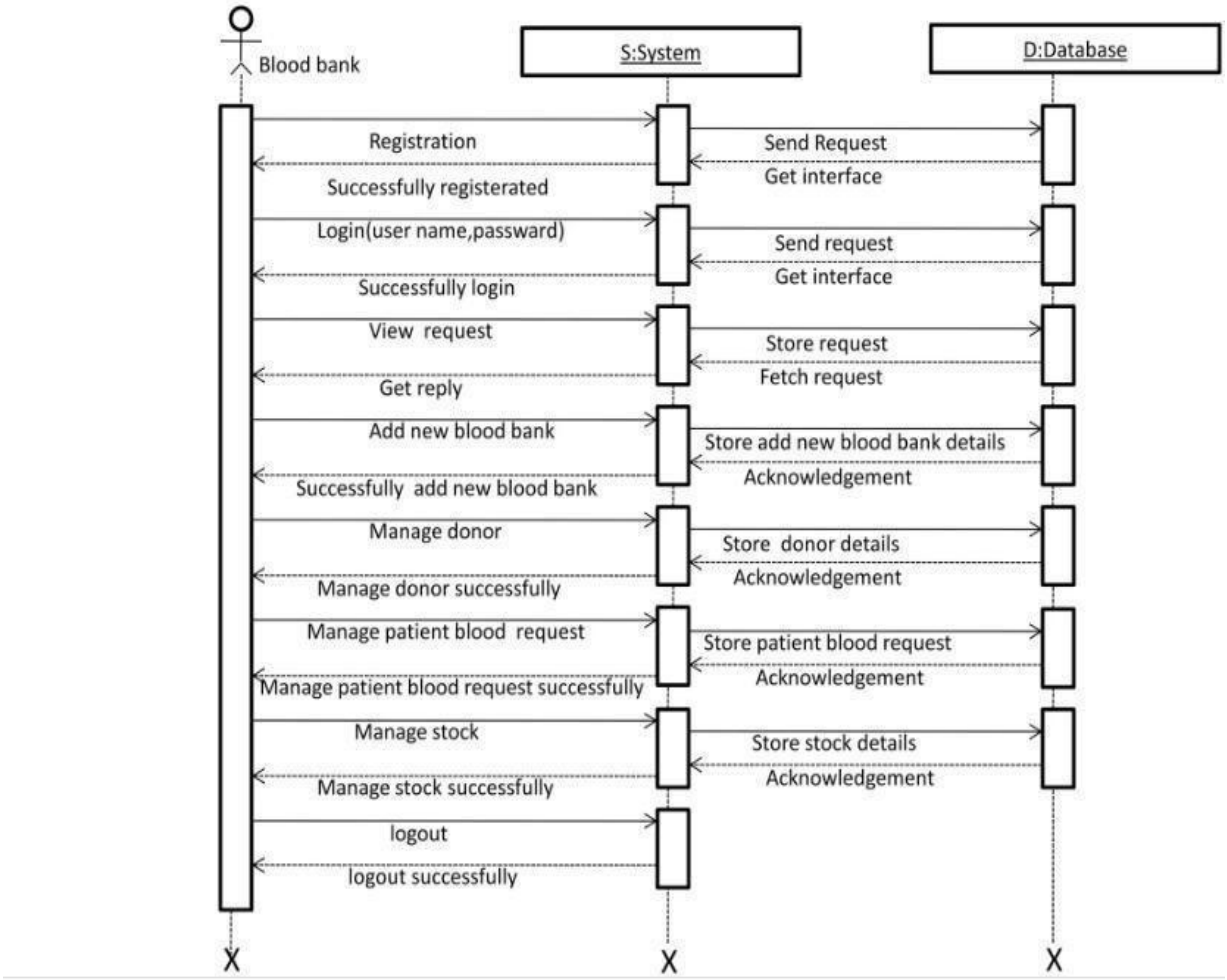
Activity Diagram for patient:



4. Sequence Diagram

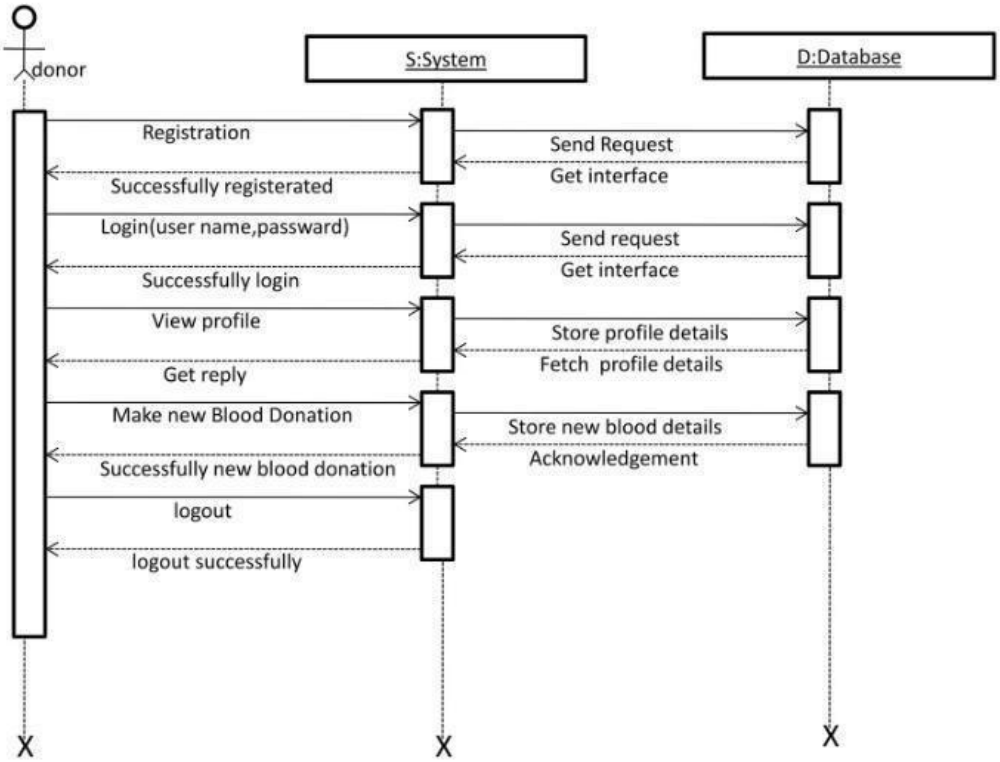
4.1 Blood Bank

Blood bank :



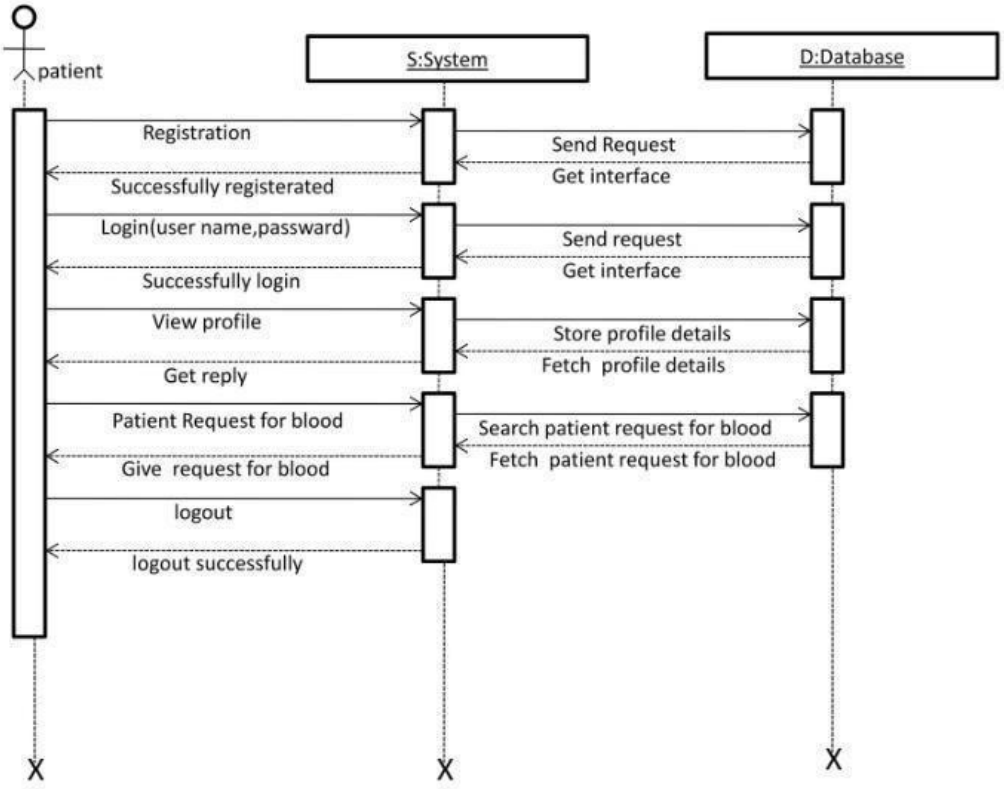
4.2 Donor

Donor :

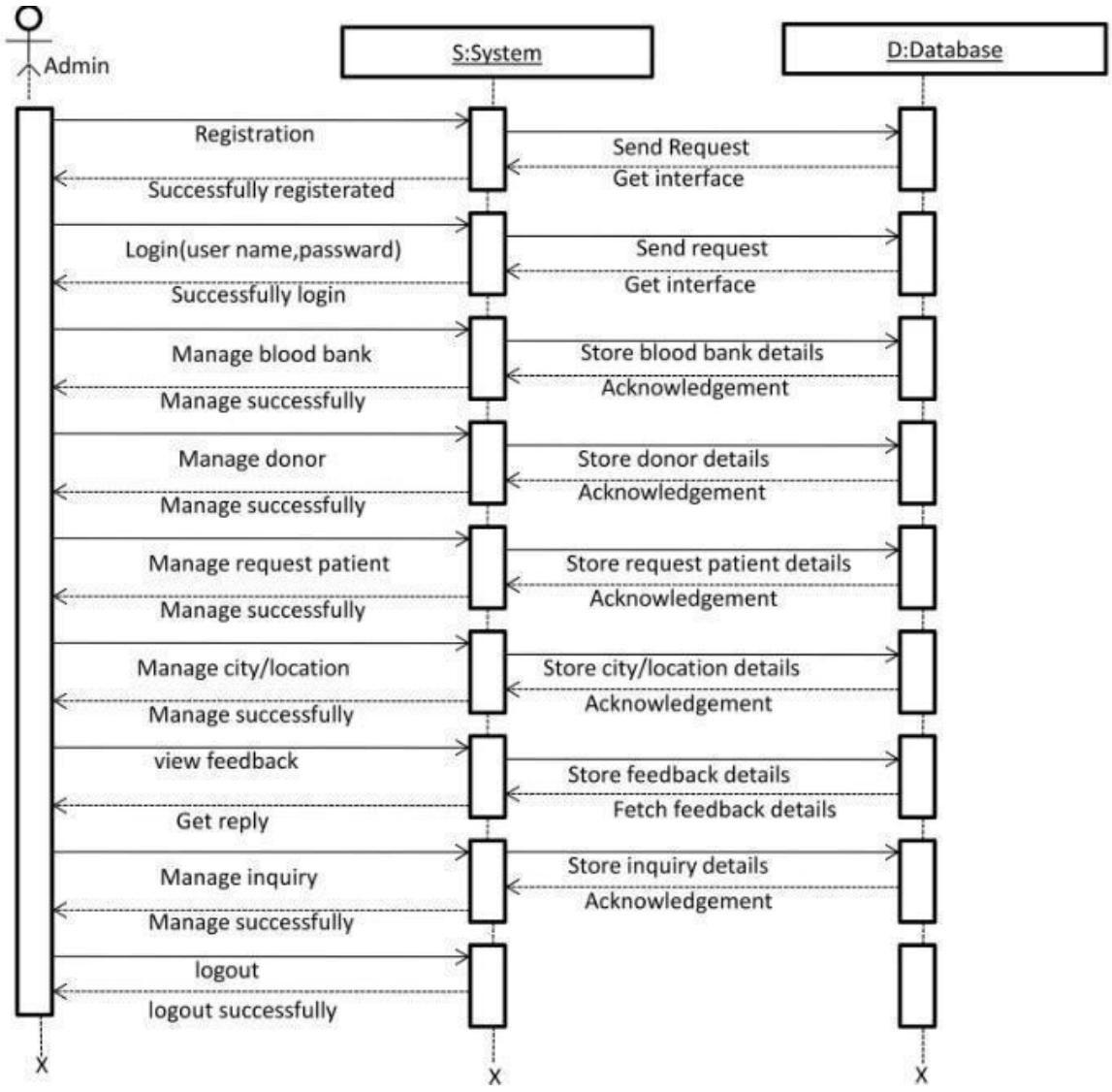


4.3 Patient

Patient :



4.4 Admin


Admin
S:System
D:Database
Registration
Successfully registerated
Send Request
Get interface
Login(user name,passward)
Successfully login
Send request
Get interface
Manage blood bank
Manage successfully
Store blood bank details
Acknowledgement
Manage donor
Manage successfully
Store donor details
Acknowledgement
Manage request patient
Manage successfully
Store request patient details
Acknowledgement
Manage city/location
Manage successfully
Store city/location details
Acknowledgement
view feedback
Get reply
Store feedback details
Fetch feedback details
Manage inquiry
Manage successfully
Store inquiry details
Acknowledgement
logout
logout successfully
X
X
X

Data Dictionary

Table	Description
User Table	The User table stores the basic information of all users in the system.
State Table	This table is stores the state information
City Table	This table is store cities information with state wise.
Location Table	This table is store location information cities wise.
Admin Table	The Admin table manages the admin users responsible for overseeing the system.
Registration Table	This table is store user registration information.
Donation Table	This table is store donor information for blood bank wise.
Feedback Table	The Feedback table stores donor evaluations and comments related to projects.

1. **User Table**

Field Name	Data Type	Constraints/Notes	Description
UserID	Integer	Primary key, Auto increment	Unique identifier for each user
UserName	Varchar(50)	Required	Full name of the user
Email	Varchar(100)	Required, Unique	Email address of the user
Password	Varchar(50)	Required, Encrypted	User password
Role	Enum/String	Required	User role: Patient/Donor/Admin

2. **State Table**

Field Name	Data Type	Constraints/Notes	Description
StateID	Integer	Primary Key, FK to UserID	Unique identifier for each state
StateName	Varchar(20)	Required	State name of the user

3. **City Table**

Field Name	Data Type	Constraints/Notes	Description
CityID	Integer	Primary Key	To store the CityId

StateId	Integer	Foreign Key	Reference of the state id from State Table
CityName	Varchar(50)	Required	Reference of the city name from City Table

4. **Location Table**

Field Name	Data Type	Constraints/Notes	Description
LocationId	Integer	Primary Key	To store the LocationId
CityId	Integer	Foreign Key	Reference for the CityId from the City Table
LocationName	Varchar(50)	Required	To store the location name

5. **Admin Table**

Field Name	Data Type	Constraints/Notes	Description
AdminID	Integer	Primary key , FK to UserID	Unique identifier for admin
Department	Varchar(50)	Optional	Department managed (optional)

6. **Registration Table**

Field Name	Data Type	Constraints/Notes	Description
RegistrationId	Integer	Primary key, Auto increment	Unique identifier for each registration id

UserId	Integer	Foreign Key	References of the UserId from User Table
Name	Varchar(50)	Required	To store the name
Address	Varchar(50)	Required	To store the address
State	Varchar(50)	Required	To store the state
City	Varchar(15)	Required	To store the city
Location	Varchar(15)	Required	To store the Location
Pin Code	Varchar(10)	Required	To store the Pin Code
Email	Varchar(30)	Required	To store the Email
BirthDate	datetime	Required	To store the birthdate
Gender	Varchar(6)	Required	To store the gender
UserName	Varchar(20)	Unique Key	To store the user name
Password	Varchar(20)	Required	To store the password
SecurityQuestion	Varchar(30)	Required	To store the security question
Answer	Varchar(15)	Required	To store the answer

7. Donation Table

Field Name	Data Type	Constraints/Notes	Description
DonationId	Integer	Primary key, Auto increment	Unique identifier for each Donor
Name	Varchar(10)	Required	To store the name
Blood Group	Varchar(10)	Required	To store the blood group
Qty	Varchar(20)	Required	To store the qty
Donor Date	Datetime	Required	To store donated date

8. Feedback Table

Field Name	Data Type	Constraints/Notes	Description
FeedbackID	Integer	Primary key, Auto increment	Unique identifier for feedback
Name	Varchar(50)	Required	To store the name
Email	Varchar(50)	Required	To store the email
FeedbackDetails	Text	Required	Comments, suggestions, corrections
FeedbackDate	DateTime	Required	Date and time of feedback

Conclusion

Blood banks play a vital role in modern healthcare systems by ensuring the availability of safe and timely blood for patients in need. Whether for trauma victims, surgical patients, or individuals with chronic conditions like anemia or cancer, blood is often a critical life-saving resource. Without the organized efforts of blood banks, countless lives could be at risk due to the lack of suitable blood. Their role in maintaining a continuous supply of blood cannot be overstated. Through efficient systems and protocols, they help bridge the gap between donors and recipients.

One of the core strengths of a blood bank lies in its rigorous screening and testing processes. Every unit of donated blood is tested to prevent the transmission of infectious diseases, ensuring the safety of recipients. Additionally, blood is often separated into components like red cells, plasma, and platelets, making it possible to treat multiple patients from a single donation. This efficient use of resources highlights the scientific and technical advancements involved. The process ensures both safety and maximum utility of each donation.

Equally important is the promotion of voluntary, regular blood donation, which remains the most reliable and ethical source of blood supply. Public awareness campaigns and donor engagement initiatives are essential to build a culture of safe and consistent donation. Blood banks also work to dispel myths, educate the public, and encourage younger generations to become regular donors. The sustainability of blood supply depends heavily on such efforts. Community participation is key to keeping blood reserves stable and sufficient.

In summary, blood banks are indispensable institutions that save lives daily through meticulous processes and community involvement. They uphold strict quality control, ethical standards, and efficient logistics to ensure that blood is available whenever and wherever it is needed. As science and technology continue to evolve, blood banks are also adapting to newer, safer methods of collection and storage. Continued support from the public, healthcare professionals, and policymakers will help strengthen these systems further. Ultimately, blood banks serve as a vital lifeline within our healthcare infrastructure.

Bibliography

To Draw Diagrams:

 Draw.io

- https://www.tigernix.com/blog/perkscentralisedinformation-school?utm_source=chatgpt.com
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